ORIGINAL REPORT

Stage 1-2 Archaeological Assessment

Proposed West Extension of the Burlington Quarry, Part of Lots 1 and 2, Concession 2, Geographic Township of Nelson, Halton County, City of Burlington, Regional Municipality of Halton, Ontario.

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1 e-copy: Nelson Aggregates Co.

1 e-copy: Ministry of Heritage, Sport, Tourism and Culture Industries

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Executive Summary

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

Golder Associates Ltd. (Golder) was retained by the Nelson Aggregates Co. to conduct a Stage 1-2 archaeological assessment for the proposed West Extension of the Burlington Quarry located at 5235 Cedar Springs Road, in the City of Burlington, Regional Municipality of Halton, Ontario. The project area is confined to the limits of the proposed licensed boundary, which measures 60.0 ha and is located on part of Lots 1 and 2, Concession 2, in the Geographic Township of Nelson, County of Halton.

Following the criteria outlined by the Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI 2011) regarding the determination of archaeological potential, the project area was identified as having archaeological potential for pre- and post-Contact Indigenous resources as well as Euro-Canadian archaeological resources. Determining factors included proximity to water sources, soil texture, and proximity of historic settlement and transportation features. Based on the background research and archaeological context, the project area was determined to have archaeological potential.

The project area was evaluated for extensive disturbance that would have removed archaeological potential, and physical features of no or low archaeological potential. Identified disturbances and physical features of no or low archaeological potential included: previous grading for the construction of the golf course, the existing golf course club house footprint, other building footprints, a paved parking lot and pathways, golf sand traps, berms and permanently wet areas associated with the design and development of the golf course (i.e., golf water hazards). The systematic Stage 2 archaeological survey of these areas of disturbance and physical features of no or low archaeological potential noted above was not undertaken.

The remainder of the project area was subjected to a test pit survey at 5 m and 10 m intervals. During the Stage 2 archaeological survey a single Euro-Canadian historical archaeological site dating from circa 1850s to the early 20th century was identified and registered as Inglehart-Harbottle (AiGx-462). No additional archaeological resources were identified.

Based on the findings presented in the preceding sections of this report, the following recommendations are provided:

1) Inglehart-Harbottle (AiGx-462): Per the Rural Historical Farmsteads bulletin, given less than 80% of the site's occupation dates to before 1870, the site has no further cultural heritage value or interest; Stage 3 archaeological assessment is not recommended.

2) The project area be considered free from any further archaeological concerns.

The MHSTCI is requested to review and provide a letter indicating their satisfaction with the results and recommendations presented herein, with regard to the 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences, and to enter this report into the Ontario Public Register of Archaeological Reports.

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Study Limitations

Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied, is made. This report has not been filed with the Ministry of Heritage, Sport, Tourism and Culture Industries and recommendations should be considered draft until all fieldwork has been completed and a final report submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries.

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

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent.

If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

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

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

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Table of Contents

1.0 PROJECT CONTEXT 1

1.1 Development Context 1

1.2 Objectives 1

1.3 Historical Context 1

1.3.1 Pre-Contact Indigenous Settlement 3

1.3.2 Contact Period Indigenous Settlement 8

1.3.3 Post-Contact Indigenous Settlement 8

1.3.4 Euro-Canadian Settlement 9

1.4 Archaeological Context 13

1.4.1 Geographic Context 13

1.4.2 Existing Conditions 13

1.4.3 Registered Archaeological Sites 14

1.4.4 Previous Archaeological Assessments 14

1.4.5 Dates of Fieldwork 14

2.0 FIELD METHODS 16

2.1 Disturbances & Physical Features 16

2.2 Test Pit Survey 16

3.0 RECORD OF FINDS 18

3.1 Documentary Record 18

3.2 Inglehart-Harbottle (AiGx-462) 18

3.2.1 Foodways Class 20

3.2.2 Structural Class 23

3.2.3 Metal Class 23

3.2.4 Personal Class 23

3.2.5 Miscellaneous Artifacts and 20th Century Materials Class 23

3.2.6 Faunal Class 23

4.0 ANALYSIS AND CONCLUSIONS 24

4.1 Potential for Indigenous Archaeological Resources 25
4.2 Potential for Historic Euro-Canadian Resources 25
4.3 Archaeological Integrity 26
4.4 Stage 2 Archaeological Survey 26
4.4.1 Inglehart-Harbottle (AiGx-462) 26
4.5 Conclusions 27
5.0 RECOMMENDATIONS 28
6.0 ADVICE ON COMPLIANCE WITH LEGISLATION 29
7.0 MAPS 30
8.0 IMAGES 37
9.0 BIBLIOGRAPHY 59

TABLES

Table 1: Overview of Pre-Contact Cultural Chronology of Southern Ontario 1
Table 2: Land Registry Abstract for Lot 1, Concession 2, in relation to Inglehart-Harbottle (AiGx-462). 11
Table 3: Registered Archaeological Site within 1 km of Project Area 14
Table 4: Dates of Fieldwork and Weather Conditions. 14
Table 5: Inventory of Documentary and Material Record 18
Table 6: Detailed Site Location Information 18
Table 7: Stage 2 Artifact Summary for Inglehart-Harbottle (AiGx-462) 19
Table 8: Stage 2 Recovered Ceramic Artifacts by Ware Type 20
Table 9: Stage 2 Recovered Ceramic by Decoration Type 20

MAPS

Map 1 Location Map 31
Map 2 1858 an 1877 Overlay of the Project Area 32
Map 3 National Topographic Series Mapping 1909, 1915, 1923, and 1931 33
Map 4 1954 Aerial Image Overlay of the Project Area 34
Map 5 Stage 1-2 Archaeological Assessment Results 35
Map 6 Stage 1-2 Archaeological Assessment Results with Photograph Locations 36

IMAGES

Image 1 Looking northeast at disturbances associated with the existing Burlington Springs Golf Club clubhouse. 37

Image 2 Looking northwest at disturbances associated with the paved parking lot and pathways. 37

Image 3 Looking east at disturbances associated with clubhouse footprint and paved pathway. 38

Image 4 Looking southeast at disturbances associated with berm construction and paved pathway. 38

Image 5 Looking southwest at disturbances associated with USGA putting greens, paved access road and pathway. 39

Image 6 Looking west at disturbances associated golf sand traps. 39

Image 7 Looking northwest at 19th century residence located in the southern portion of gold course. 40

Image 8 Looking northwest at east side of historic home in southern portion of golf course. 40

Image 9 Looking northeast at western side of historic home located in southern portion of golf course. 41

Image 10 Looking southwest at disturbances associated with paved pathways, permanently wet area, and test pit survey at 5m intervals. 41

Image 11 Looking southeast at permanently wet area. 42

Image 12 Looking northeast at permanently wet area. 42

Image 13 Looking northeast at test pit survey at 5 m intervals. 43

Image 14 Looking northeast at test pit survey at 5 m intervals. 43

Image 15 Looking southeast at test pit survey at 5 m intervals. 44

Image 16 Looking southeast at test pit survey at 5 m intervals. 44

Image 17 Looking northwest at test pit survey at 5 m intervals. 45

Image 18 Looking west at test pit survey at 5 m intervals. 45

Image 28 Looking north at test pit survey of fairway area at 10 m intervals. 50

Image 29 Looking northwest at test pit survey of fairway area at 10 m intervals. 51

Image 33 Typical test pit stratigraphy for grassed areas tested on a 5 m interval. 53

Image 34 Typical test pit stratigraphy within the woodlots. 53

Image 35 Typical test pit stratigraphy of the fairway areas. 54

Image 36 Typical test pit stratigraphy of the fairway areas. 54

Image 37 Looking southeast at 1 m by 1 m test unit and cardinal test pits north of historic home located in the southern portion of golf course. 55

Image 38 Looking north at completed test unit north of historic home located in the southern portion of golf course. 55

Image 39 Sample of ceramic artifacts recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): ironstone x3; (Bottom L-R): ironstone partial makers marks. 56

Image 40 Sample of ceramic artifacts recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): moulded POR, transfer printed POR exhibiting gold gilding; (Bottom L-R): gilt POR x2, decalcomania POR x2. 56

Image 41 Sample of glass bottles recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): aqua glass bottle base, aqua glass brandy bottle finish, clear glass bottle base; (Bottom L-R): Aqua glass square bottle base, blue glass bottle. 57

Image 42Sample of hardware artifacts recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): metal buckle, miscellaneous metal hardware, metal hinge; (Middle L-R): aluminum rivet, large bolt, wire drawn nails x4, machine cut nail x4, roofing nail; (Bottom L-R): screw x3. 57

Image 43 Historic glass jar lid, recovered from Inglehart-Harbottle (AiGx-462). 58

Image 44 Personal artifacts recovered from Inglehart-Harbottle (AiGx-462) (L-R): large metal grommet, small metal grommet x2, undecorated white clay pipe bowl, undecorated white clay pipe stem. 58

APPENDICES

APPENDIX A
Artifact Catalogue – Inglehart-Harbottle (AiGx-462)

APPENDIX B
Curriculum Vitae

1.0 PROJECT CONTEXT

1.1 Development Context

Golder Associates Ltd. (Golder) was retained by the Nelson Aggregates Co. to conduct a Stage 1-2 archaeological assessment for the proposed West Extension of the Burlington Quarry located at 5235 Cedar Springs Road, in the City of Burlington, Regional Municipality of Halton, Ontario (Map 1). The project area is confined to the limits of the proposed licensed boundary, which measures 60.0 ha and is located on part of Lots 1 and 2, Concession 2, in the Geographic Township of Nelson, County of Halton. This study was triggered by the *Aggregates Resources Act*, *Planning Act* and *Niagara Escarpment Planning and Development Act*.

This Stage 1-2 archaeological assessment was conducted under the professional licence of P390 issued to Nimal Ragavan Nithiyanantham. Permission to access the project area to conduct all required archaeological fieldwork activities, including the recovery of artifacts was granted by Nelson Aggregates Co.

1.2 Objectives

The objectives of a Stage 1-2 archaeological assessment, as outlined by the 2011 *Standards and Guidelines for Consultant Archaeologists* published by the *Ministry of Heritage, Sport, Tourism and Culture Industries* (MHSTCI) (2011), are as follows:

- To provide information about the property's history, geography, previous archaeological fieldwork and current land conditions;
- To evaluate in detail the property's archaeological potential and appropriately plan Stage 2 fieldwork for all or parts of the property;
- To identify whether the property contains archaeological resources of significant cultural heritage value or interest; and,
- To recommend appropriate Stage 3 assessment strategies for any identified archaeological resources, such as archaeological sites, requiring further assessment.

All archaeological work was conducted in accordance with the *Ontario Heritage Act* and 2011 *Standards and Guidelines for Consultant Archaeologists* (MHSTCI).

1.3 Historical Context

The general culture history of southern Ontario, based on Ellis and Ferris (1990), spanning the entire pre-contact period and continuing into the post-contact period is summarised in Table 1.

Table 1: Overview of Pre-Contact Cultural Chronology of Southern Ontario

Period		Time Range (circa)	Characteristics
Paleo	Early	10,950 – 10,350 BP	Gainey, Barnes and Crowfield traditions; Small bands; Mobile hunters and gatherers; Utilization of seasonal resources and large territories; Fluted projectiles
	Late	10,350 – 9,950 BP	Holcombe, Hi-Lo and Lanceolate biface traditions; Continuing mobility; Campsite/Way-Station sites; Smaller territories are utilized; Non-fluted projectiles

Period		Time Range (circa)	Characteristics
Archaic	Early	9,950 – 7,950 BP	Side-notched, Corner-notched (Nettling, Thebes) and Bifurcate Base traditions; Growing diversity of stone tool types; Heavy woodworking tools appear (e.g., ground stone axes and chisels)
	Middle	7,950 – 4,450 BP	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
	Late	4,450 – 2,900 BP	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)
Woodland	Early	2,900 – 2,350 BP	Meadowood tradition; Crude cord-roughened ceramics emerge; Meadowood cache blades and side-notched points; Bands of up to 35 people
	Middle	2,350 – 1,400 BP	Saugeen tradition; Stamped ceramics appear; Saugeen projectile points; Cobble spall scrapers; Seasonal settlements and resource utilization; Post holes, hearths, middens, cemeteries and rectangular structures identified
	Transitional	1,400 – 1,050 BP	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 (Early Iroquoian)	1,050 – 650 BP	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 (Middle Iroquoian)	650 – 550 BP	Uren and Middleport traditions; Classic longhouses emerge; Larger villages (1.2 ha) with up to 600 people; More permanent settlements (30 years)
	Late (Late Iroquoian)	550 – 350 BP	Pre-Contact Neutral tradition; Larger villages (1.7 ha); Examples up to 5 ha with 2,500 people; Extensive croplands; Also, hamlets, cabins, camps and cemeteries; Potential tribal units; Fur trade begins ca. 1580; European trade goods appear

1.3.1 Pre-Contact Indigenous Settlement

The following subsections outline the pre-contact indigenous cultural or temporal periods recognized for southern Ontario.

1.3.1.1 Paleo Period

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

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

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

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

The Late Paleo Period (10,350 – 9,950 BP) has been less well researched and is consequently more poorly understood. By this time, the environment of south-central Ontario was coming to be dominated by closed coniferous forests with some minor deciduous elements. It seems that many of the large game species that had been hunted in the early part of the Paleo Period had either moved further north or as in the case of the mastodons and mammoths, become extinct.

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

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

1.3.1.2 Archaic Period

During the Early Archaic Period (9,950 – 7,950 BP), the jack and red pine forests that characterized the Late Paleo environment were replaced by forests dominated by white pine with some associated deciduous trees (Ellis, Kenyon and Spence 1990:68-69). One of the more notable changes in the Early Archaic Period is the appearance of side and corner-notched projectile points. Other significant innovations include the introduction of

ground stone tools such as celts and axes, suggesting the beginnings of a simple woodworking industry. The presence of these often large and not easily portable tools suggests there may have been some reduction in the degree of seasonal movement, although it is still suspected that population densities were quite low, and band territories large.

During the Middle Archaic Period (7,950 – 4,450 BP) the trend to more diverse toolkits continued, as the presence of netsinkers suggests that fishing was becoming an important aspect of the subsistence economy. It was also at this time that "bannerstones" were first manufactured.

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

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

It is also during the latter part of the Middle Archaic Period that long-distance trade routes began to develop, spanning the northeastern part of the continent. In particular, native copper tools manufactured from a source located northwest of Lake Superior were being widely traded (Ellis, Kenyon and Spence 1990:66). By 5520 BP the local environment had stabilized in a near modern form (Ellis, Kenyon and Spence 1990:69).

During the Late Archaic (4,450 – 2,900 BP) the trend towards decreased territory size and a broadening subsistence base continued. Late Archaic sites are far more numerous than either Early or Middle Archaic sites, and it seems that the local population had expanded. It is during the Late Archaic that the first true cemeteries appear. Before this time individuals were interred close to the location where they died. During the Late Archaic, if an individual died while his or her group happened to be at some distance from their group cemetery, the bones would be kept until they could be placed in the cemetery. Consequently, it is not unusual to find disarticulated skeletons, or even skeletons lacking minor elements such as fingers, toes, or ribs, in Late Archaic burial pits.

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

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

gorgets also appear on Late Archaic sites. One of the more unusual and interesting of the Late Archaic artifacts is the birdstone. Birdstones are small, bird-like effigies usually manufactured from green banded slate.

1.3.1.3 Woodland Period

The Early Woodland Period (2,900 – 2,350 BP) is distinguished from the Late Archaic Period primarily by the addition of ceramic technology. While the introduction of pottery provides a useful demarcation point for archaeologists, it may have made less difference in the lives of the Early Woodland peoples. The first pots were very crudely constructed, thickly walled, and friable. It has been suggested that they were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil. These vessels were not easily portable, and individual pots must not have enjoyed a long use life. There have also been numerous Early Woodland sites located at which no pottery was found, suggesting that these poorly constructed, undecorated vessels had yet to assume a central position in the day-to-day lives of Early Woodland peoples.

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

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

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

In terms of settlement and subsistence patterns, the Middle Woodland (2,350 – 1,400 BP) provides a major point of departure from the Archaic and Early Woodland Periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish was becoming an even more important part of the diet.

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

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

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

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

During the early Transitional Woodland Period, particularly within the Princess Point Complex (circa 1,400 – 1,050 BP), several archaeological material changes have been noted: the appearance of triangular projectile point styles, first seen during this period begins with the Levanna form; cord-wrapped stick decorated ceramics using the paddle and anvil forming technique replaces the mainly coil-manufactured and dentate stamped and pseudo-scallop shell impressed ceramics; and if not appearance, increasing use of maize (Zea mays) as a food source (e.g., Bursey 1995; Crawford et al. 1997; Ferris and Spence 1995:103; Martin 2004 [2007]; Ritchie 1971:31-32; Spence et al. 1990; Williamson 1990:299).

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

One such site, located on the Grand River near Cayuga, Ontario is the Grand Banks site (AfGx-3). As of 1997, 40 maize kernels and 29 cupules had been recovered at this site (Crawford et al. 1997). The earliest AMS radiocarbon assay run on maize from paleosol II produced a date of approximately 1520 BP (Crawford et al. 1997:116). This site is interpreted as a long-term basecamp that may have been used year-round or nearly year-round (Crawford and Smith 1996:785). This growing sedentism is seen as a departure from Middle Woodland hunting and gathering and may reflect growing investment in the care of garden plots of maize (Smith 1997:15). The riverine location of Grand Banks (AfGx-3) may have also provided light, nutrient-rich soil for agriculture (Crawford et al. 1998). While Levanna projectile points are formal tools, Princess Point Complex toolkits are predominantly characterized by informal or expedient flake tools and ground stone and bone artifacts are rare (Ferris and Spence 1995:103; Shen 2000). At Grand Banks, experimental archaeology suggests that chert flakes were put to a variety of useful tasks, from butchering to bone-working to wood-working to plant-working. Formal bifaces and projectile points had less evidence of usewear (Shen 2000). Local cherts appear to have been used, although Onondaga, albeit also a local resource, was preferred at Grand Banks (AfGx-3) (Shen 1997).

The first agricultural villages in southern Ontario date to the 10th century. Unlike the riverine base camps of the Middle Woodland Period, these sites are located in the uplands, on well-drained sandy soils. Categorized as "Early Ontario Iroquoian" (1,050 – 650 BP), many archaeologists believe that it is possible to trace a direct line from the Iroquoian groups which later inhabited southern Ontario at the time of first European contact, back to these early villagers.

Village sites dating between BP 1120 and 720, share many attributes with the historically reported Iroquoian sites, including the presence of longhouses and sometimes palisades. However, these early longhouses were not all that large, averaging only 12.4 m in length (Dodd et al. 1990:349; Williamson 1990:304-305). It is also quite common to find the outlines of overlapping house structures, suggesting that these villages were occupied long enough to necessitate re-building.

The Jesuits reported that the Huron moved their villages once every 10-15 years when the nearby soils had been depleted by farming and conveniently collected firewood grew scarce (Pearce 2010). It seems likely that Early

Ontario Iroquoians occupied their villages for considerably longer, as they relied less heavily on corn than did later groups, and their villages were much smaller, placing less demand on nearby resources.

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

The Middle Ontario Iroquoian Period (650 – 550 BP) witnessed several interesting developments in terms of settlement patterns and artifact assemblages. Changes in ceramic styles have been carefully documented, allowing the placement of sites in the first or second half of this 100-year period. Moreover, villages, which averaged approximately 0.6 hectares in extent during the Early Ontario Iroquoian Period, now consistently range between one and two hectares.

House lengths also change dramatically, more than doubling to an average of 30 m, while houses of up to 45 m have been documented. This increase in longhouse length has been variously interpreted. The simplest possibility is that increased house length is the result of a gradual, natural increase in population (Dodd et al. 1990:323, 350, 357; Smith 1990). However, this does not account for the sudden shift in longhouse lengths around 650 BP. Other possible explanations involve changes in the economic and socio-political organization (Dodd et al. 1990:357). One suggestion is that during the Middle Ontario Iroquoian Period small villages were amalgamating to form larger communities for mutual defense (Dodd et al. 1990:357). If this were the case, the more successful military leaders may have been able to absorb some of the smaller family groups into their households, thereby requiring longer structures. This hypothesis draws support from the fact that some sites had up to seven rows of palisades, indicating at least an occasional need for strong defensive measures. There are, however, other Middle Ontario Iroquoian villages that had no palisades present (Dodd et al. 1990). More research is required to evaluate these competing interpretations.

