APPENDIX 7

STAGE 1 ARCHAEOLOGICAL ASSESSMENT REPORT

Stage 1 Archaeological Assessment – Preferred Alternatives for the Carlisle Water Storage Municipal Class Environmental Assessment, Village of Carlisle, Former Township of East Flamborough, City of Hamilton, Ontario

40, 42, and 46 Woodend Drive, Part of Lot 6, Concession 9, Village of Carlisle, Former Township of East Flamborough, now City of Hamilton and 1535 Centre Road, Part of Lot 8, Concession 9, Village of Carlisle, Former Township of East Farmborough, now City of Hamilton

Project Number: 2021-072

PIF: P1153-0127-2024

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Report Date: March 7, 2024

Licensee: Adam Long, MSc (P1153)

Parslow Heritage Consultancy Inc.
883 St. Clair Ave. West, Toronto, ON,
M6C 1C4

R.V. Anderson Associates Limited
43 Church Street, Suite 104,
St. Catharines, ON, L2R 7E1

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Executive Summary

Parslow Heritage Consultancy Inc. (PHC) was retained by R.V. Anderson Associates Ltd. to conduct a Stage 1 archaeological background assessment as part of the Carlisle Water Storage Facility Municipal Class Environmental Assessment (EA) Study. The Carlisle Water Storage Facility study area consists of two proposed locations: **Area 1** is located at Tower Park; 40, 42, and 46 Woodend Drive, Part of Lot 6, Concession 9, Village of Carlisle, Former Township of East Flamborough, now City of Hamilton. **Area 2** is located at 1535 Centre Road, Part of Lot 8, Concession 9, Village of Carlisle, Former Township of East Flamborough, now City of Hamilton (**Map 2**). This report serves as an update to a previous study Archaeological Services Inc. (ASI) completed during an earlier phase of the EA process, which already assessed Area 2.

It is understood this archaeological assessment is required to meet provincial standards and guidelines as required under the Ontario Heritage Act (1990) and the Environmental Assessment Act (1990). In accordance with the Environmental Assessment Act, "Environment" is applied in a broad sense and includes the natural, social, cultural, built, and economic environments. Please note this is a desktop only study.

The objectives of the Stage 1 archaeological assessment are defined in the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Consultant Archaeologists* (2011). A Stage 1 archaeological assessment provides compiled information about the study area's geography, history, current land conditions as well as any previous archaeological research and listed archaeological sites on or within the vicinity, as well as specific direction for the protection, management and/or recovery of these resources. Methods to achieve these objectives include:

- Review of relevant historical and environmental literature pertaining to the study area,
- Review of an updated listing of archaeological sites within 1 km from the MCM Archaeological Sites Database,
- Review of all archaeological assessments within 300m and 50m of the study area,
- Consultation with individuals knowledgeable about the study area, and
- Review of historical maps of the study area.

Although Area 1 appears to have been partially disturbed, it is recommended to undergo Stage 2 test pit survey at 5 metre intervals per Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists (2011) to confirm the degree of disturbance and determine if any intact soils remain within the proposed study area.

Area 2 has not been disturbed and is recommended to undergo Stage 2 property survey through a combination of test pit survey and pedestrian survey, per Section 2.1. of the MCM Standards and Guidelines (2011). Approximately 1.39 acres (75.6% of the study area) is considered to be agricultural field, and as such should undergo Stage 2 assessment via Stage 2 pedestrian survey at 5 metre (m) intervals in accordance with Section 2.1.1 of the Standards and Guidelines for Consultant Archaeologists (2011). Approximately 0.44 acres (24.4% of the study area) is treed and cannot be ploughed. As such, it is recommended that these areas are subject to Stage 2 test pit survey at 5 metre intervals in accordance with Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists (2011).

It is requested that this report be entered into the Ontario Public Register of Archaeological Reports, as provided for in Section 65.1 of the Ontario Heritage Act.