The layout of houses within villages also changes dramatically by 650 BP. During the Early Ontario Iroquoian Period, villages were haphazardly planned, with houses oriented in various directions. During the Middle Ontario Iroquoian Period, villages are organized into two or more discrete groups of tightly spaced, parallel aligned, longhouses. It has been suggested that this change in village organization may indicate the initial development of the clans which were a characteristic of the historically known Iroquoian peoples (Dodd et al. 1990:358).

Initially at least, the Late Ontario Iroquoian Period (550-300 BP) continues many of the trends which have been documented for the proceeding century. For instance, between 550 and 500 BP house lengths continue to grow, reaching an average length of 62 m. One longhouse excavated on a site southwest of Kitchener was an incredible 123 m (Lennox and Fitzgerald 1990:444-445). After 500 BP, house lengths begin to decrease, with houses dating between 450 and 370 BP averaging 30 m in length.

Why house lengths decrease after 500 BP is poorly understood, although it is believed that the even shorter houses witnessed on Historical Period sites can be at least partially attributed to the population reductions associated with the introduction of European diseases such as smallpox (Lennox and Fitzgerald 1990:405, 410).

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

During the late 1600s and early 1700s, the French explorers and missionaries reported a large population of Iroquoian peoples clustered around the western end of Lake Ontario. The area which was later to become Halton Region was known to have been occupied by ancestors of two different Late Ontario Iroquoian groups who evolved to become the historically known Neutral and Huron. For this reason, the Late Ontario Iroquoian groups which occupied parts of south-central Ontario before the arrival of the French are often identified as "Prehistoric Neutral" and “Prehistoric Huron” (Lennox and Fitzgerald 1990; Smith 1990:283)..

1.3.2 Contact Period Indigenous Settlement

At the time of the European arrival, Huron-Wendat villages were located north of Lake Simcoe, however their territorial hunting grounds spanned between the Canadian Shield, Lake Ontario and the Niagara Escarpment (Warrick 2008:12). It is theorized that four nations comprised of the Attignawantan, Tahontaenrat, Attigneenongnahac and Arendahronon, joined to form a single Huron-Wendat Confederacy in defense against the Haudenosaunee (Warrick 2008:11, Trigger 1994:41). At the time of Samuel de Champlain’s visit to the Huron-Wendat territory and prior to the great epidemics of 1630, the population of the Huron-Wendat was reported to number roughly 30,000 (Heidenreich 1978:36).

Ethnohistorical records left by explorers, Jesuit missionaries, and fur traders provide a history of Euro-Canadian involvement in Huron-Wendat territory. By 1609, Samuel de Champlain had interacted with the Arendahronon of the Huron-Wendat. Requesting larger quantities of furs, the French established a trading relationship with the Huron-Wendat (Trigger 1994:68; Heidenreich, 1978:386). This resulted in the Huron-Wendat becoming the middlemen for trade goods between the French and their Algonquin, Nippissing, Tionnontaté, and Attiewandaron neighbours. By the mid-1620s, the Huron-Wendat had exhausted the pelt supply in their own hunting territories and opted to trade European goods for tobacco and furs from their neighbours (Trigger 1994:49-50). The Huron-Wendat would travel along the Nine-Mile Portage Route beginning at Kempenfeldt Bay to Willow Creek, then into the Nottawasaga River to where it empties into the Georgian Bay to seek trade with the Attiewandaron and Tionnontaté (Jury and Jury 1956:2).

1.3.3 Post-Contact Indigenous Settlement

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

Following the introduction of Europeans to North America, the nature of Indigenous settlement size, population distribution, and material culture shifted as settlers began to colonize the land. Despite this shift in Indigenous lifeways, “written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity

to documented cultural expressions that confirms a deep historical continuity to Iroquoian systems of ideology and thought" (Ferris 2009:114). As a result, Indigenous peoples of southern Ontario have left behind archaeologically significant resources throughout southern Ontario which show continuity with past peoples, even if this connection has not been recorded in historical Euro-Canadian documentation.

The project area is situated within the Geographic Township of Nelson, County of Halton, Ontario. The project area is within lands that were part of Treaty 3 ¾ (Brant Tract) between the Mississaugas and the Crown (Ministry of Aboriginal Affairs 2019). The territory described in the written treaty covers approximately 3,500 acres. The treaty is known as the Brant Tract because it was purchased by the Crown for the Mohawk Chief Joseph Brant for his military service to the British during the American Revolutionary War.

1.3.4 Euro-Canadian Settlement

1.3.4.1 Halton County & Nelson Township

Halton County was bordered on the south by Lake Ontario, on the east by Peel County, on the north by Wellington County, and on the west by Wentworth County (Walker & Miles 1877). Halton County was at one time joined to Wentworth County, forming Gore District and was first settled in 1783 almost exclusively by the United Empire Loyalists (Walker & Miles 1877). Halton County was named in 1816 for Major William Mathew Halton, who was secretary to Francis Gore who served as Lieutenant-Governor of Upper Canada from 1806-1811 and from 1815-1816 (Halton Region, n.d.). The population increased steadily and by 1817 Halton was home to 6,684 people, including three doctors (Walker & Miles 1877). It also contained four churches, 18 grist mills and 41 sawmills (Walker & Miles 1877). In 1853, the population in Halton had grown significantly and Halton and Wentworth were separated (Walker & Miles 1877). Prior to 1853, Halton and Wentworth were a united region, however, as smaller units of government became desirable, the two regions were separated into different counties, and Halton County was further divided into the Townships of Esquesing, Trafalgar, Nelson and Nassagaweya (Walker & Miles 1877). In 1857, the Towns of Milton and Oakville were incorporated and in 1874 the Villages of Burlington and Acton joined the County of Halton (Walker & Miles 1877). Farming was a prosperous endeavor in Halton County, with soil suitable for agriculture and plenty of land for grazing animals (Walker & Miles 1877).

In the western portion of the County, the Burlington Mountains run from south to north (Walker & Miles 1877). There are several significant streams, notably the Credit River, the Twelve-Mile Creek, and the Sixteen-Mile Creek. Halton is also home to several railways including the Grand Trunk Railway, the Great Western Railway, the Hamilton and North-Western Railways, and the Credit Valley Railway (Walker & Miles, 1877).

In 1775 the British acquired the land within Nelson Township from the Mississaugas. The Township of Nelson was officially named after Vice-Admiral Horatio Nelson who led the British military at the Battle of Trafalgar during the Napoleonic Wars (1803-1815). Originally, the Township of Nelson was named Grant Township in recognition of Alexander Grant who was the President and Administrator of Upper Canada. The first family to arrive in the Township of Nelson was the Bates family, who settled in 1800, and the next influx of settlers arrived in 1807. By 1817, 476 inhabitants and 68 houses, two grist mills, and three sawmills were located in the Township of Nelson. By 1850, the population had increased to 3,792 individuals (Walker & Miles 1877:60).

As the population continued to grow, centres of industry developed, such as Wellington Square and Port Nelson. Wellington Square was included in part of the 3,450-acre land grant given to Chief Joseph Brant. Joseph Brant constructed his house in 1790 and began to sell or rent out parcels of his land. His family continued to do this after his death in 1807. Eight years later, James Gage purchased approximately 338 ½ acres from Catherine

Brant and Augustus Jones, trustees under Joseph Brant's will, who surveyed the land into blocks for settlement and named the village Wellington Square. A steam and flouring mill, wharf and warehouse were constructed, and Wellington Square became a considerable grain market in Halton County. Port Nelson, located at the foot of Guelph Line, a plank road, was included in lands purchased by James Gage. Port Nelson was connected to Wellington Square by Lakeshore Road and functioned as additional wharfs (Walker & Miles 1877:60)

During the latter half of the nineteenth century, the wheat market relocated westward and Burlington became a centre for fruit production and export. In 1873, Wellington Square and Port Nelson incorporated as the Village of Burlington, and in 1914 Burlington became a town (Burlington Public Library, 2013).

1.3.4.2 Project Area

The project area is located on Lot 1 and 2, Concession 2, Nelson Township, Halton County. An introductory history to Lot 1 and 2 was created through the consultation of The 1858 *Historical County Map of Halton County* (Tremaine 1858), the 1877 *Illustrated Historical Atlas of the County of Halton* (Walker & Miles 1877), the Land Registry Abstract for Nelson Township (New Survey) (Onland n.d), and the mid 19th century census records (Library and Archives Canada), to offer an understanding of the mid to late 19th century land use of the project area. The review of historic mapping also aids to understand the archaeological potential of the project area. Per MHSTCI (2011), lands within 300 m of early Euro-Canadian settlements (e.g., pioneer homesteads, isolated cabins, farmstead complexes), 300 m of a water source (e.g., lakes, rivers, streams, creeks, intermittent streams and creeks, springs, marshes, swamps), and 100 metres of early historic transportation routes (e.g., trails, passes, roads, railways, portage routes) are considered to have archaeological potential.

West Half of Lot 1, Concession 2

The land registry abstract was obtained for Lot 1 to further understand the land use through the 19th century and into the 20th century. The patent for Lot 1 (200 acres) was issued to Mathius L(illegible) on 11 Jun 1826 from the Crown, in August of the same year, Mathius L(illegible) sold the lot to Andrew K(illegible) through a Bargain & Sale. After 18 years, Andrew K(illegible) sold the Lot to Peter Inglehart on 19 May 1844 through a Bargain & Sale (Onland n.d).

Peter Inglehart is listed as a farmer and lived with Mary Inglehart (spinster) and there are five children: Sylvester (21), Ester Ann (19), William (13), Mary (10), and Jacob (5). In 1856, Peter sold the west 100 acres to Sylvester, and remained the primary landowner for the east 100 acres through a Bargain & Sale, no dollar amount was listed. Peter Inglehart is listed in the 1851 and 1861 census records as having 1 ½ story frame house on the eastern side of Lot 1.

Sylvester Inglehart is listed on the west half (100 acres) of the 1858 *Historical County Map of Halton County* (Tremaine 1858) (Map 2), while Peter Inglehart remained the primary landowner of the eastern 100 acres of the lot. In the 1861 census, Sylvester's name is poorly written and in the transcriptions was noted as 'Silvester Englehart', however, Sylvester is listed as a farmer and as having a 1 ½ story frame house on the west 100 acres of Lot 1 along with his wife, Catherine.

By 1871, Sylvester, now 40 years of age, had developed the land extensively, supported by Schedules 1 through 4 of the 1871 Census. In *Schedule 4 – Return of Cultivated Land, of Field Products and of Plants and Fruits*, Sylvester is listed as having used the 80 acres for cultivation of various goods. This included 10 acres of wheat, 1 acre of potatoes, and 5 acres of hay. One quarter of Inglehart's land was used for garden or orchards, producing 80 pounds of grapes, 80 bushels of apples, and four bushels of pears, plums and other fruits. In *Schedule 5* –

Livestock, Animal Products, home-made Fabrics and Furs, Inglehart had 20 sheep, seven pigs, five dairy cows, three mature horses, and two bulls.

On 26 July 1876, Sylvester Inglehart sold the 100 acres parcel to William James Thomas for $3500 through a Bargain & Sale. The 1877 *Illustrated Historical Atlas of the County of Halton* illustrates the west half of Lot 1 to have changed ownership to William James Thomas and his wife, Sarah. This mapping illustrates the presence of a homestead on the west of half of Lot 1, Concession 2, as well a historic structure, water sources and historic transportation routes, as well as the continuation of agricultural land use, evident in the depiction of orchards on the property. After eight years, William Thomas sold his parcel of land to Alexander Fraser through a Bargain & Sale in 1884 for $4250.

Alexander Fraser owned the western 100 acres of Lot 1, Concession 2 for four years, after which he sold the land to Allen Eaton on 4 Dec 1888 through a Bargain & Sale for $4150. Allen Eaton owned the west 100 acres of Lot 1, Concession 2 for 22 years with his wife, Jane (nee. Tweedle), and their child Gordon (3 months). On 26 Dec 1910, Eaton sold the property to George Henry Harbottle through a Bargain & Sale for $9500.

The property remained in the Harbottle family for several years, passing from George Henry Harbottle, to his wife Rachel after his untimely death in 1919, and subsequently to his children, John and Howard Douglas Harbottle. The property was Granted to the Harris family, in 1961 by the Treasurer of Ontario, Dana Porter, before the property was acquired by the Burlington Springs Golf Course. The course was built in 1962 and was opened in 1963. Table 2 outlines the Land Registry Abstract for West Half of Lot 1, Concession 2 with relation to Inglehart-Harbottle (AiGx-462).

Table 2: Land Registry Abstract for Lot 1, Concession 2, in relation to Inglehart-Harbottle (AiGx-462).

Ins. No.	Instrument	Reg. Date	Grantor	Grantee	Land	Amount
	Patent	11 Jun 1826	The Crown	Mathius...	All 200 acres	
135	Bargain & Sale	13 Aug 1826	Mathius…	Andrew K…	200 acres	
513	Bargain & Sale	19 May 1844	Andrew K…	Peter Inglehart	200 acres	
744	Bargain & Sale	8 May 1856	Peter Inglehart & wife	Sylvester Inglehart	100 acres, SW ½	
1548	Bargain & Sale	26 July 1876	Sylvester Inglehart & wife	William James Thomas	100 acres, SW ½	$3500
35057	Bargain & Sale	18 Oct 1884	William James Thomas	Alexander Fraser	100 acres, SW ½	$4250
4374	Bargain & Sale	4 Dec 1888	Alexander Fraser	Allen Eaton	100 acres, SW ½	$4150

Ins. No.	Instrument	Reg. Date	Grantor	Grantee	Land	Amount
8455	Bargain & Sale	26 Dec 1910	Allen Eaton	Jane Tweedle Eaton, wife of Allen Eaton	100 acres, SW ½	$7000
8738	Bargain & Sale	29 Mar 1912	Allen Eaton & wife	George Henry Harbottle	100 acres, W ½	$7000
8860	Bargain & Sale	25 Apr 1912	George Henry Harbottle	Rachel Harbottle	100 acres, SW ½	$7000
9772	Grant of Annuity	19 July 1916	George Henry Harbottle & wife	Sarah Harbottle	100 acres, W ½	$195
19554	(Illegible) Widow	29 Sept 1919	Rachel Harbottle, widow	George Harbottle, deceased	100 acres, W ½	
12778	Illegible	11 Apr 1928	Rachel Harbottle, widow	Estate George Henry Harbottle	100 acres, SW ½	
13136	Grant	2 Jan 1926	Rachel Harbottle	Alfred Harris	100 acres, SW ½	Illegible
16360	Grant	14 Oct 1936	Alfred Harris & wife	J. Harris & Arthur B. Harris	100 acres, SW ½	$1
458	By Law	2 Apr 1951	RE: Planning Act			
9099	Certificate	1 Mar 1955	Leslie M Frost, Treasurer of Ontario	Estate of Rachel Harbottle	EG Re in 8860V	
66279	Grant	11 Jul 1957	Howard Douglas Harbottle	Illegible	100 acres, SW ½	illegible
69957	Order 11	23 Sept 1957	RE: Annexation to Town of Burlington, Effective Jan 1, 1958			
119980	By Law	16 Jan 1961	Dana Porter, Treasurer of Ontario	Estate of Alfred John Harris	100 acres, SW ½	
126693	Grant to use	26 Jul 1961	Caroline May Harris, widow	Arthur Bingham Harris	50 acres, SW ½	illegible

West Half of Lot 2, Concession 2

According to the 1858 *Historical County Map of Halton County*, all of Lot 2 was owned by John Buckley (Map 2). A historic transportation route – present-day Cedar Springs Road is illustrated along the west limits of the project area. The project area was being used for agricultural purposes at this time.

The 1877 *Illustrated Historical Atlas of the County of Halton* illustrates all of Lot 2 remained under the ownership of John Buckley (Map 2). This mapping illustrates the presences of a homestead on the west of half of Lot 2, as well as a historic structure, water sources and historic transportation routes within proximity to the project area to support its archaeological potential. The project area continued to be utilized for agricultural purposes.

Topographic and aerial mapping since 1877 illustrates the project area's relatively uninterrupted rural character and agricultural land use (Map 3 to Map 4). The Burlington Springs Golf Club was built in 1962 and opened in 1963.

1.4 Archaeological Context

1.4.1 Geographic Context

The project area is situated within the Norfolk Sand Plain physiographic region. The Norfolk Sand Plain is a wedge-shaped feature that extends from the Lake Erie shoreline and tapers northward to a point in Brantford on the Grand River (Chapman and Putnam 1984: 153-154). The region encompasses an area of 3,134 square kilometres and consists of sands and silts that were deposited as a delta in glacial Lakes Whittlesey and Warren. A massive discharge of meltwater from the Grand River area entered the lakes between the ice front and the moraines to the northwest, building the delta from west to east as the glacier withdrew, thus covering most of the area west of the Galt Moraine with sand.

Soils in the project area include imperfectly drained London loam; very poorly drained Marsh; and poorly drained Colwood loam. The topography of the project area is generally level, averaging 272 metres (m) above-sea-level.

Potable water is an important resource necessary for any extended human occupation or settlement. As water sources have remained relatively stable in Ontario since post-glacial times, proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Hydrological features such as primary water sources (i.e. lakes, rivers, creeks, streams) and secondary water sources (i.e. intermittent streams and creeks, springs, marshes, swamps) would have helped supply plant and food resources to the surrounding area. Per MHSTCI (2011), lands within 300 m of a water source are deemed to have archaeological potential. Tributaries of Grindstone Creek are in and within proximity to the project area (Map 1).

1.4.2 Existing Conditions

The project area is located at 5235 Cedar Springs Road within the active Burlington Springs Golf Club. The project area has irregular boundaries on all sides, and measures approximately 60 ha in size. The project area's immediate setting is rural, with single-family dwellings to the west and south, agricultural lands to the north, Camisle Golf to the southeast, and Burlington Quarry to the east and northeast. The project area fronts Colling Road to the northwest, Cedar Springs Road to the southwest, and 2 Side Road to the southeast. The Niagara Escarpment is a located between 1.5 km and 2.0 km from project area, and Lake Ontario is located approximately 10.9 km south of the project area. Within and surrounding the project area, the topography is relatively flat, sloping slightly south towards Lake Ontario.

The project area is accessed from Cedar Spring Road via a long-paved driveway that leads to the golf course parking lot. The 18-hole golf course includes a club house, outbuildings, golf playing areas (i.e., greens, fairways, roughs), and woodlots.

1.4.3 Registered Archaeological Sites

Per MHSTCI (2011), to compile an inventory of archaeological resources, the registered archaeological site records maintained by the MHSTCI in the Ontario Archaeological Site Database (OASD) were consulted.

Five archaeological sites are registered within 1 km of the project area (Table 3). Four of these sites are associated with the Indigenous cultural affiliation, which is indicative of Indigenous occupation of the surrounding area. However, all five registered archaeological sites are located greater than 300 m from the project area, and, thus, does not contribute to the archaeological potential of the project area.

Table 3: Registered Archaeological Site within 1 km of Project Area

Borden Number	Site Name	Time Period	Cultural Affiliation	Site Type	Current Development Status
AiGx-2	-	Pre-Contact-	Indigenous	Findspots	No further CHVI
AiGx-23	Garnet Colins	-	-	-	-
AiGx-238	-	Pre-Contact	Indigenous	Campsite	No further CHVI
AiGx-239	-	Pre-Contact	Indigenous	Campsite	No further CHVI
AiGx-240	-	Pre-Contact	Indigenous	Campsite	No further CHVI

'-' denotes information unavailable; 'CHVI' denotes Cultural Heritage Value or Interest

1.4.4 Previous Archaeological Assessments

Per *Section 1.1., Standard 1.* of the MHSTCI (2011), a review of previous archaeological assessments undertaken within the project area or within 50 m of the project area was assessed. There was no previous archaeological assessment undertaken adjacent to and within the project area.

1.4.5 Dates of Fieldwork

The Stage 2 archaeological assessment was undertaken between July 22 and October 18, 2019 and between June 29 and July 7, 2020. The weather and lighting conditions during the Stage 2 investigation permitted good visibility of all parts of the project area and were conducive to the identification and recovery of archaeological resources (Table 4).

Table 4: Dates of Fieldwork and Weather Conditions.

Date	Temperature	Weather Condition
July 22, 2019	24.7ºC	Overcast
July 23, 2019	25.5°C	Sunny
July 24, 2019	25.7°C	Sunny

Date	Temperature	Weather Condition
July 25, 2019	27.4°C	Sunny
July 26, 2019	27.8°C	Sunny
July 29, 2019	29.2°C	Sunny with clouds
July 30, 2019	27.8°C	Overcast with precipitation
October 15, 2019	14.6°C	Sunny
October 17, 2019	8.7°C	Overcast
October 18, 2019	11.8°C	Sunny
June 29, 2020	26.8°C	Sunny
June 30, 2020	27.7°C	Sunny
July 2, 2020	32.6°C	Sunny
July 3, 2020	32.9°C	Sunny
July 6, 2020	32.3°C	Sunny
July 7, 2020	32.1°C	Sunny

2.0 FIELD METHODS

This field assessment was conducted in compliance with the MHSTCI (2011). Photographic images of the Stage 2 investigation are presented within Section 8.0. The results of the Stage 2 archaeological assessment are provided on Map 5 to Map 6.

2.1 Disturbances & Physical Features

Per Section 1.3.2 of the MHSTCI (2011), the project area was evaluated for extensive disturbance that would have removed archaeological potential. According to the MHSTCI (2011), disturbances may include but are not limited to: grading below topsoil, quarrying, building footprints, or sewage and infrastructure development. Also, the project area was evaluated for physical features of no or low archaeological potential. These usually include but are not limited to permanently wet areas, exposed bedrock, and steep slopes (greater than 20º) except in locations likely to contain pictographs or petroglyphs, per Section 2.1, Standard 2.a (MHSTCI 2011).

As the project area encompasses an existing golf course, wherein it is assumed extensive disturbance are likely to have taken place during its construction, a grading assessment was completed for the project area (Supplementary Documentation). The grading assessment focused on the golf fairways of the initial proposed license boundary. The grading assessment evaluated the degree of disturbance that resulted from earthmoving activities associated with the construction of the golf course through a detailed analysis of the change in topography over time. First Base Solutions was retained to create a Digital Elevation Model (DEM) using photogrammetric techniques from stereoscopic pairs of aerial photos from 1961; the year construction began on the golf course. A DEM was also created from 2019 drone imagery. Using GIS mapping tools, the two DEMs were subtracted to determine change in topography to assist with understanding previous gradings (i.e., disturbance). Areas that have had more than 0.5 m (+/-) of change in topography were determined to be extensively disturbed. The grading assessment and results were consulted with and supported by the MHSTCI (Supplementary Documentation).

Furthermore, the golf putting greens – constructed employing United States Golf Association (USGA) specifications, was supported by the MHSTCI to be disturbed and not requiring Stage 2 archaeological survey.

Additional areas of disturbances and physical features of no or low archaeological potential were visually identified and determined to not require Stage 2 archaeological survey, including: the existing building footprints, a paved parking lot and pathways, golf sand traps, berms and permanently wet areas associated with the design and development of the golf course (i.e., golf water hazards) (Image 1 to Image 12).

The systematic Stage 2 archaeological survey of these areas of disturbance and physical features of no or low archaeological potential noted above was not undertaken. Disturbances of no archaeological potential amounted to approximately 20.1ha of the project area, and physical features of no or low archaeological potential amounted to approximately 2.4 ha of the project area.

2.2 Test Pit Survey

The remainder of the project area consisting of potentially undisturbed golf fairway areas, golf rough areas, woodlots, areas of overgrown vegetation, and grassed areas was subjected to shovel test pit survey that involves the systematic walking of an area, excavating 30 cm diameter pits by hand, and examining their contents for archaeological resources. The test pit survey was performed in a grid pattern and commenced either on a 5 m and 10 m intervals (Image 13 to Image 36). All undisturbed areas except for the potentially undisturbed golf fairway areas were subjected to test pit survey at 5 m intervals. The potentially undisturbed golf fairway areas

were subjected to test pit survey at 10 m intervals – this strategy was supported by the MHSTCI (Supplementary Documentation). All topsoil was screened through 6 mm wire mesh to facilitate the recovery of artifacts, and test pits were examined for stratigraphy, cultural features, and evidence of fill. Test pits were excavated into the first 5 cm of subsoil and backfilled.

If cultural material was discovered during test pitting, then the survey continued on the grid to determine how many additional test pits were positive. If insufficient archaeological resources were uncovered to adequately assess the cultural heritage value or interest (CHVI) of the site, then intensified survey coverage was undertaken around a positive test pit to determine whether a recommendation for a Stage 3 assessment could be supported. Intensified survey was completed at one site found during the Stage 2 survey (Image 37 to Image 38).

All artifacts encountered during the survey were collected according to their associated test pit or test unit. The location of all artifact bearing (positive) test pits and test unit were recorded using a hand-held GPS unit (*Garmin etrex 10)* with an accuracy of approximately 3 m, and the artifacts were systematically inventoried and collected for processing.

Approximately 23.1 ha of the project area was subjected to a test pit survey at 5 m intervals. Approximately 14.5 ha of the project area was subjected to a test-pit survey at 10 m intervals. Test pits were excavated to depths ranging from 25 to 40 cm in silty clay and clay soils.

3.0 RECORD OF FINDS

3.1 Documentary Record

Table 5 provides an inventory of the documentary record generated in the field. All artifacts are stored at Golder's Whitby Office in one bankers' box (40.0 cm x 31.5 cm x 25.0 cm).

Table 5: Inventory of Documentary and Material Record

Document/ Material	Location	Comments
Field notes	Stored on Golder's network servers.	6 digital files
Field maps	Stored on Golder's network servers.	16 digital files
Digital photographs	Stored on Golder's network servers.	382 digital files

3.2 Inglehart-Harbottle (AiGx-462)

A total of 1,074 artifacts was recovered from 18 positive test pits and one test unit from a single archaeological site identified as the Inglehart-Harbottle site and registered under the Borden number AiGx-462. These included 19th century historical Euro-Canadian artifacts (n=1,043), 20th century material (n=4), and faunal material (n=27). A catalogue of the artifacts from Inglehart-Harbottle is provided within Appendix A. Photographs of a representative sample of artifacts are provided as Image 39 to Image 44. Map 5 details the location of Inglehart-Harbottle, which measured approximately 40 m (N-S) by 20 m (E-W). Site location information is provided within Table 6.

Table 6: Detailed Site Location Information

Location	GPS Coordinates
Fixed Reference Landmark	17T 589804 4804860
Northwest Extent	17T 589678 4804963
Northeast Extent	17T 589713 4804963
Southeast Extent	17T 589713 4804942
Southwest Extent	17T 589678 4804942
Centre of Site	17T 589685.5 4804952.5

A summary of the artifact assemblage is presented in Table 7 below, while an analysis of each artifact class is discussed in greater detail in the subsequent subsections. This includes artifact counts and general dates of production as well as artifacts of special interest.

Table 7: Stage 2 Artifact Summary for Inglehart-Harbottle (AiGx-462)

Artifact Class		Freq.	%
Historical Euro-Canadian	Foodways	441	41.06
	Tablewares	*[113]*	*[25.62]*
	Utilitarian Wares	*[47]*	*[10.66]*
	Glass Containers	*[281]*	*[63.72]*
	Structural	533	49.63
	Glass	*[209]*	*[39.21]*
	Metal	*[324]*	*[60.79]*
	Metal	55	5.12
	Personal	11	1.02
	Miscellaneous and 20th Century Materials	7	0.65
Total Historical Euro-Canadian Artifacts		1,047	97.49
Faunal	Faunal	27	2.51
Total Faunal Material		27	2.51
Total Stage 2 Artifacts		**1,074**	**100**

3.2.1 Foodways Class

3.2.1.1 Tablewares

A total of 160 tableware ceramic fragments were recovered during the Stage 2 assessment of Inglehart-Harbottle (AiGx-462). Table 8 provides a breakdown of the tableware ceramic assemblage by ware type while Table 9 provides a breakdown of the tableware ceramic assemblage by decorative type.

Table 8: Stage 2 Recovered Tableware Ceramics by Ware Type

Ceramic	Freq.	%
Ironstone	61	38.13
Coarse Red Earthenware	40	25.00
Miscellaneous Ceramics	26	16.25
Porcelain	25	15.63
Coarse Yellow Earthenware	6	3.75
Refined White Earthenware	1	0.63
Stoneware	1	0.63
Total Stage 2 Ceramics	**160**	**100**

Table 9: Stage 2 Recovered Tableware Ceramics by Decoration Type

Ceramic	Freq.	%
Ironstone, Undecorated	57	35.63
Coarse Red Earthenware, Undecorated	40	25.00
Miscellaneous Ceramics	26	16.25
Porcelain, Gilt	8	5.00
Porcelain, Transfer Print	6	3.75
Porcelain, Undecorated	5	3.13
Coarse Yellow Earthenware, Rockingham glazed	5	3.13

Ceramic	Freq.	%
Ironstone, Transfer Print	4	2.50
Porcelain, Decal	4	2.50
Porcelain, Moulded	2	1.25
Stoneware, Undecorated	1	0.63
Refined White Earthenware, Hand Painted	1	0.63
Coarse Yellow Earthenware, Undecorated	1	0.63
Total Stage 2 Artifacts	**160**	**100.00**

Refined White Earthenware (RWE)

A total of one piece of RWE was recovered representing 0.63% of the ceramic assemblage. RWE is also known in literature as “whiteware”. RWE is a variety of earthenware with a near colourless glaze that replaced earlier near white ceramics such as pearlware and creamware in the late 1820s and early 1830s, however, the initial manufacture date of what archaeologists’ call “whiteware” is not known. Early RWE tends to have a porous paste, with more vitrified, harder, ceramics becoming increasingly common later in the 19th century. The one piece of RWE recovered was painted. As the name suggests, painted RWE had its decorative motifs applied by an artisan using a small brush who painted the pattern directly onto the object. Painted wares can be distinguished from other decorative techniques because the brush strokes are visible in the artwork. The piece recovered from this site was decorated predominately with floral patterns in tones of light pink and light blue. The use of underglaze red paint is a common indicator of a post-1830 production date for early whiteware (Miller *et al*. 2000, Samford 2014).

Ironstone

A total of 61 pieces of ironstone were recovered representing 38.13% of the ceramic assemblage. Of these, all 61 examples were undecorated fragments. The ironstone fragments recovered from Inglehart-Harbottle (AiGx-462) all have a cold gray/blue hue typical of ironstone produced during the 1840s into the 1880s period (Wetherbee, 1980). Ironstone only became an increasingly popular commodity during the 1860s, but it still took several decades to capture a significant place in the Ontario market. By the 1870s it was often the dominant tableware in many Ontario households (Kenyon, 1991).

Of the recovered ironstone artifacts, three pieces were recovered with partial makers marks. The first, a black transfer print mark of a partial rampant unicorn with “CHINA/…RN/…EM” printed below. Based on this description, this style of makers mark refers to W&E Corn manufacturers of Ironstone China at Berslem Works. This specific mark was used ca. 1864 to 1891, in which the Royal Coat of Arms is present (Godden, 1984).

Only a small portion of the makers mark is visible on the second partial makers mark. The partial word “ANLEY” is visible with an engraved “23” located beneath it. This type of mark can be associated with Hanley, however, due to the fragmentary nature of this mark it is difficult to determine a temporal date.

Lastly, the third makers mark is green transfer print “ALFRED MEAKIN” over top of a crown. Based on this description, this style of makers mark refers to Alfred Meakin Ltd and has a temporal date ca 1907 (Godden, 1984).

Porcelain

Porcelain is a type of earthenware fired at such a high temperature that the clay vitrifies and is translucent when held up to a light. European hard paste porcelain was first manufactured in the 1740s but due to its high cost, any form of porcelain is rare on 19th century sites in Ontario. However, by the turn of the century it became relatively common, as production techniques were developed in Europe which greatly reduced costs (Miller et al. 2000, Kenyon 1980b). Most hard paste porcelain found on North American sites indicate a post-1850 date (Samford 2014). A total of 25 pieces (15.63% of the assemblage) of porcelain were recovered during the Stage 2 test pit survey of Inglehart-Harbottle (AiGx-462). A total of eight of the fragments were decorated with gold gilding, six were decorated with transfer print, five were undecorated, four were adorned with decals, two were moulded with panelling.

Unidentified Ceramics

A total of 26 of the ceramic pieces recovered from Inglehart-Harbottle (AiGx-462), representing 16.25% of the ceramic assemblage, could not be identified to specific ceramic-ware classifications. These pieces are so heavily damaged and fragmentary that it is impossible to accurately identify them by ceramic type. To avoid altering the separate ceramic totals, percentages and ultimately the temporal data for the site the damaged pieces were simply classified as miscellaneous unidentified ceramics.

3.2.1.2 Utilitarian Wares

A total of 47 utilitarian fragments were recovered from Inglehart-Harbottle (AiGx-462), including 40 pieces of coarse red earthenware, and six pieces of coarse yellow earthenware, five of which exhibit Rockingham glaze, and one piece of stoneware. Coarse red and yellow earthenware vessels were manufactured throughout the late 18th and into 19th centuries (1796-1920, Ontario made) (Newlands, 1979) and were the most common utilitarian ware in the first half of the 19th century, eventually being replaced by more durable stoneware vessels. Rockingham glaze refers to the mottled brown manganese glaze; there was some variability in the fabric it was applied to although coarse yellow earthenware was most common. It was first introduced in 1850 and commonly used on utilitarian as well as tea wares well into the twentieth century (Saint Mary’s University 2015b, Florida Museum of Natural History 2016). Stoneware (1849-ca. 1920, Ontario made) (Newlands, 1979) is a hard, heavy, grey to light brown ceramic that was commonly used for utilitarian purposes (i.e., crocks and jugs). It is fired at a higher temperature than earthenware and has a less porous body. The exterior of stoneware vessels often has a salt-glaze which gives it a dimpled or “orange-peel” effect.

3.2.1.3 Glass Containers

A total of 281 domestic glass artifacts were recovered from Inglehart-Harbottle (AiGx-462) including 221 shards of bottle glass, 44 pieces of lamp glass, 17 pieces of unidentified glass, 11 fragments of glass dishes, four shards of jar glass, and one glass lid.

Colours of bottle glass represented include clear, olive, aqua, and green. Bottle glass colour is extremely limited with regards to providing a temporal sequence for a site. Many of the glass bottle fragments recovered from Inglehart-Harbottle (AiGx-462), appear to be from machine-made bottles, as evidenced by the mould seams and bases that were recovered. A few pieces in the collection have embossed lettering but are too fragmentary to determine product or manufacturer. One brandy bottle finish was recovered from Inglehart-Harbottle (AiGx-462), this was a common style of bottle finish from 1860 into the early 20th century (Lindsay 2007). This type of finish

can be found on many different types of liquor bottles and flasks, as well as many types of medicinal bottles and is applied to tooled finish or machine-made bottles (Lindsay 2007).

3.2.2 Structural Class

A total of 533 structural artifacts were recovered from Inglehart-Harbottle (AiGx-462). The recovered artifacts include 209 window glass shards, 151 wire drawn nails, 128 machine cut nails, 40 undetermined nails, three screws, one bolt, and one roofing nail.

The recovered nail assemblage includes, machine cut, and wire drawn nails (Image 45). Machine cut nails were cut from a sheet of metal and have a flat head. They were in use as early as 1790 but did not become common in Ontario until 1830. Wire drawn nails are identical to the type of nails in current use today, with a flat, round head and a wire shaft. Wire drawn nails became popular in the 1890s and continues to be popular today (Noel Hume 1969).

A review of the recovered window glass shards determined a total of 12 of the shards (representing 5.74% of the window glass assemblage) measure less than 1.6 millimetres. Prior to ca. 1850, window glass was, on average, 1.55 mm or under (Kenyon, 1980; Weiland, 2009). Window glass thickness increased throughout the 19th century as the trend shifted towards using larger windows when building homes.

3.2.3 Metal Class

A total of 55 metal artifacts were recovered during the Stage 2 test pit survey of Inglehart-Harbottle (AiGx-462) including 49 pieces of miscellaneous scrap metal. The remaining six metal artifacts are catalogued as metal hardware. Within the general hardware collection, two indeterminate metal artifacts, two hinges, one buckle, and one aluminum rivet.

3.2.4 Personal Class

A total of 11 personal artifacts were recovered from Inglehart-Harbottle (AiGx-462) including 8 grommets, one fragmentary piece of white clay smoking pipe bowl, one fragmentary piece of a white clay pipe stem, and one slate pencil.

3.2.4.1 Smoking Paraphernalia

White clay pipes were very popular throughout the 19th century but declined in use during the 1880s with the introduction of briar pipes and cigarettes (Adams *et al*. 1994:93). Most white clay pipes found in Upper Canada were manufactured in either Quebec or Scotland, occasionally examples from English, Dutch, French, and American makers are also found. Sometimes the maker's name and/or city of manufacture was impressed on one side of the pipe stem, a practice which did not become popular until the 1840s (Adams *et al.* 1994:93). The two recovered pieces of white clay smoking pipes were undecorated.

3.2.5 Miscellaneous Artifacts and 20th Century Materials Class

A total of seven miscellaneous artifacts were recovered Inglehart-Harbottle (AiGx-462) including three slag, three pieces of plastic, one rubber band.

3.2.6 Faunal Class

A total of 27 fragments of faunal material were recovered from Inglehart-Harbottle (AiGx-462) during the Stage 2 property survey. All 27 of the bone fragments appear to be mammalian.

4.0 ANALYSIS AND CONCLUSIONS

Archaeological potential is established by determining whether any features or characteristics indicating potential are located on or in the vicinity of a project area. Features and characteristics that indicate potential for archaeological resources are defined within Section 1.3.1 of the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011:17-18) and include:

- Previously identified archaeological sites.
- Water sources:
  - Primary water sources (e.g., lakes, rivers, streams, creeks).
  - Secondary water sources (e.g., intermittent streams and creeks; springs; marshes; swamps).
  - Features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels, shorelines of drained lakes or marshes, and cobble beaches).
  - Accessible or inaccessible shoreline (e.g., high bluffs, swamps or marsh fields by the edge of a lake, sandbars stretching into marsh).
- Elevated topography (eskers, drumlins, large knolls, plateaux).
- Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground.
- Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases.
- Resource areas including:
  - Food or medicinal plants.
  - Scarce raw minerals (e.g., quartz, copper, ochre or outcrops of chert).
  - Early Euro-Canadian industry (fur trade, logging, prospecting, mining).
- Areas of early Euro-Canadian settlement including:
  - Early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes).
  - Early wharf or dock complexes, pioneer churches, and early cemeteries.
- Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes).
- Property listed on a municipal register or designated under the *Ontario Heritage Act* or that is a federal, provincial or municipal historic landmark or site.
- Property that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Many of the above features of archaeological potential have a buffer assigned to them, extending the zone of archaeological potential beyond the physical feature. The following buffers are commonly accepted by the

MHSTCI and specifically indicated in Section 1.4 of the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011:20-21):

- 300 m buffer: previously identified archaeological site; water sources; areas of early Euro-Canadian settlement; or locations identified through local knowledge or informants.
- 100 m buffer: early historical transportation route.

In the event no buffer is inherently present, the potential is restricted to the physical limits or the feature: elevated topography, pockets of well-drained sandy soil, distinctive land formations, resources areas, listed or designated properties and landmark properties.

4.1 Potential for Indigenous Archaeological Resources

Potential for Indigenous archaeological sites are established by determining the likelihood that archaeological resources may be present in a project area. Archaeological potential criteria commonly used by the MHSTCI (2011) were applied to determine areas of archaeological potential within the project area. These variables include distance to previously identified archaeological sites, distance to various types of water sources, drainage, soil type, glacial geomorphology, and the general topographic variability of the area.

Distance to water sources is an important determinant of past human settlement patterns and may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils, or topographic variability, may also indicate archaeological potential.

In archaeological potential modelling, a distance to water criterion of 300 m is generally employed for water sources, including lakeshores, rivers, creeks, and swamps. The closest hydrological features are tributaries of Grindstone Creek that are located in and within 300 m of the project area.

The project area is located within Norfolk Sand Plain physiographic region of Southern Ontario. Soil texture can be an important determinant of past settlement, usually in combination with other factors, such as topography. The soils of the project area consisted of predominately of Soils in the project area include imperfectly drained London loam, which would have been suitable for pre-contact Indigenous agricultural practices and settlement. This is supported by the presence of four registered Indigenous intermediate settlement sites within 1 km of the project area. When the above data of archaeological potential is applied to the project area, it can be concluded that the project area has archaeological potential for Indigenous archaeological resources.

4.2 Potential for Historic Euro-Canadian Resources

The criteria used by the MHSTCI to determine potential for Euro-Canadian archaeological sites include the presence of: 1) particular, resource-specific features that would have attracted past subsistence or extractive uses; 2) areas of initial, non-Indigenous settlement; 3) early historical transportation routes; 4) previously identified archaeological sites; and 5) properties listed or designated under the Ontario Heritage Act.