Project Personnel

Project Manager/Licensee	Adam Long, MSc (P1153)
Report Preparation	Andrew Sparling, BA.Hon. (R1200)
Report Review	Adam Long, MSc (P1153)
Graphics	Gabriel Dunk-Gifford, BA

Acknowledgements

Andrew McGregor, Tyler Young - R.V. Anderson Associates Limited

Project Context

This section of the report provides the context for the archaeological assessment and covers three areas: development context, historical context, and archaeological context.

Development Context

Parslow Heritage Consultancy Inc. (PHC) was retained by R.V. Anderson Associates Ltd. to conduct a Stage 1 archaeological background assessment as part of the Carlisle Water Storage Facility Municipal Class Environmental Assessment (EA) Study. The Carlisle Water Storage Facility study area consists of two proposed locations: **Area 1** is located at Tower Park; 40, 42, and 46 Woodend Drive, Part of Lot 6, Concession 9, Village of Carlisle, Former Township of East Flamborough, now City of Hamilton. **Area 2** is located at 1535 Centre Road, Part of Lot 8, Concession 9, Village of Carlisle, Former Township of East Flamborough, now City of Hamilton (**Map 2**). The report serves as an update to a previous study by Archaeological Services Inc. (ASI) completed during an earlier phase of the EA process, which already assessed Area 2.

It is understood this archaeological assessment is required to meet provincial standards and guidelines as required under the Ontario Heritage Act (1990) and the Environmental Assessment Act (1990). In accordance with the Environmental Assessment Act, "Environment" is applied in a broad sense and includes the natural, social, cultural, built, and economic environments. Please note this is a desktop only study.

The objectives of the Stage 1 archaeological background assessment are to gather information about the project location's geography, history, current land conditions as well as any previous archaeological research and listed archaeological sites on or within the vicinity. Methods to achieve these objectives include:

- Review of relevant historical and environmental literature pertaining to the study area;
- Review of an updated listing of archaeological sites within 1 km from the MCM's Ontario Archaeological Sites Database (OASD);
- Review of all archaeological assessments within 50 m of the study area;
- Consultation with individuals knowledgeable about the study area;
- Review of historic maps and aerial imagery of the study area.

All archaeological work documented in this report was completed under the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Consultant Archaeologists* (2011).

Historical Context

This section describes the past and present land use and settlement history of the property, and any other relevant historical information gathered through the background research (MCM Section 7.5.7 Standard 1).

Indigenous History

Indigenous peoples of southern Ontario have left behind archaeologically significant resources throughout the province that show continuity with past peoples even if they were not recorded in historic Euro-Canadian documents. Table 1 illustrates this continuity and demonstrates over 11,000 years of Indigenous occupation of southern Ontario (Ellis and Ferris 1990).

TABLE 1: OVERVIEW OF THE CULTURAL CHRONOLOGY OF SOUTHERN ONTARIO

Period	Characteristics	Time	Comments
Early Paleo	Fluted Points	9,000 – 8,400 BC	Caribou hunters
Late Paleo	Hi-Lo Points	8,400 – 8,000 BC	Smaller but more numerous sites
Early Archaic	Kirk, Nettling, and Bifurcate Base Points	8,000 – 6,000 BC	Slow population growth
Middle Archaic I	Stanley/Neville, Stemmed Points	6,000 – 4,000 BC	Environment similar to present
Middle Archaic II	Thebes, Otter Creek Points	4,000 – 3,000 BC	
Middle Archaic III	Brewerton Side and Corner Notched Points	3,000 – 2,000 BC	
Late Archaic I	Narrow Point (Lamoka, Normanskill) Broad Point (Genesee, Adder Orchard)	2,000 – 1,800 BC 1,800 – 1,500 BC	Increasing site size Large chipped lithic tools

Period	Characteristics	Time	Comments
	Small Point (Crawford Knoll, Innes, Ace-of-Spades)	1,500 – 1,100 BC	Introduction of bow hunting
Terminal Archaic	Hind Points	1,100 – 950 BC	Emergence of true cemeteries
Early Woodland	Meadowood Points	950 – 400 BC	Introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery Princess Point	400 BC – AD 500 AD 550 – 900	Increased sedentism Introduction of corn
Late Woodland	Early Ontario Middle Ontario Late Ontario (Neutral)	AD 900 – 1,300 AD 1,300 – 1,400 AD 1,400 – 1,650	Emergence of agricultural villages Large longhouses (100m+) Tribal warfare and displacement
Contact	Various Algonkian and Iroquoian Groups	AD 1,700 – 1,875	Early written records and treaties