As stated in Section 4.1, water sources are located in and within 300 m of the project area. Area of early Euro-Canadian settlements (e.g., pioneer homesteads, isolated cabins, farmstead complexes, early wharf or dock complexes, pioneer churches, and early cemeteries), early historical transportation routes (e.g., trails, passes, roads, railways, portage routes), and properties that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations, are considered features of archaeological potential. A review of 19th century mapping illustrates early Euro-Canadian settlements in and within 300 m of the project area, as well as within 100 m of historical settlements and transportation routes.

When the above data of archaeological potential is applied to the project area, it can be concluded that the project area has archaeological potential for historical Euro-Canadian archaeological resources.

4.3 Archaeological Integrity

A negative indicator of archaeological potential is extensive below-grade land disturbance. This includes widespread earth movement activities that would have removed or relocated any archaeological resources to such a degree that their information potential and CHVI has been lost. Activities that are recognized to cause sufficient disturbance to remove archaeological potential include: quarrying, major landscaping involving grading below the topsoil, building footprints, and infrastructure development. Activities including agricultural cultivation, gardening, minor grading, and landscaping do not necessarily remove archaeological potential (MHSTCI 2011:18).

Furthermore, physical features including but are not limited to permanently wet areas, exposed bedrock, and steep slopes (greater than 20^{o}) except in locations likely to contain pictographs or petroglyphs, per Section 2.1, Standard 2.a (MHSTCI 2011) are indicators of no or low archaeological potential.

Per Section 2.1, parts of the project area have been subjected to extensive disturbances and/or consist of physical features of no or low archaeological potential. The systematic Stage 2 archaeological survey of these areas of disturbance and physical features of no or low archaeological potential noted above was not undertaken.

4.4 Stage 2 Archaeological Survey

4.4.1 Inglehart-Harbottle (AiGx-462)

The Stage 2 archaeological survey resulted in the identification of a historical Euro-Canadian site identified as Inglehart-Harbottle on Lot 1, Concession 2. A total of 1,074 artifacts were recovered, which included historical Euro-Canadian artifacts (n=1,043), faunal material (n=27) and 20th-century material (n=4). Based on the assemblage, Inglehart-Harbottle dates primarily from the mid- 19th century to the early 20th century. The site is located adjacent to an extant 19th century homestead, which has undergone numerous additions throughout the 20th century, and distributed over an area measuring approximately 40 m (N-S) by 20 m (E-W).

The land registry abstract was reviewed for Lot 1 to further understand the land use through the 19th century and into the 20th century. The patent for Lot 1 (200 acres) was issued to Mathius L on 11 Jun 1826 from the Crown. In August of the same year, Mathius L sold the lot to Andrew K through a bargain and sale. After 18 years, Andrew K sold the lot to Peter Inglehart on 19 May 1844 through a bargain and sale.

Peter Inglehart is listed as a farmer living with his wife Mary Inglehart and their five children: Sylvester (21), Ester Ann (19), William (13), Mary (10), and Jacob (5). In 1856, Peter sold the western 100 acres of the property to Sylvester through a bargain and sale, no monetary value was listed. Peter Inglehart is listed in the 1851 and 1861 census records as having 1 ½ story frame house on the east half of Lot 1, and Ester Ann Inglehart is listed in the 1851 census as having a 1 ½ story frame house. The latter residence is likely associated with Sylvester Inglehart, and erroneously attributed to Ester Ann.

Sylvester Inglehart is listed on the west half of the lot on the 1858 Historical County Map of Halton County (Tremaine 1858), while Peter Inglehart remained on the east half of the lot. The 1861 census, lists Sylvester as a farmer and as having a 1 ½ story frame house on the west 100 acres of Lot 1 along with his wife, Catherine.

By 1871, Sylvester had developed the land extensively, which is supported by Schedules 1 through 4 of the 1871 Census. In Schedule 4 – Return of Cultivated Land, of Field Products and of Plants and Fruits, Sylvester is listed

as having used 80 acres for the cultivation of various goods. In Schedule 5 – Livestock, Animal Products, home-made Fabrics and Furs, Inglehart had 20 sheep, seven pigs, five dairy cows, three mature horses, and two bulls.

On 26 July 1876, Sylvester Inglehart sold the west half to William James Thomas for $3,500 through a bargain and sale. This is consistent with the 1877 Illustrated Historical Atlas of the County of Halton, which lists William James Thomas as the owner of the west half of Lot 1. This mapping illustrates the presence of a homestead on the west of half of Lot 1, Concession 2, in the approximate location of the site. In 1884, William Thomas sold his parcel of land to Alexander Fraser through a bargain and sale for $4,250.

Alexander Fraser owned the west half of Lot 1, Concession 2 for four years, after which he sold the land to Allen Eaton on 4 December 1888 through a bargain and sale for $4,150. Allen Eaton owned the west half of Lot 1 for 22 years with his wife, Jane (nee. Tweedle), and their child Gordon (3 months). On 26 December 1910, Eaton sold the property to George Henry Harbottle through a bargain & sale for $9,500.

The property remained in the Harbottle family for several years, passing from George Henry Harbottle, to his wife Rachel after his death in 1919, and subsequently to his children, John and Howard Douglas Harbottle. The property was granted to the Harris family, in 1961 by the Treasurer of Ontario, Dana Porter, before the property was acquired by the Burlington Springs Golf Course. The golf course was built in 1962 and was opened in 1963.

4.5 Conclusions

Based artifact assemblage and archival data, Inglehart-Harbottle dates from circa 1850 to the early 20th century. It is understood based on the Section 2.2, Standard 1.c. *of Standards and Guidelines for Consultant Archaeologists* that post-contact archaeological sites containing at least 20 artifacts that date the period of use to before 1900 require Stage 3 assessment. However, based on the Rural Historical Farmsteads bulletin, given less than 80% of the site's occupation dates to before 1870 (approximately 33% of the site dates before 1870), the site's continuous occupation from circa 1850 to present-day, the completion of an intensified survey (excavation of 8 intensified test pits and a test unit), the completion of detailed historical research, a good understanding of the site, and given the Inglehart family is not affiliated with the early settlement of Nelson Township, the site does not have sufficient cultural heritage value or interest to warrant a Stage 3 assessment. Per Section 7.12, Standard 1 of the MHSTCI (2011), Inglehart-Harbottle was registered with the MHSTCI under the Borden number AiGx-462.

No other archaeological resources were identified.

5.0 RECOMMENDATIONS

Based on the findings presented in the preceding sections of this report, the following recommendations are provided:

1) Inglehart-Harbottle (AiGx-462): Per the Rural Historical Farmsteads bulletin, given less than 80% of the site's occupation dates to before 1870, the site has no further cultural heritage value or interest; Stage 3 archaeological assessment is not recommended.

2) The project area be considered free from any further archaeological concerns.

The MHSTCI is requested to review and provide a letter indicating their satisfaction with the results and recommendations presented herein, with regard to the 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences, and to enter this report into the Ontario Public Register of Archaeological Reports.

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is not submitted to the Ontario Minister of Heritage, Sport, Tourism and Culture Industries for review. The final report will be submitted to the Ontario Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c O.18. The final report will be 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 Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the ministry stating that there are no further concerns regarding 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 fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

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

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

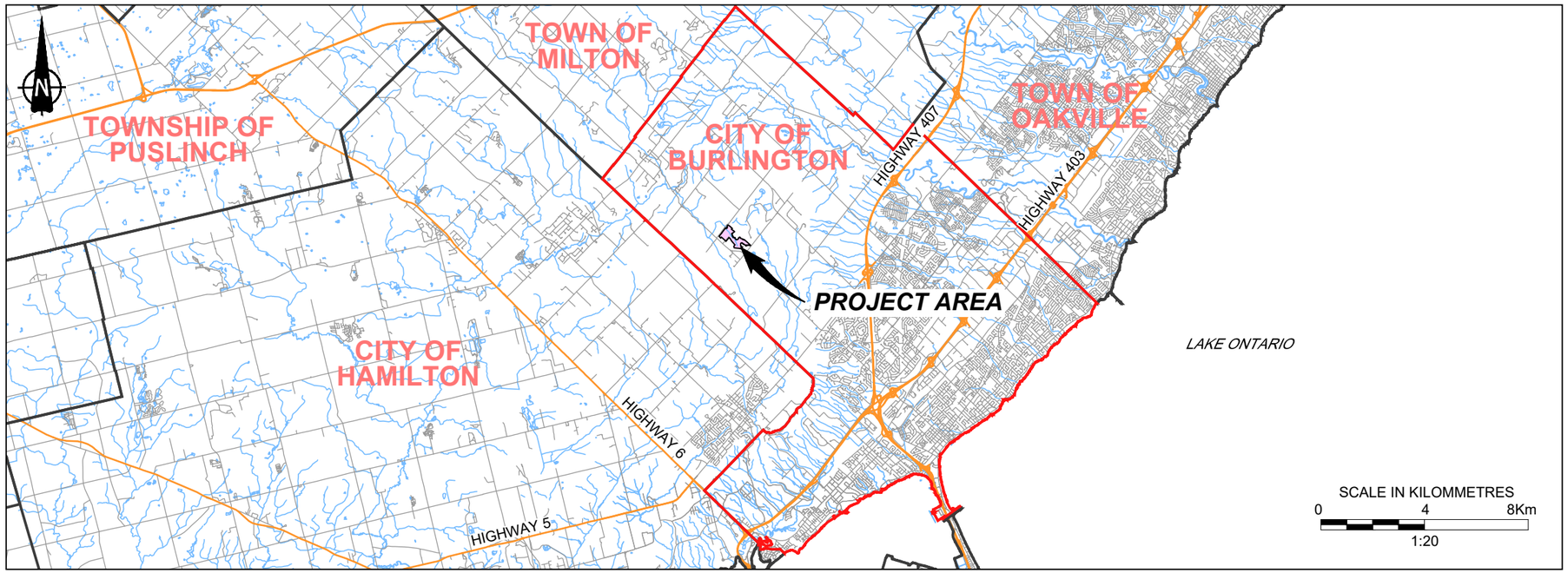
Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.

7.0 MAPS

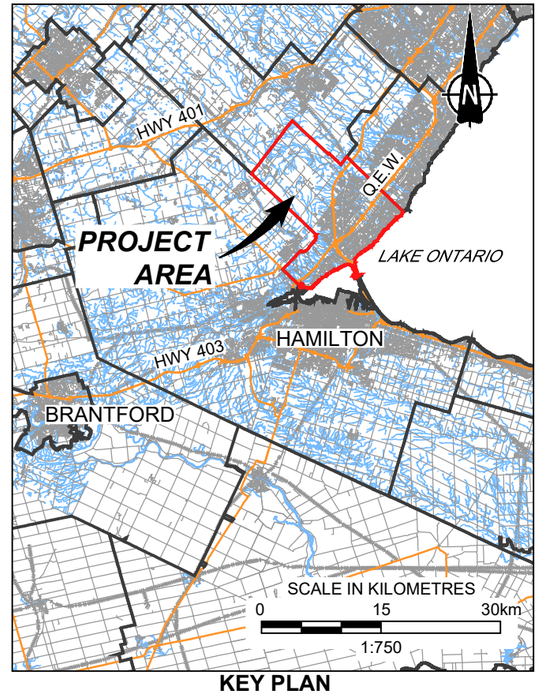
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BING AERIAL IMAGERY and OBM MAPPING



REGIONAL MAP



KEY PLAN

LEGEND

- APPROXIMATE PROJECT AREA
- CITY BURLINGTON BOUNDARY
- TOWNSHIP/MUNICIPALITY BOUNDARY
- BURLINGTON TOWNSHIP/MUNICIPALITY

REFERENCE

DRAWING BASED ON MNR LIO, OBTAINED 2018, PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2018;

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;

BING AERIAL IMAGE AS OF NOVEMBER 26, 2019 (IMAGE DATE UNKNOWN); AND

CANMAP STREETFILES V2008.4.

NOTES

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

BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE

LOCATION MAP

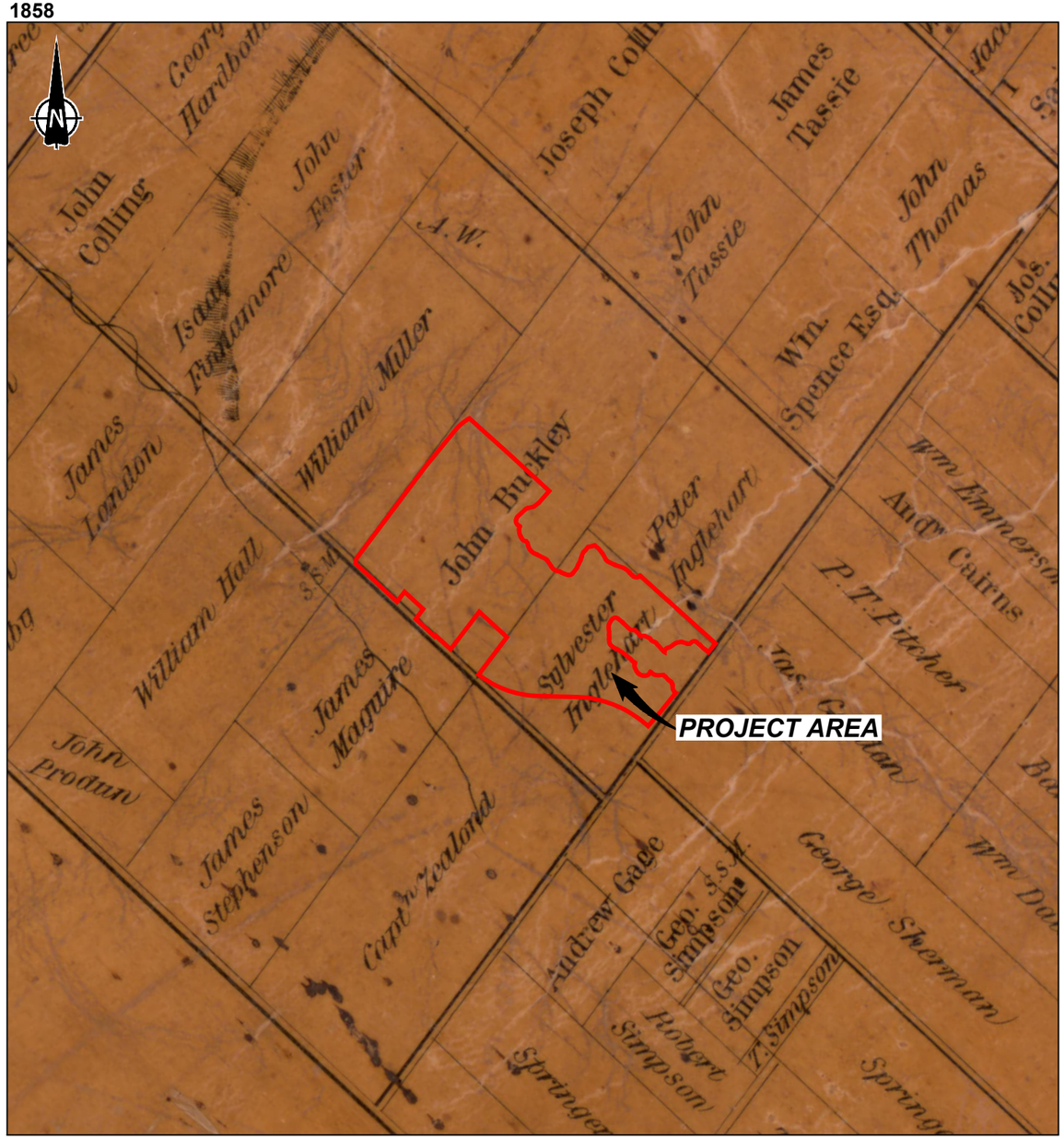
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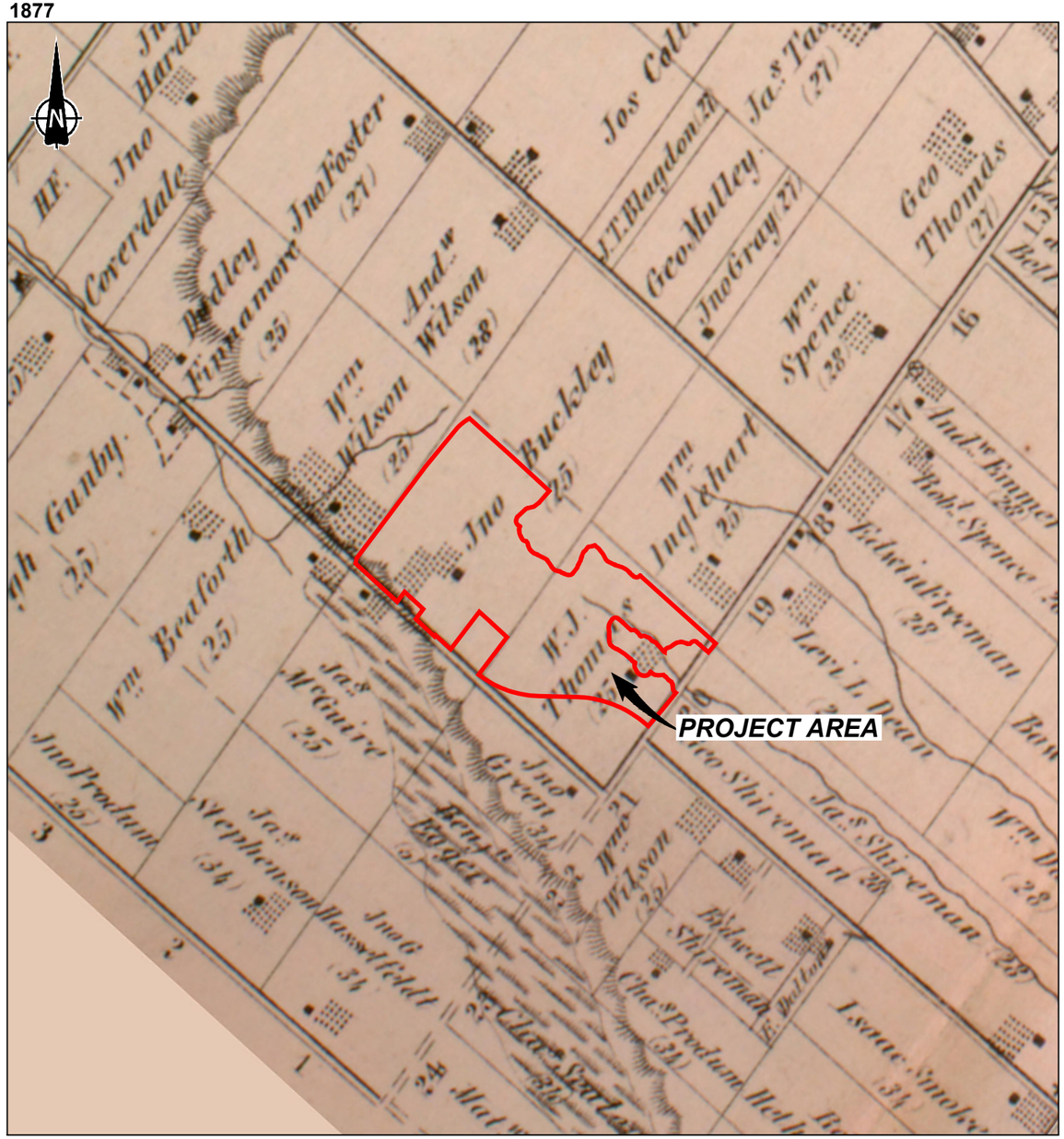
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1858



1877



LEGEND

APPROXIMATE PROJECT AREA

REFERENCE

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;
1858 HISTORICAL COUNTY MAP OF HALTON COUNTY (TREMAINE 1858);
1877 ILLUSTRATED HISTORICAL ATLAS OF THE COUNTY OF HALTON (WALKER & MILES 1877)

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

PROJECT

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE

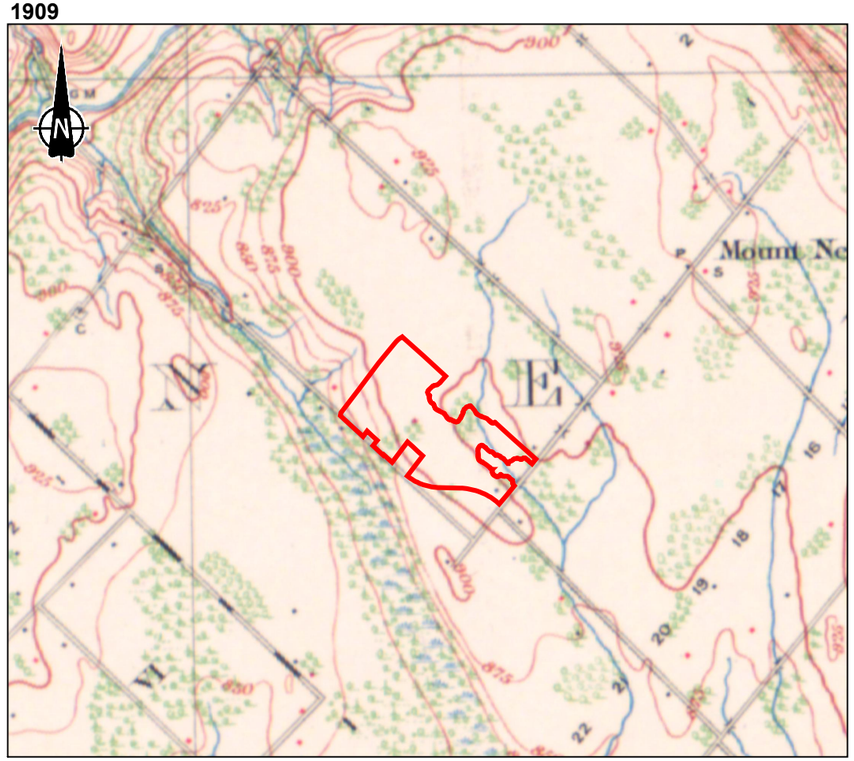
1858 AND 1877 OVERLAY OF THE PROJECT AREA

GOLDER

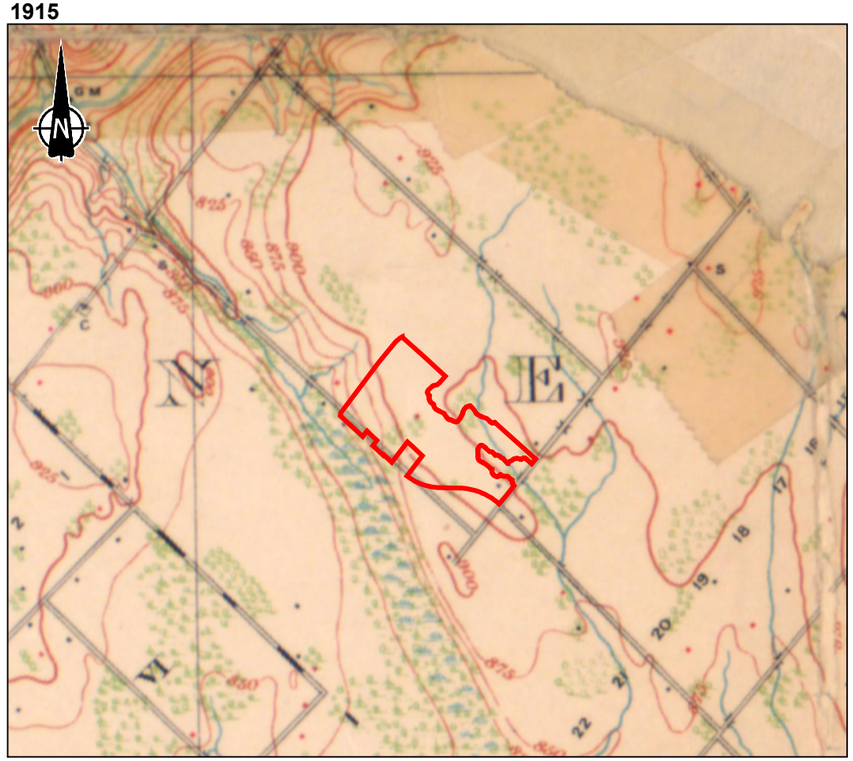
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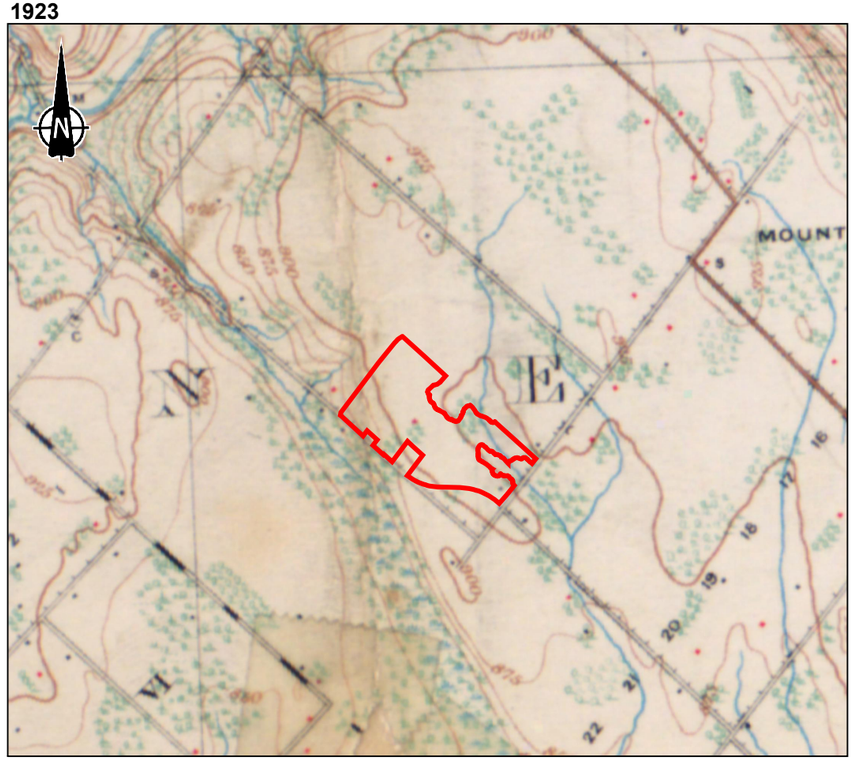
1909



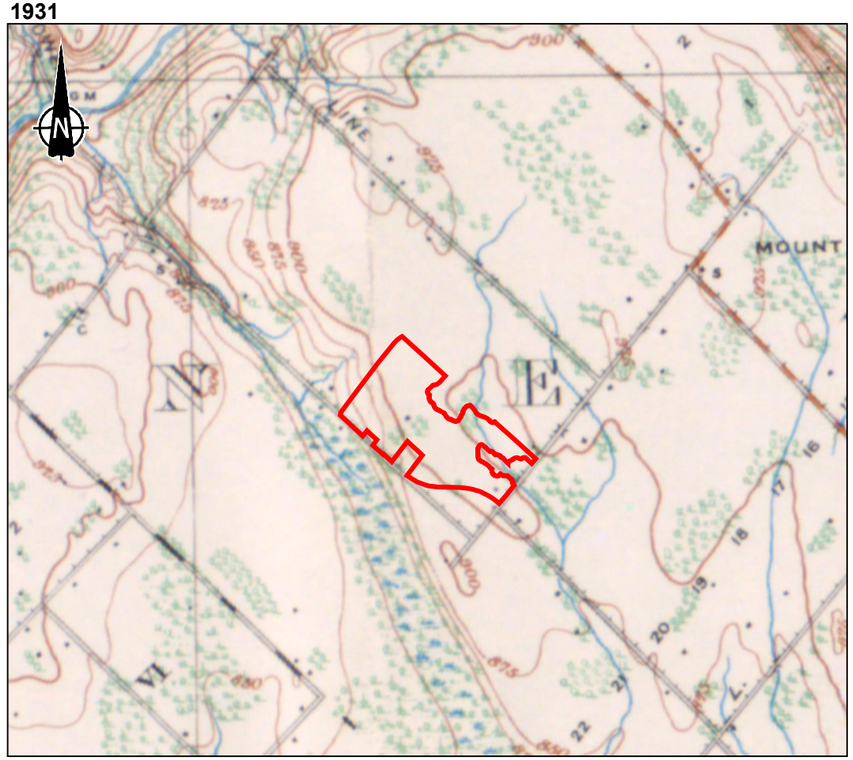
1915



1923



1931



LEGEND

APPROXIMATE PROJECT AREA

REFERENCE

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;
DEPARTMENT OF MILITIA AND DEFENCE, 1909;
DEPARTMENT OF MILITIA AND DEFENCE, 1909, REPRINTED WITH CORRECTIONS 1915;
DEPARTMENT OF NATIONAL DEFENCE, 1909, REPRINTED WITH CORRECTIONS 1923;
DEPARTMENT OF NATIONAL DEFENCE, 1909, REPRINTED WITH CORRECTIONS 1931

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

PROJECT

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE

NATIONAL TOPOGRAPHIC SERIES MAPPING 1909, 1915, 1923 AND 1931

GOLDER

PROJECT No.			18104957	FILE No.	18104957-R01002
				SCALE	NTS REV.
CADD	ZJB/DCH	Mar 11/20			
CHECK				MAP 3	



LEGEND

APPROXIMATE PROJECT AREA

REFERENCE

DRAWING BASED ON 1954 AERIAL IMAGE PROVIDED BY HUNTING SURVEY CORPORATION LIMITED; AND PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;

NOTES

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ALL LOCATIONS ARE APPROXIMATE.

PROJECT

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE

1954 AERIAL IMAGE OVERLAY OF THE PROJECT AREA

GOLDER

PROJECT No.		18104957	FILE No.	18104957-R01002
			SCALE NTS	REV.
CADD	ZJB/DCH	Mar 11/20		
CHECK				

MAP 4

Client: Nelson Aggregates Co.
Original Format is Letter 279mm x 216mm
25mm 0
Mar 11, 2020 - 2:33pm
Drawing file: 18104957-R01002.dwg

Client: Nelson Aggregates Co.

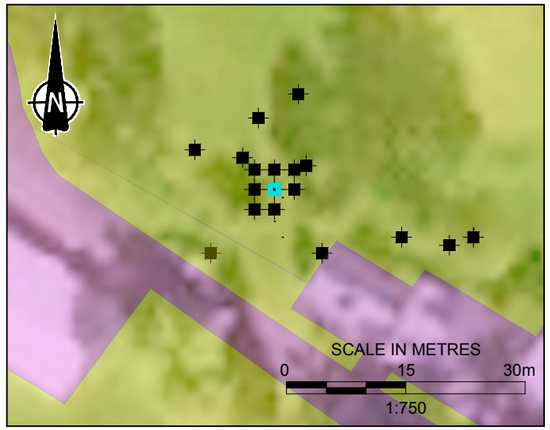
Original Format is Tabloid 279mm x 432mm

0 25mm

Sep 15, 2020 – 12:03pm

Drawing file: 18104957-R01005.dwg





INSET A

LEGEND

- APPROXIMATE PROJECT AREA
- PREVIOUSLY DISTURBED; GRADING ASSESSMENT
- PREVIOUSLY DISTURBED
- PERMANENTLY WET
- TEST PIT SURVEYED AT 5m INTERVALS
- TEST PIT SURVEYED AT 10m INTERVALS

INGLEHART-HARBOTTLE (AiGx-462)

- POSTIVE TEST PIT - REFER TO INSET A
- TEST UNIT (1m X 1m) - REFER TO INSET A

REFERENCE

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;

BING AERIAL IMAGE AS OF NOVEMBER 26, 2019 (IMAGE DATE UNKNOWN); AND

FIGURE 1 FROM PDF EARTH GRADING ASSESSMENT: BURLINGTON SPRINGS GOLF COURSE, PROVIDED BY WHITEWATER HYDROGEOLOGY LTD., AUGUST 12, 2019.

NOTES

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

BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT RESULTS

GOLDER

PROJECT No.		18104957	FILE No.	18104957-R01005
			SCALE	AS SHOWN REV.
CADD	ZJB/DCH	Sept 15/20		
CHECK				

MAP 5

Client: Nelson Aggregates Co.

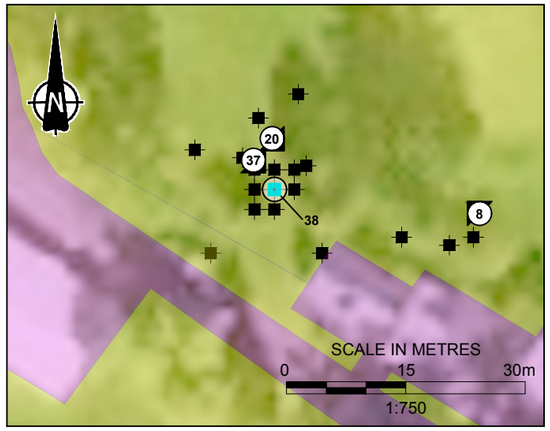
Original Format is Tabloid 279mm x 432mm

0 25mm

Sep 15, 2020 – 12:05pm

Drawing file: 18104957-R01005.dwg





INSET A

LEGEND

- APPROXIMATE PROJECT AREA
- FIXED REFERENCE LANDMARK
- PREVIOUSLY DISTURBED; GRADING ASSESSMENT
- PREVIOUSLY DISTURBED
- PERMANENTLY WET
- TEST PIT SURVEYED AT 5m INTERVALS
- TEST PIT SURVEYED AT 10m INTERVALS
- PHOTOGRAPH LOCATION, VIEWING DIRECTION, AND PLATE NUMBER
- PHOTOGRAPH LOCATION, LOOKING DOWN, AND PLATE NUMBER

INGLEHART-HARBOTTLE (AiGx-462)

- POSTIVE TEST PIT - REFER TO INSET A
- TEST UNIT (1m X 1m) - REFER TO INSET A

REFERENCE

PROJECT AREA PROVIDED BY MHBC, FILE "9135D - Nelson Burlington Quarry Extension - Site Plan - Updated February 12 2020.dwg", FEBRUARY 12 - 2020;

BING AERIAL IMAGE AS OF NOVEMBER 26, 2019 (IMAGE DATE UNKNOWN); AND

FIGURE 1 FROM PDF EARTH GRADING ASSESSMENT: BURLINGTON SPRINGS GOLF COURSE, PROVIDED BY WHITEWATER HYDROGEOLOGY LTD., AUGUST 12, 2019.

NOTES

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

BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT
WEST EXTENSION OF BURLINGTON QUARRY
BURLINGTON, ONTARIO

TITLE

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT RESULTS WITH PHOTOGRAPH LOCATIONS

GOLDER

PROJECT No.	18104957		FILE No.	18104957-R01005
			SCALE	AS SHOWN REV.
CADD	ZJB/DCH	Sept 15/20		
CHECK				

MAP 6

8.0 IMAGES



Image 1 Looking northeast at disturbances associated with the existing Burlington Springs Golf Club clubhouse.



Image 2 Looking northwest at disturbances associated with the paved parking lot and pathways.



Image 3 Looking east at disturbances associated with clubhouse footprint and paved pathway.



Image 4 Looking southeast at disturbances associated with berm construction and paved pathway.



Image 5 Looking southwest at disturbances associated with USGA putting greens, paved access road and pathway.



Image 6 Looking west at disturbances associated golf sand traps.



Image 7 Looking northwest at 19th century residence located in the southern portion of gold course.



Image 8 Looking northwest at east side of historic home in southern portion of golf course.



Image 9 Looking northeast at western side of historic home located in southern portion of golf course.



Image 10 Looking southwest at disturbances associated with paved pathways, permanently wet area, and test pit survey at 5m intervals.



Image 11 Looking southeast at permanently wet area.



Image 12 Looking northeast at permanently wet area.



Image 13 Looking northeast at test pit survey at 5 m intervals.



Image 14 Looking northeast at test pit survey at 5 m intervals.



Image 15 Looking southeast at test pit survey at 5 m intervals.



Image 16 Looking southeast at test pit survey at 5 m intervals.



Image 17 Looking northwest at test pit survey at 5 m intervals.



Image 18 Looking west at test pit survey at 5 m intervals.



Image 19 Looking northeast at test pit survey of manicured lawn at 5m intervals.



Image 20 Looking southeast at test pit survey at 5 m intervals north of 19th century residence.



Image 21 Looking southeast at test pit survey at 5 m intervals.



Image 22 Looking south at test pit survey at 5 m intervals.

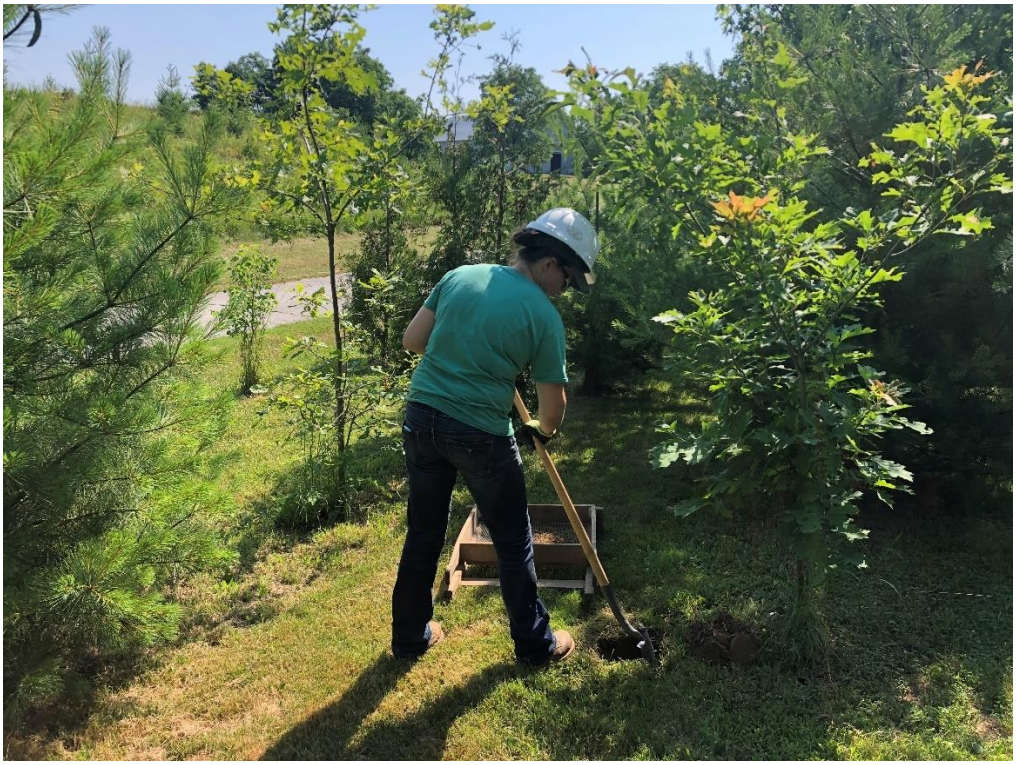


Image 23 Looking north at test pit survey at 5 m intervals.



Image 24 Looking northwest at test pit survey at 5 m intervals.



Image 25 Looking south at test pit survey at 5 m intervals.



Image 26 Looking south at test pit survey at 5 m intervals.



Image 27 Looking northwest at test pit survey at 5 m intervals.



Image 28 Looking north at test pit survey of fairway area at 10 m intervals.



Image 29 Looking northwest at test pit survey of fairway area at 10 m intervals.



Image 30 Looking northeast at test pit survey at 10 m intervals.



Image 31 Looking northeast at test pit survey at 5 m intervals.



Image 32 Looking northwest at test pit survey at 5 m intervals.



Image 33 Typical test pit stratigraphy for grassed areas tested on a 5 m interval.



Image 34 Typical test pit stratigraphy within the woodlots.



Image 35 Typical test pit stratigraphy of the fairway areas.



Image 36 Typical test pit stratigraphy of the fairway areas.



Image 37 Looking southeast at 1 m by 1 m test unit and cardinal test pits north of historic home located in the southern portion of golf course.



Image 38 Looking north at completed test unit north of historic home located in the southern portion of golf course.



Image 39 Sample of ceramic artifacts recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): ironstone x3; (Bottom L-R): ironstone partial makers marks.



Image 40 Sample of ceramic artifacts recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): moulded POR, transfer printed POR exhibiting gold gilding; (Bottom L-R): gilt POR x2, decalcomania POR x2.



Image 41 Sample of glass bottles recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): aqua glass bottle base, aqua glass brandy bottle finish, clear glass bottle base; (Bottom L-R): Aqua glass square bottle base, blue glass bottle.



Image 42Sample of hardware artifacts recovered from Inglehart-Harbottle (AiGx-462) (Top L-R): metal buckle, miscellaneous metal hardware, metal hinge; (Middle L-R): aluminum rivet, large bolt, wire drawn nails x4, machine cut nail x4, roofing nail; (Bottom L-R): screw x3.