Paleo and Archaic Time Periods

The first human settlement in south-central Ontario can be traced back 11,000 years, just after the end of the Wisconsin Glacial Period, when this area was settled by Indigenous groups that had been living south of the Great Lakes. The period of these first inhabitants is known as the Paleo (Ellis and Deller 1990), a time in which bands of small hunter gatherer, consisting of probably no more than 25-35 individuals, followed a pattern of seasonal mobility extending across wide-ranging territories shaped extensively by the ebb and flow of glaciers.

The Paleo period was a time of rapid environmental change. As the glaciers retreated sparse tundra and evergreen forests gave way to extensive deciduous forests and water levels in the Great Lakes rose dramatically (Ellis, Kenyon and Spence 1990:68-69). By the end of this period (8000 BC), many of the large game species that Paleo hunters had relied upon either moved further north, or as in the case of the mastodons and mammoths, become extinct. Thus, the end of the Late Paleo Period was heralded by numerous technological and cultural innovations, likely as responses to the dynamic nature of the post-glacial environment and region-wide population increases. These innovations continue to be found in sites belonging to the direct descendants of the Paleo, groups of people known by archaeologists as “Archaic.”

The term “Archaic” designates preagricultural sites lacking in pottery and other specific artefact forms (Ellis, Kenyon and Spence 1990; 65) and are primarily distinguished from Paleo sites by a significantly greater degree of artefact diversity and regional variety. Archaic people began to make stone tools out of coarser raw material by laboriously grinding the rock into the desired shape. The introduction of ground stone tools such as celts and axes, suggests the beginnings of a simple woodworking industry and an increased use of localized stone sources indicates that Archaic populations may have been less nomadic than their Paleo ancestors (Munson and Jamieson 2013; 41). It is likely that gradual infilling of the landscape resulting from rising water levels and population growth necessitated the development of strategies to support more people from smaller areas of liveable land.

During the Late Archaic Period (2,500-950 BC) the trends towards decreased territory size, a broadening subsistence base, population growth and increasing sedentism continued and it is during this period that the first true cemeteries appeared. During the Late Archaic Period, 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, suggesting that people returned with greater frequency to the same areas. These first cemeteries may have served as visible reminders of a group’s cultural history and demarcated their rights to an area. Living in a time before farming or pottery, early hunter gatherers hunted, fished, and travelled in a land that was dynamic, ever-changing, and far removed from modern or historic ways of life.

Woodland Time Period

The Early Woodland Period (950 to 400 BC) is distinguished from the Late Archaic Period primarily by the gradual adoption of ceramic technology. However, in many ways the life ways of people in this period show a high degree of continuity with the preceding Late Archaic and it is not until the Middle Woodland (300 BC to AD 500) that there is an evident shift in settlement and subsistence patterns towards a sedentary way of life.

Middle Woodland peoples relied much more extensively on ceramic technology and vessels were often heavily decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. The Middle Woodland provides a major point of departure from the Archaic and Early Woodland; fish was becoming an

increasingly important part of diets and sites along the margins of major lakes and rivers appear to have functioned as base camps instead of seasonally utilized locations, indicating a greater degree of sedentism and reliance on fishing technology.

The Late Woodland Period is widely accepted as the beginning of a truly agricultural way of life in south-central Ontario. Researchers have suggested that a warming trend during this period may have encouraged the spread of maize into southern Ontario by providing a greater number of frost-free days (Stothers and Yarnell 1977). The presence of carbonized corn kernels and cob fragments recovered from sub-floor storage pits indicates that agriculture was becoming a vital part of the Early Iroquoian economy.