Image 43 Historic glass jar lid, recovered from Inglehart-Harbottle (AiGx-462).



Image 44 Personal artifacts recovered from Inglehart-Harbottle (AiGx-462) (L-R): large metal grommet, small metal grommet x2, undecorated white clay pipe bowl, undecorated white clay pipe stem.

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Signature Page

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APPENDIX A

Artifact Catalogue – Inglehart-Harbottle (AiGx-462)

Catalogue No.	Provenance	Depth (cm)	Total Depth (cm)	Total Freq.	Artifact	Description	Detail	Comments	GWI LT 1.6mm	Broad Type	Material/Class	Material/Class	Object/Function
1	Test Unit 1	8cm-28cm	33	1	nail	roofing				Euro-Canadian Historical	Metal	Aluminum	Structural
2	Test Unit 1	8cm-28cm	33	40	nail	undetermined	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
3	Test Unit 1	8cm-28cm	33	3	screw		corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
4	Test Unit 1	8cm-28cm	33	1	bolt		corroded	large, flat head		Euro-Canadian Historical	Metal	Ferrous	Structural
5	Test Unit 1	8cm-28cm	33	119	nail	machine cut	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
6	Test Unit 1	8cm-28cm	33	130	nail	wire drawn	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
7	Test Unit 1	8cm-28cm	33	1	hinge			fits together		Euro-Canadian Historical	Metal	Ferrous	Hardware
8	Test Unit 1	8cm-28cm	33	1	rivet					Euro-Canadian Historical	Metal	Aluminum	Hardware
9	Test Unit 1	8cm-28cm	33	45	metal	miscellaneous	corroded			Euro-Canadian Historical	Metal	Ferrous	Miscellaneous
10	Test Unit 1	8cm-28cm	33	1	metal	fence wire	corroded			Euro-Canadian Historical	Metal	Ferrous	Hardware
11	Test Unit 1	8cm-28cm	33	43	glass	chimney lamp	clear			Euro-Canadian Historical	Glass	Glass	Domestic
12	Test Unit 1	8cm-28cm	33	182	glass	bottle	body/base/finish	1 aqua bottle finish, oil finish; 1 aqua large base, cup bottom mould, 3 square bases, clear with side seams; 9 olive; 4 amber; 1 blue; 2 green; 6 purple; 17 aqua		Euro-Canadian Historical	Glass	Glass	Domestic
13	Test Unit 1	8cm-28cm	33	175	glass	window			12	Euro-Canadian Historical	Glass	Pane	Structural
14	Test Unit 1	8cm-28cm	33	5	glass	dish		2 aqua; 3 clear		Euro-Canadian Historical	Glass	Glass	Domestic
15	Test Unit 1	8cm-28cm	33	4	glass	jar	rim	all threaded rim pieces, clear		Euro-Canadian Historical	Glass	Glass	Domestic
16	Test Unit 1	8cm-28cm	33	1	glass	lid		embossed "Made in Canada"/"37" with embossed crown, clear, almost complete		Euro-Canadian Historical	Glass	Glass	Domestic
17	Test Unit 1	8cm-28cm	33	1	metal	buckle	corroded	likely for horse tack		Euro-Canadian Historical	Metal	Ferrous	Hardware
18	Test Unit 1	8cm-28cm	33	1	metal	hardware	corroded	large, oval		Euro-Canadian Historical	Metal	Ferrous	Hardware
19	Test Unit 1	8cm-28cm	33	1	metal	hardware	corroded	metal tube		Euro-Canadian Historical	Metal	Ferrous	Hardware
20	Test Unit 1	8cm-28cm	33	1	white clay	pipe stem	plain	broken near elbow; elbow missing		Euro-Canadian Historical	White Clay	White Clay	Personal
21	Test Unit 1	8cm-28cm	33	1	metal	miscellaneous		hook-like shape		Euro-Canadian Historical	Metal	Ferrous	Miscellaneous
22	Test Unit 1	8cm-28cm	33	28	coarse red earthenware		body	15 glazed; 13 unglazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
23	Test Unit 1	8cm-28cm	33	1	white clay	pipe bowl	plain			Euro-Canadian Historical	White Clay	White Clay	Personal
24	Test Unit 1	8cm-28cm	33	1	lead	pencil				Euro-Canadian Historical	Lead	Pencil	Personal
25	Test Unit 1	8cm-28cm	33	3	plastic					Euro-Canadian Historical	Plastic	Plastic	Recent
26	Test Unit 1	8cm-28cm	33	1	stoneware	glazed		brown glaze exterior, grey salt-glaze interior		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
27	Test Unit 1	8cm-28cm	33	19	miscellaneous ceramic			heat altered		Euro-Canadian Historical	Ceramic	Refined	Domestic
28	Test Unit 1	8cm-28cm	33	6	grommet	metal		1 large; 5 small		Euro-Canadian Historical	Metal	Copper Alloy	Personal
29	Test Unit 1	8cm-28cm	33	27	faunal			1 large rib, cut with circular saw; 26 fragmentary long bones		Euro-Canadian Historical	Mammal	Mammal	Faunal
30	Test Unit 1	8cm-28cm	33	3	slag					Euro-Canadian Historical	Indeterminate	Indeterminate	Miscellaneous
31	Test Unit 1	8cm-28cm	33	1	refined white earthenware	painted	body	light pink, light blue floral		Euro-Canadian Historical	Ceramic	Refined	Domestic
32	Test Unit 1	8cm-28cm	33	34	ironstone	plain	body/rim			Euro-Canadian Historical	Ceramic	Refined	Domestic
33	Test Unit 1	8cm-28cm	33	2	ironstone	plain	base	1 partial makers mark with half rampant lion " CHINA/RN/EM"; 1 bottom of crest with "ANLEY" and "23" pressed under		Euro-Canadian Historical	Ceramic	Refined	Domestic
34	Test Unit 1	8cm-28cm	33	2	ironstone	transfer print	body	2 blue; 1 geometric pattern; 1 floral		Euro-Canadian Historical	Ceramic	Refined	Domestic
35	Test Unit 1	8cm-28cm	33	5	coarse yellow earthenware	rockingham glaze	body			Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
36	Test Unit 1	8cm-28cm	33	5	vitrified white earthenware	plain	body			Euro-Canadian Historical	Ceramic	Vitrified	Domestic
37	Test Unit 1	8cm-28cm	33	2	vitrified white earthenware	moulded	body	1 with fluting; 1 undetermined		Euro-Canadian Historical	Ceramic	Vitrified	Domestic
38	Test Unit 1	8cm-28cm	33	4	vitrified white earthenware	decal	body	red geometric pattern, with red flowers and green undetermined pattern		Euro-Canadian Historical	Ceramic	Vitrified	Domestic
39	Test Unit 1	8cm-28cm	33	6	vitrified white earthenware	transfer print	gilt	5 green floral transfer print with gold band; 1 yellow and green with gold		Euro-Canadian Historical	Ceramic	Vitrified	Domestic
40	Test Unit 1	8cm-28cm	33	8	vitrified white earthenware	gilt	multi	gold banding, 4 with pastel green and pastel pink floral		Euro-Canadian Historical	Ceramic	Vitrified	Domestic
41	Test Pit 3	0-25	30	1	glass	bottle	body	aqua		Euro-Canadian Historical	Glass	Glass	Domestic
42	Test Pit 3	0-25	30	1	ironstone	plain	body			Euro-Canadian Historical	Ceramic	Refined	Domestic
43	Test Pit 2	0-25	30	1	metal	miscellaneous				Euro-Canadian Historical	Metal	Ferrous	Miscellaneous
44	Test Pit 2	0-25	30	1	glass	bottle	body	clear		Euro-Canadian Historical	Glass	Glass	Domestic
45	Test Pit 2	0-25	30	1	glass	chimney lamp	body	clear		Euro-Canadian Historical	Glass	Glass	Domestic
46	Test Pit 2	0-25	30	2	miscellaneous ceramic			heat altered		Euro-Canadian Historical	Ceramic	Refined	Domestic
47	Test Pit 10	0-25	30	1	glass	bottle	body	clear		Euro-Canadian Historical	Glass	Glass	Domestic
48	Test Pit 10	0-25	30	2	glass	window		aqua	2	Euro-Canadian Historical	Glass	Pane	Structural

Catalogue No.	Provenance	Depth (cm)	Total Depth (cm)	Total Freq.	Artifact	Description	Detail	Comments	GWI LT 1.6mm	Broad Type	Material/Class	Material/Class	Object/Function
49	Test Pit 11	0-25	30	1	metal	miscellaneous				Euro-Canadian Historical	Metal	Ferrous	Miscellaneous
50	Test Pit 11	0-25	30	1	grommet					Euro-Canadian Historical	Metal	Copper Alloy	Personal
51	Test Pit 11	0-25	30	1	glass	window		clear		Euro-Canadian Historical	Glass	Pane	Structural
52	SW Intensification	0-30	35	1	glass	window		clear		Euro-Canadian Historical	Glass	Pane	Structural
53	Test Pit 4	0-22	27	1	glass	window		aqua		Euro-Canadian Historical	Glass	Pane	Structural
54	Test Pit 4	0-22	27	1	coarse red earthenware		body	glazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
55	Test Pit 5	0-25	30	1	miscellaneous ceramic	transfer print	body	black filagree; heat altered undetermined base ceramic		Euro-Canadian Historical	Ceramic	Refined	Domestic
56	Test Pit 9	0-25	30	1	glass	window		clear		Euro-Canadian Historical	Glass	Pane	Structural
57	NW Intensification	0-28	33	4	nail	wire drawn	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
58	NW Intensification	0-28	33	2	glass	bottle		1 clear; 1 olive		Euro-Canadian Historical	Glass	Glass	Domestic
59	S Intensification	0-28	33	3	glass	bottle		all clear; 1 with "MUEL"		Euro-Canadian Historical	Glass	Glass	Domestic
60	S Intensification	0-28	33	2	nail	machine cut	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
61	W Intensification	0-28	33	1	recent material	rubber		rubber band		Euro-Canadian Historical	Rubber	Recent	Recent
62	W Intensification	0-28	33	4	glass	bottle		clear		Euro-Canadian Historical	Glass	Glass	Domestic
63	W Intensification	0-28	33	8	glass	window		clear; 5 frosted		Euro-Canadian Historical	Glass	Pane	Domestic
64	W Intensification	0-28	33	1	nail	machine cut	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
65	E Intensification	0-28	33	5	ironstone	plain	body			Euro-Canadian Historical	Ceramic	Refined	Domestic
66	E Intensification	0-28	33	2	ironstone	transfer print	rim	green geometric and floral		Euro-Canadian Historical	Ceramic	Refined	Domestic
67	E Intensification	0-28	33	1	coarse yellow earthenware		base	glazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
68	E Intensification	0-28	33	2	coarse red earthenware		base/body	glazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
69	E Intensification	0-28	33	1	grommet					Euro-Canadian Historical	Metal	Copper Alloy	Personal
70	E Intensification	0-28	33	1	nail	wire drawn	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
71	E Intensification	0-28	33	4	nail	machine cut	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
72	E Intensification	0-28	33	6	glass	bottle	body	clear		Euro-Canadian Historical	Glass	Glass	Domestic
73	Test Pit 7	0-25	30	4	miscellaneous ceramic			heat altered		Euro-Canadian Historical	Ceramic	Refined	Domestic
74	Test Pit 7	0-25	30	1	coarse red earthenware		rim	unglazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
75	Test Pit 7	0-25	30	4	glass	bottle	body	1 purple "RO"; 3 aqua		Euro-Canadian Historical	Glass	Glass	Domestic
76	Test Pit 1	0-25	30	1	metal	miscellaneous	corroded			Euro-Canadian Historical	Metal	Ferrous	Miscellaneous
77	Test Pit 1	0-25	30	4	ironstone	plain	body/base	2 (refit) with green makers mark "ALFRED MEAKIN" around a crown; 2 plain		Euro-Canadian Historical	Ceramic	Refined	Domestic
78	Test Pit 1	0-25	30	3	glass	bottle	body	aqua; 1 with embossed "W"		Euro-Canadian Historical	Glass	Glass	Domestic
79	Test Pit 1	0-25	30	2	nail	wire drawn	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
80	Test Pit 1	0-25	30	1	nail	machine cut	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
81	Test Pit 8	0-30	35	9	glass	window		clear		Euro-Canadian Historical	Glass	Pane	Structural
82	Test Pit 8	0-30	35	2	glass	bottle		1 green; 1 clear		Euro-Canadian Historical	Glass	Glass	Domestic
83	Test Pit 8	0-30	35	1	glass	dish	rim	clear, scalloped rim		Euro-Canadian Historical	Glass	Glass	Domestic
84	Test Pit 8	0-30	35	7	ironstone	plain	body			Euro-Canadian Historical	Ceramic	Refined	Domestic
85	Test Pit 6	0-25	30	6	glass	window		clear		Euro-Canadian Historical	Glass	Pane	Structural
86	Test Pit 6	0-25	30	3	coarse red earthenware		body	unglazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
87	Test Pit 6	0-25	30	7	nail	wire drawn	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
88	Test Pit 6	0-25	30	1	nail	machine cut	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
89	N Intensification	0-28	33	5	nail	wire drawn	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
90	N Intensification	0-28	33	2	glass	window		clear		Euro-Canadian Historical	Glass	Pane	Structural
91	N Intensification	0-28	33	3	coarse red earthenware		rim/body	1 glazed; 2 unglazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian
92	N Intensification	0-28	33	9	glass	bottle	body	1 olive; 1 aqua; 7 clear		Euro-Canadian Historical	Glass	Glass	Domestic
93	N Intensification	0-28	33	4	ironstone	plain	body			Euro-Canadian Historical	Ceramic	Refined	Domestic
94	NE Intensification	0-28	33	2	nail	wire drawn	corroded			Euro-Canadian Historical	Metal	Ferrous	Structural
95	NE Intensification	0-28	33	3	glass	window		clear		Euro-Canadian Historical	Glass	Pane	Structural
96	NE Intensification	0-28	33	3	glass	bottle		clear		Euro-Canadian Historical	Glass	Glass	Domestic
97	NE Intensification	0-28	33	5	glass	dish		fluted, clear		Euro-Canadian Historical	Glass	Glass	Domestic
98	NE Intensification	0-28	33	2	coarse red earthenware		rim/body	unglazed		Euro-Canadian Historical	Ceramic	Coarse	Utilitarian

APPENDIX B

Curriculum Vitae

Education

M.A. Buildings Archaeology, University of York, Yorkshire, United Kingdom, 2012

B.Sc., Biological Anthropology Specialist, University of Toronto, Mississauga, Ontario, Canada, 2007

Certifications

Professional Archaeologist, Ontario, Licence No. P390

Canadian Association of Heritage Professionals (CAHP)

Ontario Association of Professional Archaeologists (APA), Professional Member

Government of Canada, Reliability Status

Languages

English – Fluent

Golder Associates Ltd. – Whitby

Cultural Heritage Specialist & Archaeologist

Mr. Ragavan Nithiyanantham (MA, CAHP) is a Cultural Heritage Specialist and Professional Archaeologist with Golder Associates Ltd. He has extensive cultural heritage, archaeological, and cultural resource management experience in Ontario. He earned his Bachelor of Science from the University of Toronto (2007) and Master's in Buildings Archaeology from the University of York, UK (2012). His Master's dissertation focused on improving Ontario's heritage impact assessment form. He specialises in historic architecture and cultural landscapes, and since joining Golder has produced cultural heritage evaluations and heritage impact assessments for a wide range of properties in southern Ontario. He has served as Project Manager on numerous single and multi-phased cultural heritage assessments and archaeological in the Province of Ontario. Ragavan has extensive experience providing professional and technical consultative advice on cultural heritage and archaeological protection and management within the parameters of the *Ontario Heritage Act*. Ragavan is a member of the Canadian Association of Heritage Professionals (CAHP) and is a professionally licenced archaeologist in Ontario (P390).

Employment History

Golder Associates Ltd. – Whitby, ON
Senior Cultural Heritage Specialist & Archaeologist (2018 to Present)

Archeoworks Inc. – Newmarket, ON
Cultural Heritage Specialist & Senior Archaeologist (2006 to 2018)

D.R. Poulton & Associates Inc. – Toronto, ON
Field Technician (2007 to 2007)

PROJECT EXPERIENCE – CULTURAL HERITAGE

Cultural Heritage Assessment Report – Courtice Employment Lands and Southeast Courtice Secondary Plan Areas
Municipality of Clarington, ON

Principal field investigator for the Cultural Heritage Assessment study for the Courtice Employment Lands and Southeast Courtice Secondary Plan Area in the Municipality of Clarington. Tasks involved field investigation and the identification of cultural heritage resources, as well as consultation with various stakeholders including heritage staff, evaluation of cultural heritage value or interest under *Ontario Regulation 9/06* of the *Ontario Heritage Act*, assessment of impacts from future development, and recommending appropriate mitigative measures.

Cultural Heritage Evaluation Report – Terauley Transformer Station
City of Toronto, ON

Principal field investigator for the Cultural Heritage Evaluation study for the Terauley Transformer Station at 532 Bay Street, Toronto. Tasks involved field investigation, an inventory of the property's built and landscape elements, and assessment of the property's physical condition and integrity, and analysis of the property's structural history and architectural influences, an evaluation of the property using the criteria prescribed in *Ontario Regulation 9/06* and *Ontario Regulation 10/06* of the *Ontario Heritage Act*, and, recommendations for future action.

Cultural Heritage Assessment Report – Downtown Relief Line Transit Project Assessment
City of Toronto, ON

Principal field investigator for the Cultural Heritage Assessment study for the Downtown Relief Line Transit Project Assessment in the City of Toronto. Tasks involved field investigation and the identification of cultural heritage resources along Queen Street West, Queen Street East, Pape Avenue, and Carlaw Avenue.

Port Hope Area Initiative Project, Heritage Impact Assessment - 187 Walton Street
Municipality of Port Hope, ON

Principal investigator for the Heritage Impact Assessment 187 Walton Street associated with the Port Hope Area Initiative Project. Tasks included completing PHAI Project Awareness Training, completing field investigations rom public right-of-way, documentation of structures employing the Canadian Inventory of Historic Building forms, and assessment of impacts associated with the remediation project on the heritage attributes using municipal and provincial heritage guidelines and policies.

Port Hope Area Initiative Project, Heritage Impact Assessment - 28 Bedford Street
Municipality of Port Hope, ON

Principal investigator for the Heritage Impact Assessment 28 Bedford Street associated with the Port Hope Area Initiative Project. Tasks included completing PHAI Project Awareness Training, completing field investigations rom public right-of-way, documentation of structures employing the Canadian Inventory of Historic Building forms, and assessment of impacts associated with the remediation project on the heritage attributes using municipal and provincial heritage guidelines and policies.

Cultural Heritage Screening - Milton Land Base Analysis
Milton, ON

Project director, principal investigator, and co-author of a Cultural Heritage Assessment Report of Built Heritage Resources and Cultural Heritage Landscapes for the Milton Land Base Analysis. Tasks involved background research, field investigation, documentation, and evaluation of the existing conditions and resources.

Cultural Heritage Existing Conditions and Impacts Assessment - Queen Street East Road Reconstruction, Bridge and Culvert Improvements
Town of Caledon, ON

Project director, principal investigator, and co-author of a Cultural Heritage Assessment Report of Existing Conditions and Impacts Assessment for the Queen Street East road reconstruction, bridge and culvert improvements, in the Town of Caledon. Tasks involved background research, field investigation, documentation, and evaluation of the existing conditions, structures, and bridges, employing Ontario Regulation 9/06 and the Heritage Bridge Guidelines evaluation criteria, and production of a report.

Cultural Heritage Screening - Hunt Street and Finley Avenue Improvements, EA
Town of Ajax, ON

Project director, principal investigator, and co-author of a Cultural Heritage Assessment Report of Built Heritage Resources and Cultural Heritage Landscapes for the Hunt Street and Finley Avenue Improvements, Class EA. Tasks involved background research, field investigation, consultation with various stakeholders (heritage committee, Town of Ajax, and heritage planner), documentation, and evaluation of the existing conditions and resources.

Cultural Heritage Assessment Report - Webber and Rye Urbanization and Harper Creek North Reach Class EA
Peterborough, ON

Project director, principal investigator and co-author of a cultural heritage screening report identifying known and potential cultural heritage resources for an Environmental Assessment for the Webber and Rye Urbanization project. Tasks involved research into heritage registers and secondary sources to look for cultural heritage resources in the study area.

Cultural Heritage Impact Assessment – George Hunter House City of Markham, ON	Cultural Heritage Specialist and co-author a Cultural Heritage Impact Assessment of the George Hunter House (designated Part IV of the Ontario Heritage Act), in the City of Markham. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of impacts.
Cultural Heritage Impact Assessment – Henry Burton House City of Vaughan, ON	Cultural Heritage Specialist and co-author a Cultural Heritage Impact Assessment of the Henry Burton House, 8811 Huntington Road in the City of Vaughan. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of the property's cultural heritage value. The house was determined to have cultural heritage value and recommended to for adaptive reuse.
Cultural Heritage Impact Assessment – John Fleming House City of Vaughan, ON	Cultural Heritage Specialist and co-author a Cultural Heritage Impact Assessment of the John Fleming House, 9151 Huntington Road in the City of Vaughan. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of the property's cultural heritage value. The house was determined to have cultural heritage value and recommended to for adaptive reuse.
Cultural Heritage Assessment - Jimmy Thompson Memorial Pool, 1099 King Street East City of Hamilton, ON	Cultural Heritage Specialist and co-author a Cultural Heritage Assessment of the Jimmy Thompson Memorial Pool in the City of Hamilton. Tasks involved background research, field investigation, consultation with various stakeholders, and an evaluation of the property's cultural heritage value. The Pool was determined to have cultural heritage value and recommended to be designated under Ontario Regulation 9/06 of the Ontario Heritage Act.
Cultural Heritage Assessment Report - 8175 Sarah Street City of Niagara Falls, ON	Project director and co-author of a Cultural Heritage Assessment Report for 8175 Sarah Street in the City of Niagara Falls. Tasks involved background research, field investigation, documentation, identification of existing conditions, and reporting.
Cultural Heritage Impact Statement - 1500 Mayfield Road (Home United Church) Town of Caledon, ON	Project director, principal investigator, and co-author of a Cultural Heritage Impact Statement Report for the Home United Church (1500 Mayfield Road) tied to the proposed improvements to Mayfield Road (Regional Road 14), Municipal Class EA. Tasks involved background research, field investigation, documentation, identification of existing conditions, assessment of impacts from the planned development, and recommending appropriate mitigative measures.
Cultural Heritage Impact Assessment - 19695, 19741, 19781, 19785, 19798 Main Street and 1532 Queen Street East Town of Caledon, ON	Project director as well as senior advisor of a Cultural Heritage Impact Assessment for the 19695, 19741, 19781, 19785, 19798 Main Street and 1532 Queen Street East, in the Town of Caledon. for the proposed improvements to Mayfield Road (Regional Road 14), Municipal Class EA. Project tasks involved background research, field investigation, documentation, identification of existing conditions, assessment of impacts from the planned development, and recommending appropriate mitigative measures.

PROJECT EXPERIENCE – ARCHAEOLOGY

Port Hope Area Initiative Project – Assessment of Chance Finds – Faunal Remains Municipality of Port Hope, ON	Principal investigator for the assessment of chance finds – faunal remains – for the Port Hope Area Initiative Project. Tasks included completing PHAI Project Awareness Training, in-house health and safety training, maintaining health and safety protocols, and the assessment on faunal remains.
Stage 1 Archaeological Assessment, Proposed Improvements to Niagara River Recreational Trail Regional Municipality of Niagara, ON	Principal investigator for the Stage 1 Archaeological Assessment for the proposed improvements to Niagara River Recreational Trail, in the City of Niagara Fall and Town of Fort Erie, Regional Municipality of Niagara. Following MTCS criteria to determine pre- and post-contact Indigenous archaeological potential and historical Euro-Canadian archaeological potential, the assessment determined parts of the project area to have archaeological potential. Areas determined to have archaeological potential were recommended for Stage 2 archaeological assessment.
Stage 1 Archaeological Assessment, McFarland House Regional Municipality of Niagara, ON	Principal investigator for the Stage 1 Archaeological Assessment of the McFarland House property, in the Town of Niagara-on-the-Lake, Regional Municipality of Niagara. Following MTCS criteria to determine pre- and post-contact Indigenous archaeological potential and historical Euro-Canadian archaeological potential, the assessment determined majority of the project area to have archaeological potential. Areas determined to have archaeological potential were recommended for Stage 2 archaeological assessment.
Stage 1 Archaeological Assessment, Proposed Queensway/ Hurontario Area Sanitary Sewer, Class EA City of Mississauga, ON	Project director and professional licensee for the Stage 1 Archaeological Assessment for the proposed Queensway/ Hurontario Area Sanitary Sewer, Class EA, in the City of Mississauga. This project involved the detailed evaluation of archaeological potential for six (6) proposed preliminary sanitary sewer routing options as per Ministry Standards and Guidelines and recommending appropriate strategies for Stage 2 survey. Tasks involved project directing and senior technical review.
Stage 1 Archaeological Assessment Proposed Improvements to Major Mackenzie Drive from McNaughton Road to Keele Street City of Vaughan, ON	Task Lead for the Stage 1 Archaeological Assessment for the proposed improvements to Major Mackenzie Drive from McNaughton Road to Keele Street in the Regional Municipality of York, Ontario. This project involved the assessment of archaeological potential and the mitigation of impacts. Tasks involved the management of reporting, co-authoring, as well as professional review.
Stage 1 Archaeological Assessment - Barrie Drainage Master Plan, Class EA City of Barrie, ON	Project director for the Stage 1 Archaeological Assessment for the Barrie Drainage Master Plan, Class EA. Project tasks involved background research, assessment of archaeological potential, site data research, identification of existing conditions, and production of a report as per the 2011 Standards and Guidelines for Consultant Archaeologists, published by the Ministry of Tourism, Culture and Sport.
Stage 1 Archaeological Assessment, Gerrard Street Trunk Watermain Replacement City of Toronto, ON	Project manager for the Stage 1 Archaeological Assessment for the investigation for the Gerrard Street Trunk Watermain Replacement in the City of Toronto. This project involved the assessment of archaeological potential employing predictive modelling as per the 2011 Standards and Guidelines for Consultant Archaeologists, published by the Ministry of Tourism, Culture and Sport and the City of Toronto's Archaeological Master Plan. Tasks involved the management of field investigation and reporting.

Stage 1 Archaeological Assessment for the Proposed Master Environmental Servicing Plan for the Green Lane Secondary Plan Area City of Vaughan, ON	Project director as well as senior advisor for the Stage 1 archaeological assessment for the proposed Master Environmental Servicing Plan for the Green Lane Secondary Plan Area. The project involved the assessment of archaeological potential employing criteria implemented by the Ministry of Tourism, Culture and Sport and the mitigation of impacts. Tasks involved project directing, management of fieldwork, reporting, and professional review.
Stage 1 Archaeological Assessment, Investigation of Basement Flooding and Control of Storm Water Runoff Quality City of Toronto, ON	Project director for the Stage 1 Archaeological Assessment for the investigation of basement flooding and control of storm water runoff quality in the City of Toronto. This project involved the assessment of archaeological potential within areas of development impacts and recommending appropriate mitigation measures. Tasks involved the management of field investigation and reporting, senior advisor and technical review.
Stage 1-2 Archaeological Assessment, Port Colborne Quarry Expansion Regional Municipality of Niagara, ON	Project manager for the Stage 1-2 Archaeological Assessment for the Port Colborne quarry expansion in the Regional Municipality of Niagara. This project involved the determination of archaeological potential and property assessment of 200+ acres in the City of Port Colborne. The assessment resulted in the identification of 29 pre-contact sites, 1 Euro-Canadian site, and 1 multi-component site. Stage 3 assessment was recommended as per the MTCS criteria on five of the sites. Tasks involved, project management, fieldwork coordination, reporting and professional review.
Stage 1-2 Archaeological Assessment, Town of Richmond Hill Civic Precinct Project Town of Richmond Hill, ON	Project manager and professional licensee for the Stage 1-2 Archaeological Assessment for the Town of Richmond Hill Civic Precinct Project. This project involved the assessment of archaeological potential and Stage 2 test pit survey in areas of archaeological potential. Tasks involved the project management and technical review.
Stage 1-2 Archaeological Assessment, Proposed Detailed Design of Mississauga Road from Sandalwood Parkway to Mayfield Road City of Brampton & Town of Caledon, ON	Project director and professional licensee for the Stage 1-2 Archaeological Assessment for the proposed detailed design for the widening of Mississauga Road from Sandalwood Parkway to Mayfield Road, in the City of Brampton and Town of Caledon. This project involved the detailed evaluation of archaeological potential and Stage 2 test pit and pedestrian survey. The project was completed on schedule, and budget and received Ministry clearance. Tasks involved project directing, communication, coordination, technical review and senior advisor.
Stage 1 and Stage 2 Archaeological Assessment, Road Reconstruction, Bridge and Culvert Improvements to Queen Street East Town of Caledon, ON	Project manager and project director and professional licensee for the Stage 1 and Stage 2 Archaeological Assessment for the proposed road reconstruction, bridge and culvert improvements to Queen Street East, in the Town of Caledon. The Stage 1 assessment involved the detailed evaluation of archaeological potential for the project area as per the Ministry Standards and Guidelines and recommending appropriate strategies for Stage 2 survey. The Stage 2 assessment involved test pit survey in areas of archaeological potential. The Stage 2 assessment determined the project area to be free of archaeological concerns. Tasks involved project management, project director, technical review and senior advisor.

Stage 2 Archaeological Assessment, Region of Peel East to West Division Sanitary Trunk Sewer, Class EA City of Mississauga, ON	Task manager and professional licensee for the Region of Peel East to West Division Sanitary Trunk Sewer, Class EA, in the City of Mississauga. The Stage 2 assessment investigated three areas (Area A, Area B, and Area C) to accommodate the Region's need to investigate additional area to accommodate a revised alignment and potential shaft locations. The Stage 2 assessment involved test pit and pedestrian survey. Task involved coordination (i.e., QuickFAP, access permits), task management, property survey, communication with the Ministry and Heritage Mississauga, and reporting.
Stage 2 Archaeological Assessment, Heritage Road Layover Facility City of Brampton & Town of Halton Hills, ON	Project director and professional licensee for the proposed Heritage Road Layover Facility, in the City of Brampton. The Stage 2 assessment involved test pit and pedestrian survey in areas of archaeological potential. The Stage 2 assessment resulted in the discovery of two Euro-Canadian sites and one Pre-Contact Indigenous site. Tasks involved project directing and technical review.
Stage 2 Archaeological Assessment, Mayfield Road Class EA from Airport Road to Coleraine Drive City of Brampton & Town of Caledon, ON	Project director and professional licensee for five outstanding properties as part of the Mayfield Road Class Environmental Assessment from Airport Road to Coleraine Drive, in the City of Brampton and Town of Caledon. The Stage 2 assessment involved test pit survey of properties where permission-to-enter was granted. Tasks involved the project directing, communication and technical review.
Stage 2 Archaeological Assessment, Proposed Conestogo Plains Water Supply System Class EA City of Peterborough, ON	Project director and professional licensee for the Stage 2 archaeological assessment for the proposed Conestogo Plains Water Supply System Class EA, in the City of Peterborough. The Stage 2 assessment involved the test pit survey of areas of archaeological potential. Tasks involved project director, communication, coordination, and senior review.
Stage 2 Archaeological Assessment - Detail Design of Major Mackenzie Drive Road Widening City of Vaughan, ON	Project manager for the Stage 2 Archaeological Assessment of the proposed detail design of Major Mackenzie Drive road widening in the City of Vaughan. Tasks involved the management of reporting, senior advisor and technical review. Project was completed on schedule and within budget.
Stage 2 Archaeological Assessment, Woolwich Street Road Reconstruction Class EA City of Kitchener, ON	Project director and professional licensee for the Stage 2 archaeological assessment for the proposed Reconstruction of Woolwich Street, Class EA, in the City of Kitchener. The Stage 2 assessment involved the test pit survey of areas of archaeological potential. Tasks involved project director, communication, coordination, and senior review.
Stage 3 Archaeological Assessment, AjGv-85, Proposed Trail Improvements City of Mississauga, ON	Project director and professional licensee for the Stage 3 Archaeological Assessment of the historical Euro-Canadian site, AjGv-85, for the proposed trail improvements with the Winding Lane Bird Sanctuary property. The Stage 3 assessment involved the partial Stage 3 investigation within the limits of the project. The assessment determined the site to have no further cultural heritage value or interest, as per Ministry Standard. Tasks involved project directing, communication, coordination and technical review.

Stage 3 Archaeological Assessment for the Coates Site (BaGu-171)
Town of Aurora, ON

Project director and professional licensee for the Stage 3 Archaeological Assessment of the Coates Site (BaGu-171), associated with the detail design of Leslie Street from Wellington Street to Mulock Drive, and St. John's Sideroad from Leslie Street to Highway 404 in the Town of Aurora. Tasks involved project directing, management of field team, and the compilation a Stage 3 report in compliance with the requirements Ministry of Tourism, Culture and Sport.

Stage 3 Archaeological Assessment, AkGx-700, Proposed Widening of Mississauga Road from Bovaird Road to Mayfield Road, Class EA
City of Brampton, ON

Project manager and professional licensee for the Stage 3 Archaeological Assessment of the historical Euro-Canadian site, AkGx-700, for the proposed widening of Mississauga Road from Bovaird Road to Mayfield Road, Class Environmental Assessment. The Stage 3 assessment involved the partial Stage 3 investigation involving test unit excavation within the grading limits of the proposed road widening. The assessment determined the site to have further cultural heritage value or interest, as per Ministry Standard. Tasks involved project management, professional licensee, senior advisor and technical review.

Stage 3 Archaeological Assessment, AkGx-691, Proposed Caledon Developments
Town of Caledon, ON

Project director/manager and professional licensee for the Stage 3 Archaeological Assessment of the Pre-Contact Indigenous site, AkGx-691, for the proposed Caledon subdivision development. The Stage 3 assessment involved the excavation of 21 test units on a 5 m grid, artefact analysis, and reporting. The assessment determined the site to have no further cultural heritage value or interest. Tasks involved project directing/management, senior advisor and technical review.

Stage 3 Archaeological Assessment of St. Patrick's Church and Cemetery, Proposed Reconstruction of Mayfield Road
City of Brampton, ON

Project director and professional licensee for the Stage 3 Archaeological Assessment of St. Patrick's Church and Cemetery for the proposed reconstruction of Mayfield Road, in the City of Brampton. The Stage 3 assessment involved the mechanic topsoil removal adjacent to St. Patrick's Church and Cemetery to investigate the area of potential human interments. No human interments were encountered, however, construction monitoring was recommended for areas that were inaccessible to mechanical topsoil removal. Tasks involved project directing, technical review and senior advisor.

Stage 3 and 4 Excavation – Harper Site (AlGw-172), Proposed Construction of the Bolton Arterial Road (Regional Road 150)
Town of Caledon, ON

Project manager and professional licensee for the Stage 3 assessment and Stage 4 partial excavation of the Harper Site, AlGw-172 (Euro-Canadian) as part of the proposed construction of the Bolton Arterial Road (Regional Road 150), in the Town of Caledon. This project involved the expedited excavation of the Harper Site over the fall and winter season to accommodate the Region's construction schedule, while meeting the requirements of the Ministry Standards and Guidelines. Excavation was successfully completed on schedule and as per Ministry Standards. Tasks involved project managing, co-authoring and technical review.

Stage 4 Mitigation, Toronto General Hospital Site, AjGu-51
Toronto, ON

Project director and professional licensee for the Stage 4 mitigation of the Toronto General Hospital Site, AjGu-51, in the City of Toronto. Stage 4 mitigation was undertaken in compliance with the Ontario Heritage Act and 2011 Standards and Guidelines for Consultant Archaeologist. The Stage 4 mitigation included hand and mechanical excavation. Tasks involved project directing, communication with engineering personnel, ensuring health and safety of project personnel and senior advisor.

Stage 4 Mitigation - Highway 407 East Phase 2 Project, BaGp-54 Site
Municipality of Clarington, ON

Project manager for the Highway 407 East Phase 2 Project, Stage 4 mitigation of the BaGp-54 site, in the Municipality of Clarington. The project involved the complete excavation of the site, consisting of hand and mechanical excavation. Tasks involved the management of field investigation, reporting, senior advisor and reviewer. Project was completed on schedule and within budget.

Stage 1-4 Archaeological Assessment and Mitigation, Proposed Block 55 East Development
City of Vaughan, ON

Project manager for the proposed Block 55 East development of a 191-hectare parcel of land in the City of Vaughan. Stage 1 assessment determined the property to have archaeological potential. Stage 2 assessment resulted in the 35 archaeological sites of Pre-Contact Indigenous, historical Euro-Canadian, and multi-component affiliations. The Stage 3 assessment and Stage 4 excavation of sites with cultural heritage value or interest resulted in the full clearance of the 191-hectare parcel. Tasks involved project management, project coordination, Aboriginal engagement, Ministry communications, senior advisor and technical review.

Stage 4 Mitigation - Highway 407 East Phase 2 Project, BaGp-54 Site Municipality of
Clarington, ON

Project manager for the Highway 407 East Phase 2 Project, Stage 4 mitigation of the BaGp-54 site, in the Municipality of Clarington. The project involved the complete excavation of the site, consisting of hand and mechanical excavation. Tasks involved the management of field investigation, reporting, senior advisor and reviewer. Project was completed on schedule and within budget.

Stage 4 Excavation – Hart Site (AlGw-151), Detailed Design for Improvements to Highway 50 from Castlemore Road to Mayfield Road and Mayfield Road from Regional Road 50 to Coleraine Drive
City of Brampton, ON

Project director and professional licensee for the Stage 4 partial excavation of the Hart Site, AlGw-151 (Euro-Canadian) as part of the Class Environmental Assessment of Highway 50 from Castlemore Road to Mayfield Road and Mayfield Road from Highway 50 to Coleraine Drive, in the City of Brampton. This project involved the excavation of the Hart Site as per the requirements of the Ministry Standards and Guidelines. Excavation was successfully completed on schedule and as per Ministry Standards. Tasks involved project directing and technical review.

Education

M.A. Mortuary Archaeology, University of Alberta, Edmonton, Alberta, 2004

B.A. Anthropology and Archaeology, Memorial University of Newfoundland, St. John's, Newfoundland, 2001

Certifications

Professionally Licensed Archaeologist, Ontario

Permit Holder in Alberta

Member in Good Standing Ontario Archaeology Society

Golder Associates Ltd. – Ottawa

Career Summary

Bradley Drouin is an Associate and Senior Archaeologist working out of Golder Associates Ottawa Office and has been with the company for 12 years. During this time, Mr. Drouin has acted as Project Manager, Professionally Licensed Archaeologist (P311) or Permit holding on over 400 projects in Ontario and Alberta, as well as Project Archaeologist in Australia.

Throughout Brad's career at Golder, he has worked on numerous residential and commercial development projects within the Ottawa area as well as large scale energy and infrastructure projects throughout Ontario but also in Alberta, Northwest Territories, and Nunavut. Over the past 6 years Brad has been focusing his efforts on managing the archaeology and cultural heritage components for Renewable Energy Projects as well as large scale projects throughout Ontario. Specifically, Brad was the Project Manager for one of Golder's largest archaeological projects in advance of a Wind and Solar Farm project in Southwestern Ontario. This worked involved the collaboration of project personnel from 10 different Canadian offices and the coordination of up to 120 field personnel. In addition to Brad's archaeological experience, he is the Archaeology Group Manager for Ottawa and Kingston, and he sits on Golder's National Indigenous Relations Steering Committee acting as the Ontario Lead.

Employment History

Golder Associates Ltd. – Ottawa, Ontario
Archaeologist (2010 to Present)

Professionally licensed archaeologist carrying out Stage 1, 2, 3 and 4 archaeological assessments in Ontario.

Golder Associates – Melbourne, Australia
Archaeologist (2009 to 2010)

Project archaeologist and Cultural Heritage Advisor carrying out Desk Top, Standard and Complex Assessments as well as Cultural Heritage Management Plans within the State of Victoria

Golder Associates Ltd – Edmonton, Alberta then Ottawa, Ontario
Archaeologist (2006 to 2009)

Professionally licensed archaeologist carrying out Stage 1, 2 and 3 archaeological assessments in Ontario. Permit holding archaeologist in Alberta, with extensive work experience in the Northwest Territories and Nunavut.

Various Consultancies
Archaeologist (2000 to 2006)

Completed archaeological assessments through Ontario for a number of different consulting firms specializing in Archaeological Assessments.