The Middle Ontario Iroquoian Period (AD 1300-1400) witnessed several interesting developments in terms of settlement patterns and artefact assemblages. The size of villages and longhouses increased dramatically, with longhouse lengths almost doubling to an average of 30m. Possible explanations for these shifts involve changes in economic and socio-political organization (Dodd et al. 1990:357); small villages may have amalgamated to form larger communities for mutual defence (Dodd et al. 1990:357). 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.

By the late 1400s major villages covered as many as 4-5 hectares and would have contained over 2,000 individuals each. A change in the orientation of longhouses at this time may indicate the initial development of the tribes and nations which were a characteristic of the historically known Iroquoian peoples (Dodd et al. 1990:358). Four Hundred years ago, Ontario was home to about 75,000 Indigenous people, divided into two major cultural groups – Algonquians and Iroquoians.

After AD 1450, longhouse lengths begin to decrease, with longhouses dating between AD 1500-1580 averaging a mere 30 m in length. The even shorter longhouses 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) which, in the span of a few years, had reduced the population to a mere 30,000 people. With the deaths of many bearers of oral history in the 1630's much of the ancient oral history in Ontario was lost. Archaeology provides an alternative means of understanding pre-European history by providing unique information on the movement of people throughout the landscape, their interactions with one another and with the environment, over the course of 13,000 years.

Colonial History

Colonialism in Canada

The Canada we see today is one that was built on the principles of *Settler Colonialism.* This is a specific kind of colonialism whereby the purpose or goal is to replace an indigenous population with an invasive settler population that over time will develop its own identity and sovereignty. It is important to understand that there are three main

features of settler colonialism that had a profound impact on the Indigenous population of Canada.

The first feature is that settler colonizers, unlike other forms of colonization, intend to permanently occupy and assert control over Indigenous lands. Second, settler colonialism is a structure, not an event and continues to the present day in Canada. Third, settler colonialism "seeks its own end" in that the goal is to form a homogenous society that is over-arching and unchallenged.

Initial attempts at settlement and colonization occurred in 1534 with Jacques Cartier, who traveled across the Atlantic Ocean, entered the Gulf of the St. Lawrence, and landed on the shores of what is now Gaspe, Quebec. However, Cartier's attempts to establish a permanent settlement failed and it was not until 1603, with Samuel de Champlain, did settler colonialism start in Canada with the establishment of New France.

The French and British colonizers, who encountered indigenous populations, thought them to be inferior to themselves and saw the indigenous populations as a source of cheap labour for the fur trade, soldiers for the battlefield, or even household slaves. When Indigenous populations resisted, the Europeans would often wage war against them. As the European powers sought to secure greater control over North America, threats of violence were used to force Indigenous leaders to sign treaties that surrendered political control of their land in exchange for meager financial compensation or dubious promises of protection and safety.

At the time of first contact with the French, in 1615 AD, the traditional territory of the Huron-Wendat, known as Wendake, roughly stretched between the Canadian Shield, Lake Ontario and the Niagara Escarpment; it has been suggested the Huron-Wendat population at this time was approximately 30,000 individuals (Warrick 2008; Heidenreich 1978).

In the 1640s the Haudenosaunee, whose territory was located south of the lower Great Lakes, invaded Huron-Wendat territory, largely due to the decrease of available beaver pelts. The Haudenosaunee migration into Wendake resulted in the formation of new alliances between the Huron-Wendat, Petun, Neutral and other Nations after numerous Huron-Wendat village were destroyed by raiding parties (Stone and Chaput 1978). Around 1650 the Huron-Wendat decided to return to Quebec, leaving the Haudenosaunee controlling lands through most of southern Ontario by 1660 (Schmalz 1991; Williamson 2013).

During the mid-17th century, several Algonquin-speaking linguistic and cultural groups within the Anishinaabeg (or Anishinaabe) began to challenge the Haudenosaunee dominance in the region (Johnston 2004; Gibson 2006). Prior to this, the Anishinaabeg were located primarily inland from the north shore of Lake Huron (MCFN nd). From 1653 to 1662, following a series of attacks against the Haudenosaunee by groups within the Anishinaabeg, Haudenosaunee dominance in the region began to fail (Warrick 2008; Schmalz 1991). By the 1690s, Haudenosaunee settlements along the

northern shores of Lake Ontario were abandoned (Williamson 2013). Following a few battles throughout southern Ontario, the Anishinaabeg replaced the Haudenosaunee in area at the start of the 18th century (Gibson 2006; Schmalz 1991).