PROJECT EXPERIENCE – SELECT INFRASTRUCTURE PROJECTS

Stage 1 Archaeological Assessment, West Transit Way Extension, Ottawa, Ontario	Licensed Archaeologist for a Stage 1 Report for the West Transit Way Extension, Ottawa, Ontario. Report is Ministry of Tourism, Culture and Sport compliant.
Stage 1 and 2, Highway 639 Culvert Replacement Elliot Lake, Ontario	Project Manager for a combined Stage 1 and 2 archaeological assessment for a proposed culvert replacement on along Highway 639, north of Elliot Lake. Project involved completion of Stage 2 field component on compressed schedule.
Stage 1 and 2 Archaeological Assessment, Hurdman Bridge Rehabilitation, Ottawa, Ontario	Project Manager and Field Supervisor for a combined Stage 1 and 2 archaeological assessment for the rehabilitation and extension of Hurdman Bridge, Ottawa. Project involved completion of Stage 2 field component on compressed schedule with MTCS clearance obtained on time.
Stage 1 and 2 Archaeological Assessment and Cultural Heritage Mega Bridges 2, Various Locations, Ontario	Project Manager and Field Archaeologist for Stage 1 and 2 and Cultural Heritage Evaluation Reports and Documentation reports. Archaeological component involved completion of Stage 1 and 2 assessments for 5 bridge and culvert replacements. Cultural Heritage Evaluation Reports for 7 Bridges and one Documentation report which included 3D scan of entire bridge.
Stage 4 Archaeological Assessment for Ottawa Light Rail Project, LeBreton Flats Ottawa, Ontario, Canada	Stage 4 archaeological excavations of the 19th century West End Hotel, Western Methodist Church, and residential structures along historic Albert Street. Topographic survey of all significant archaeological features and artifacts.

PROJECT EXPERIENCE – ENERGY

Wataynikaneyap Phase 1 and 2 Stage 1 and Stage 2 Archaeological Assessments, Wabigoon to Pickle Lake	Archaeology Task Manager and License holder for the Stage 1 and Stage 2 archaeological assessments for Phase 1 and Phase 2. The Stage 1 was reviewed and approved by the MTCS without revisions. Facilitated a two day training course for First Nation technicians for the Stage 2 field program.
Wataynikaneyap Pikangikum Distribution Line Project Stage 1 Red Lake to Pikangikum	Report writer and Licensed archaeologist for a Stage 1 archaeological assessment for the project corridor. The report was reviewed and accepted by the MTCS without revisions.

Wataynikaneyap Pikangikum Distribution Line Project Stage 2 and Stage 3 Red Lake to Pikangikum	Task Manager for the Stage 2 archaeological assessment for the Pikangikum Distribution Line Project, as well as two Stage 3 archaeological assessments. The Stage 2 was passed with minimal revisions, while the Stage 2 and 3 for the Berens Lake Portage Site was granted an expedited review and passed without revisions. The Stage 2 and Stage 3s involved the active participation of at minimum 3 Pikangikum community members during the various field programs
Wataynikaneyap Pikangikum Distribution Line Project Stage 4 Red Lake to Pikangikum	Task Manager for the focused Stage 4 archaeological assessment of the Berens Lake Portage Site. This work involved very tight schedules and direct communication with the MTCS in order to allow construction to proceed in January/February 2018. The Stage 4 work involved the active participation of at minimum 3 Pikangikum community members during the field program.
Stage 1 and 2 Archaeological Assessment, CLIFFS Mine Site, Northern Ontario	Archaeology Discipline Lead for the completion of Stage 1 and 2 archaeological assessment as part of the CLIFFS Mine Site EA project. The project involved a detailed Stage 1 assessment as well as a Stage 2 of the development footprint. MTCS has reviewed and approved both Stage 1 and 2 reports and have been entered into the public registry.
Stage 1 and 2 Archaeological Assessment, CLIFFS FPF, Sudbury, Ontario	Project Archaeologist and Licensee for the completion of Stage 1 and 2 archaeological assessment as part of the CLIFFS Ferrochrome Production Facility EA project. The project involved a detailed Stage 1 assessment as well as a Stage 2 of the development footprint. MTCS has reviewed and approved both Stage 1 and 2 reports and have been entered into the public registry.
Stage 1 Archaeological Assessment, CLIFFS Aggregate Pit Locations, Northern Ontario	Licensed Archaeologist for the completion of 81 Stage 1 assessments as part of the CLIFFS aggregate pit EA project. The project involved a detailed Stage 1 assessment for over 81 potential pit locations throughout Northern Ontario. MTCS has reviewed and approved all Stage 1 reports for this projects with the reports having been entered into the public registry.
Stage 1 Archaeological Assessment, Bell Alliant, Northern Ontario	Archaeology Lead for the completion of four Stage 1 archaeological assessments as part of an Environmental Assessment for a northern Ontario broad band project. The work involved the completion of the four Stage 1 assessments to Ministry of Tourism, Culture and Sports *Standards and Guidelines for Consultant Archaeologists.* All four reports have been approved by MTCS and entered into the public registry.
Stage 1 and 2 Archaeological Assessment, TCPL Eastern Mainline Project, Various Location, Ontario	Provided technical guidance and oversight for an ongoing Stage 1 and Stage 2 archaeological assessment. Completed daily quality control and quality assurance reviews of field data and ensured compliance fieldwork and reporting was being completed to MTCS *Standards and Guidelines.*
Stage 1 Archaeological Assessment, Highway 174-17 Project, Ottawa, Ontario	Project Archaeologist and Licensee for a large Stage 1 archaeological assessment for the Highway 174-17 Environmental Assessment. Work involved detailed site visits and discussions with various landowners and stakeholder groups. The report has been reviewed by the MTCS and entered into the public registry.

Stage 4 Archaeological Assessment, Enbridge Line 10 Project, Ancaster, Ontario	Senior Project Support and Field Manager for a portion of the Line 10 project. Work involved daily interactions and engagement with First Nation on-site monitors as well as First Nation leads. Assisted in the coordination of fieldwork with staff of over 30 individuals.
Newmont Corporation, Hope Bay Gold Project Hope Bay, Nunavut	Project archaeologists for an archaeological impact assessment in Hope Bay, Nunavut. Conducted aerial reconnaissance and pedestrian surveys for potential quarry sites, winter roads and an all-weather road.
PWGSC CAM-D Dew-line Site Remediation Project Simpson Lake, Nunavut	Historical Resource Impact Assessment for the former CAM-D Dew-line site on behalf of Public Works and INAC. Site was located in close proximity to Simpson Lake, Nunavut and involved an assessment of archaeological resources present that could be impacted during site remediation
PWGSC and INAC Axe-Point Remediation Project, Deh Cho Region, Northwest Territories	Project Archaeologist assisting with the completion of a Heritage Resources Impact Assessment under a Class 2 permit of several sites in the Axe Point Point Military Base in advance of site remediation. Project involved the identification and documentation of existing and newly identified structures.
McKenzie Pipeline Environmental Group Northwest Territories	Field assistant for a Historical Resources Impact Assessment for a large pipeline right-of-way extending from North of Inuvik to the Alberta NWT border.
Grande Prairie Northern Alberta	Permit holder and report author for Historical Resource Impact Assessment for Aztec Engineering pipeline right-of-way.
Enbridge Waupisoo East-central Alberta	Lead archaeologist for pipeline construction monitoring of the Christina River as well as a field assistant for a Historical Resources Impact Assessment of the proposed pipeline right-of-way through both Alberta's Green and White zones.
Suncor Energy Inc. Northern Alberta	Field Assistant for a Historical Resources Impact Assessment for a proposed mine site.
Shell Canada Ltd. Northern Alberta	Field Assistant for a Historical Resources Impact Assessment for a proposed mine and dam site.
Fort McKay Developments Northern Alberta	Field Assistant for a Historical Resources Impact Assessment for a number of smaller development projects.
Mancal Energy Inc. Central Alberta	Permit holder and report author for a Historic Resources Impact Assessment for a well site, pipeline and associated tie-ins.

PROJECT EXPERIENCE – GREEN ENERGY PROJECTS

Stage 4 Archaeological Assessment, Wind Farm Haldimand County, Ontario	Project Manager and Licensed Archaeologist for a 150MW 67 Turbine Wind Farm Project in South Western Ontario. The Project involved the Stage 4 excavation of 44 Pre-Contact Aboriginal sites and was completed between August 2012 and the Summer of 2014. The project required the coordination of over 120 office and field staff from nine separate Golder Offices across Ontario. It represents the single largest Archaeology project completed by Golder to date.

Stage 1-2 Archaeological Assessment, Wind Farm Chatham-Kent, Ontario	Project Manager for a 150 MW Turbine Wind Farm Project north of Chatham, Ontario. The project involved the successful completion of a Stage 1 and 2 archaeological assessment and Cultural Heritage Impact Assessment. Through discussions with the client all but one culturally significant archaeological sites will be avoided.
Stage 1-2 Archaeological Assessment, Wind Farm Belle River, Ontario	Project Manager for a 150 MW Turbine Wind Farm Project in Belle River, Ontario. The project involved the successful completion of a Stage 1 and 2 archaeological assessment and Cultural Heritage Impact Assessment. Through discussions with the client all but one culturally significant archaeological sites will be avoided.
Stage 4 Archaeological Assessment, Solar Farm Haldimand County, Ontario	Project Manager and Licensed Archaeologist for a solar farm Project in South Western Ontario. The Project involved the Stage 4 excavation of six Pre-Contact Aboriginal sites and was completed between November 2012 and August 2013. The project involved close engagement with three interested First Nations groups and ongoing collaboration with the Ministry of Tourism Culture and Sport.
Stage 1 – 3 Archaeological Assessment Haldimand County, Ontario	Project Manager and Licensed Archaeologist for a Stage 1 - 3 Point of Interconnect for a combined Wind and Solar farm in Haldimand County Ontario. The project involved the completion of field work and associated reporting under a condensed timeline due to construction schedules and required permitting. The project met the schedule timeline and was successfully cleared by the MTCS.
Stage 4 Archaeological Assessment, Solar farm Frontenac County, Ontario	Project Manager and Licensed Archaeologist for a solar farm project situated in Frontenac County, Ontario. The Project involved the Stage 4 excavation of 3 historic Euro-Canadian archaeological sites over a period of two months. The project required the timely production of the preliminary archaeological assessment reports in order to meet construction and permitting timelines. The project was completed successfully.
Stage 3 Archaeological Assessment, Wind and Solar farm Haldimand County, Ontario	Project Manager for a Stage 3 archaeological assessment project in advance of a wind and solar farm project in Haldimand County Ontario. The project involved the excavation and analysis of 54 Stage 3 archaeological sites on the wind lands and 28 archaeological sites on the solar lands. The results of the work and regulatory consultation completed for the Stage 3 assessments was a re-writing of Ministry of Tourism, Culture and Sports guidelines as they specifically relate to wind and solar farm projects.
Archaeological Monitoring Technical Support Eastern Ontario	Provided technical support for the production of project deliverables including an unanticipated discovery plan to the proponent and subcontract for a wind farm project in eastern Ontario. The deliverables provided guidance to construction teams on the responsibilities for those that discover archaeological resources during construction.

Education

M.A. Anthropology and Archaeology, Memorial University of Newfoundland, St. John's, Newfoundland, 2001

B.A. Archaeology (honours), Wilfrid Laurier University, Waterloo, Ontario, 1998

Certifications

Professionally Licensed Archaeologist, Ontario

Golder Committees / Working Groups

HSSE Committee Representative – Archaeology/Bioscience/Surface Water

Ontario Indigenous Relations Team

Canadian Federal Client Team

Votorantim Cimentos Client Development Group

Cultural Heritage Technical Committee

Memberships

Ontario Archaeology Society

Golder Associates Ltd. – Ottawa

Michael Teal is a Senior Archaeologist working out of Golder Associates London, Ontario Office and has been with the company for 7 years. He is a licensed professional Ontario archaeologist (P364) with over 21 years of experience in cultural resource management, including 10 years with the federal government at Parks Canada and 11 years in non-federal and private sectors. At Golder Mr. Teal coordinates and manages archaeological projects including Stage 1, 2, 3 assessments and Stage 4 mitigation, supervises staff, prepares and generates reports, and analyses archaeological data. He also carries out archaeological surveys, excavations, and mitigation in the field and responds to clients' requests for information, technical advice, and action.

Employment History

Golder Associates Ltd. – London, Ontario
Senior Archaeologist (2012 to Present)

Cultural Sciences Team Leader for London. Responsible for the management and coordination of archaeological projects in southwest Ontario. Provision of technical guidance and leadership in the development and implementation of field work programs, the delivery of technical reports, project management, preparing cost estimates and proposals, and carrying out fieldwork for all stages of archaeological investigation.

Parks Canada Agency – Ontario Service Centre, Cornwall
Archaeologist (2002 to 2012)

Archaeologist on Parks Canada's National Parks and Native Sites team in Ontario. Project involvement included identification of impacts to cultural resources and providing recommendations to manage/mitigate effects. Responsible for field work coordination, development of field work strategies, analysis and interpretation of archaeological data, report preparation, adherence to Parks Canada cultural resource management policy.

From 2006 to 2012 acted as Cultural Resource Technical Advisor to Department of National Defence (DND) to identify, protect, and mitigate impacts to cultural resources during DND's UXO, Environmental and Cultural Resource Investigation of the Former Camp Ipperwash.

Various Consultancies
Archaeologist (1997 to 2001)

Completed archaeological assessments through Ontario for a number of different consulting firms specializing in Archaeological Assessments.

SELECT PROJECT EXPERIENCE – FEDERAL

Stony Point Clearance and Remediation Project – Archaeological Investigations
Former Camp Ipperwash, Ontario

Archaeological Field Leader/Senior Archaeologist. Provision of archaeological support services during UXO clearance activities at Stony Point, Ontario for the Department of National Defence (DND). Archaeological objectives were to identify, protect, and assess the significance of cultural resources encountered and to determine the need for archaeological mitigation through either excavation or avoidance and protection. Attend update meetings and technical discussions and regular liaison with Kettle and Stony Point First Nation representatives.

Parks Canada Archaeological Impact Assessment for Proposed Renewal Upgrades
Point Pelee National Park, Ontario

Project Manager and Field Lead. Archaeological survey through shovel testing of areas of high archaeological potential within proposed renewal upgrades at tip of Point Pelee National Park, Ontario. Provision of a report with survey results, conclusions regarding the archaeological significance and heritage value of findings, and recommendations for additional investigation, where required.

Parks Canada Archaeological Impact Assessment for Proposed Trails
Rouge National Urban Park, Ontario

Project Manager. Archaeological survey through shovel testing of areas of high archaeological potential along 3.5 km of proposed trail corridors and parking lot areas in Rouge National Urban Park, Ontario. Provision of a report with survey results, conclusions regarding the archaeological significance and heritage value of findings, and recommendations for additional investigation, where required.

Parks Canada Artifact Review and Analysis
Point Pelee National Park, Ontario

Project Manager. Review and analysis of artifacts previously recovered for the Point Pelee National Park 2011 Visitor Centre Septic Tank Project and provision of a summary report.

Kayanase Proposed Facility Expansion
Six Nations Reserve No. 40, Ontario

Project Manager. Stage 1 and 2 archaeological assessment of 4 ha land parcel prior to a proposed facility expansion by Kayanase Greenhouse. Assessment resulted in the identification of several pre-contact Indigenous and historical sites, of which three were recommended for further assessment. Avoidance and protection plans were developed for the three sites through engagement with the Indigenous community. Construction monitoring services were also provided as part of the avoidance and protection plan.

Former Camp Ipperwash Investigation
Former Camp Ipperwash, Ontario

Archaeological Advisor (Golder Associates Ltd.). Provision of archaeological advice to DND to identify, protect, and mitigate impacts to cultural resources during UXO, Environmental, and Cultural Resource Investigation of former Camp Ipperwash. Regular liaison with DND project managers and interfacing with First Nation and independent contractors; assistance in the development of GIS mapping of cultural resources for site planning; review and comment on archaeological work plans, interim results and reports; site inspections and participation in stakeholder meetings.

Niagara Ranges / Battlefield of Fort George National Historic Site of Canada
Niagara-on-the-Lake, Ontario

Project Manager. Provision of archaeological support services during UXO clearance activities, and for subsequent soil investigations on the property known as the Niagara Ranges. Archaeological field work as part of the support services totalled 17 days between October 20 and November 24, 2015, and for four days between January 11 and January 14, 2016. All field work activities were performed in accordance with the Parks Canada *Guidelines for the Management of Archaeological Resources* and *Archaeological Recording Manual: Excavations and Surveys*.

SELECT PROJECT EXPERIENCE – AGGREGATE PROJECTS

Proposed St Marys Thomas Quarry Extension
St Marys, Ontario

Archaeology Lead and Task Manager. Stage 1 and 2 archaeological assessment for Votorantim Cimentos North America of 45 ha land parcel for proposed pit extension. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report. Active engagement with interested First Nations communities.

Proposed Flamborough Quarry Extension
Flamborough, Ontario

Project Manager. Stage 1 and 2 archaeological assessment for CRH Canada Group Inc. of 27.5 ha land parcel for proposed pit extension. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report. Active engagement with interested First Nations communities.

Paris Pit Due Diligence
Paris, Ontario

Project Manager. Stage 1 and 2 archaeological assessment for CRH Canada Group Inc. of 9.4 ha land parcel prior to extraction activities. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report.

Proposed Limestone Quarry Bruce County
Bruce County, Ontario

Project Manager. Stage 1 and 2 archaeological assessment of 15.5 ha land parcel for proposed pit. No archaeological sites were identified, and no further work was recommended. Role included communication with the client, health and safety plan preparation, and budget and schedule management. Planned and coordinated field program for Stage 2 archaeological assessments, interpreted all archaeological data, and conducted technical review of prepared report. Active engagement with interested First Nations communities.

SELECT PROJECT EXPERIENCE – MUNICIPAL PROJECTS

Woodhull Cemetery
London, Ontario

Project Manager. Stage 1 background study followed by Stage 2 archaeology survey and GPR survey to identify potential archaeological sites and unmarked burial features. Fieldwork resulted in the identification of one archaeological site and several possible burial features that were recommended for further investigation to meet regulatory requirements. Project involved consultation with municipal and provincial governments and local Indigenous communities.

W12A Landfill Site London, Ontario	Project Manager. Stage 1 background study followed by Stage 2 archaeology survey of future waste disposal areas as part of the City of London's due diligence process. Fieldwork resulted in the identification of one disturbed archaeological site that was not recommended for further investigation. Project involved consultation with municipal government and local Indigenous communities.
Mud Creek Sub-watershed Class Environmental Assessment London, Ontario	Project Manager and Archaeology Lead. Stage 1 Archaeological Assessment for study area comprised of 31 land parcels in the City of London. Reporting included background desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment, where required.

SELECT PROJECT EXPERIENCE – INFRASTRUCTURE PROJECTS

Amherstburg Wastewater Servicing Plan Amherstburg, Ontario	Project Manager and Archaeology Lead; Stage 1 and 2 Archaeological Assessment for 4.2 km long study corridor. Following a property inspection and archaeological survey reporting included background desktop research, evaluation of archaeological potential, and recommendations for further work, where required.
Brantford Water Treatment Complex Brantford, Ontario	Project Manager and Archaeology Lead; Stage 1 and 2 Archaeological Assessments for the Brantford Water Treatment Complex. Field work included a property inspection followed by Stage 2 test trenching to identify potential cultural resources. Stage 1 reporting included desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment. Stage 2 reporting involved summarizing field assessment results and making recommendations for further work, where required.
Commissioners Road West Realignment EA London, Ontario	Archaeology Lead; Stage 1 Archaeological Assessment for linear corridor in the City of London. Field work included a property inspection and reporting included background desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment, where required.
Infrastructure Renewal Program, Contract D, Main Street, Lambeth London, Ontario	Archaeology Lead; Stage 1 Archaeological Assessment for linear corridor in the City of London. Field work included a property inspection and reporting included background desktop research, evaluation of archaeological potential, and recommendations for appropriate Stage 2 assessment, where required.

SELECT PROJECT EXPERIENCE – OIL AND GAS PROJECTS

Stage 1 and 2 Archaeological Assessments, TCPL Northern Ontario Infrastructure Operations and Maintenance Program Various Locations, Ontario	Project Manager; Provided technical guidance and oversight for Stage 1 and Stage 2 archaeological assessments at various TCPL work sites in northern Ontario. Completed daily quality control and quality assurance reviews of field data and ensured compliance fieldwork and reporting was being completed to MTCS *Standards and Guidelines.*



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