European Treaties and Deeds

According to Euro-Canadian documentation, the study area first appears in the historical record when the Mississauga First Nations entered Treaty Number 3, also known as the Between the Lakes Purchase, with representatives of His Majesty King George III on 7 December 1792, (though the land was first purchased in 1784), for the yearly sum of 1180 pounds and 7 shillings and fourpence. The treaty includes modern urban centres such as Hamilton, Waterloo, St. Catherine's, and Guelph:

> *"… in consideration of the sum of eleven hundred and eighty pounds, seven shillings and fourpence of lawful money of Great Britain, to them the said Wabakanyne, Sachems, War Chiefs and Principal Women in hand well and truly paid did grant, bargain, sell, alien, release and confirm until His said Majesty, His Heirs and Successors, all that tract or parcel of land lying and being between the Lakes Ontario and Erie, beginning at Lake Ontario four miles south westerly from the point opposite to Niagara fort, known by the name of Messisague (sic) Point, and running from thence along the said lake to the creek that flows from a small lake into the said Lake Ontario known by the name of Washquarter; from thence a north westerly course until it strikes the River La Tranche or New River; thence down the stream of the said river to the part or place where a due south course will lead to the mouth of Cat Fish Creek emptying into Lake Erie, and from the above mentioned part or place of the aforesaid River La Tranche following the south course to the mouth of the said Cat Fish Creek; thence down Lake Erie to the lands heretofore purchased from the Nation of Messissague Indians; and from thence along the said purchase to Lake Ontario at the place of beginning as above mentioned, together with the woods, ways, paths, waters, watercourses, and appurtenances to the said tract or parcel of land belonging".*
>
> *Ministry of Indigenous Affairs 2012*

Euro-Canadian Settler History

Settlement History

Following the Toronto Purchase, the Province of Quebec (which then included Ontario) was divided into four political districts: Lunenburg, Mechlenburg, Nassau, and Hesse. When the Province of Upper Canada was formed in 1791, the names of the four districts were changed to Eastern, Midland, Home, and Western, respectively. The study area fell within the Home District.

The Home District initially included all lands between an arbitrary line on the west running from Long Point on Lake Erie to Georgian Bay and a line on the east running

north from Presqu'ile Point on Lake Ontario to the Ottawa River. In 1793, John Graves Simcoe, the first Lieutenant Governor of Upper Canada, further subdivided each district into counties and townships, and European settlement began shortly after (Hunter 1909).

East Flamborough Township

In 1793, The first township survey was undertaken, with the first legal settlers occupying their land holdings in 1800. Originally known as Geneva Township due to its location on Burlington Bay, which was then called Lake Geneva, it was later renamed Flamborough East after a town in Yorkshire, England. Flamborough was initially settled by Loyalists and disbanded soldiers following the end of the American Revolutionary War. In the autumn of 1813 following the British defeat in the Battle of Moraviantown, all the Indigenous People and settlers who could, fled to safety near the British army at Burlington Heights. These refugees included the surviving warriors and families of Tecumseh's Confederacy, Delawares who had escaped the destruction of their village on the Thames, and many from the Six Nations of the Grand River. The refugees filled the lower concessions of East and West Flamborough, stretching from Dundas to Burlington. The refugees settled in the lower concessions of East and West Flamborough, stretching from Dundas to Burlington. Many of the refuges stayed for nearly two years until 1815, when news of peace arrived in the spring (Tidridge 2015). Flamborough Township was created in 1974 by amalgamating the townships of East Flamborough, West Flamborough, and Beverly with the village of Waterdown. Flamborough became a town in 1985 and in 2001, the provincial government amalgamated Flamborough with Ancaster, Dundas, Glanbrook, and Stoney Creek, forming the new city of Hamilton (City of Hamilton Act 1999).

Carlisle

It is believed that George Baker was the first settler in the area, having purchased 100 acres in 1822. Not long after, John Eaton and his wife, Catherine Van Duzen, took up four hundred acres on the southwest side of the Centre Road, between the eighth and ninth Concessions. After spending roughly three years clearing the land, John Eaton and family moved to the area in 1828 (Flamborough archives and Heritage Society). The area was first known as Eaton or Eatonsville but was renamed in 1853. It is unclear why this name was selected. Registered plans of subdivision for this village date from 1852 to 1861. The village contained a church, grist mill, sawmill, church, post office, hotel, a bank, and shops. By 1873, it contained an iron foundry and had a population of about 100 (Crossby 1873).

Past and Current Land Uses of Area 1 and Area 2

A review of the 1859 *Historical County Map of Wentworth County*, published by G.C. Tremaine, illustrates Area 1 as being on land belonging to Thomas Davis (**Map 4**), and Area 2 as being on land owned by John Galloway. Neither property has any historical

structures illustrated within the study area; however, that is not uncommon as only the structures of subscribers are depicted.

The 1875 *Illustrated Historical Atlas of the County of Wentworth*, published by Walker and Miles, illustrates the southeastern portion of Area 1, on Lot 6, Concession 9, as being owned by V. Freeman. By this time, a historical homestead is depicted on the southern border of the property. Area 2 is still owned by John Galloway at this time, and also has a small homestead and orchard depicted in the southeastern corner of the property (**Map 5**).

A review of the 1954 aerial photographs, shows the study areas of both Area 1 and Area 2 as being agricultural fields (**Map 6**).

Area 1 is now Tower Park, a landscaped public park next to an existing water tower. The water tower is visible form the earliest satellite imagery available through Google Earth, with these aerial images showing some evidence of construction disturbance during the years 2013 to 2015 (**Images 2 and 3**).

Archaeological Context

Archaeological Sites

The registered archaeological site records kept by the MCM were consulted so that an inventory of archaeological resources could be compiled. In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MCM. This database contains archaeological sites registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden block is approximately 13km east to west and approximately 18.5km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The study area is located within Borden block *AiGx.*

According to Section 7.5.8, Standard 1 of the Standards and Guidelines fo Consultant Archaeologists, all registered or known archaeological sites within a minimum 1-kilometre (km) distance from the subject property must be listed. There are 9 archaeological sites within 1 km of Areas 1 and 2, none of which are within 300 m of the property, as outlined in Table 2.

TABLE 2: REGISTERED ARCHAEOLOGICAL SITES WITHIN 1 KM OF STUDY AREA

Borden Number	Site Name	Time Period	Affinity	Site Type	Current Development Review Status
AiGx-171	N/A	N/A	N/A	N/A	N/A

AiGx-170	N/A	N/A	N/A	N/A	N/A
AiGx-169	N/A	Pre-Contact	N/A	N/A	N/A
AiGx-168	N/A	Pre-Contact	N/A	N/A	N/A
AiGx-167	N/A	Pre-Contact	N/A	N/A	N/A
AiGx-158	Alderson Farm 2	N/A	N/A	N/A	N/A
AiGx-157	Alderson Farm 1	Post-Contact	Euro-Canadian	homestead	N/A
AiGx-145	Carlisle	Post-Contact, Woodland, Late	Euro-Canadian, Neutral	hamlet, house	N/A
AiGx-144	Tregunno Cemetery	Pre-Contact	N/A	cemetery	N/A

Previous Archaeological Assessments

Per *Section 7.5.8., Standard 4* of the *Standards and Guidelines for Consultant Archaeologists* (2011), a review of the previous archaeological assessments undertaken within the limits, or within 50m of the study area was completed. To the best of our knowledge, 1 archaeological assessment were completed within the boundaries of Area 2, and none within 50m of Area 1.

Stage 1 Archaeological Assessment (Background Research and Property Inspection), Carlisle Well and Water Storage Facility, Municipal Class Environmental Assessment, Village of Carlisle, Former Township of East Flamborough, City of Hamilton, Ontario.

PIF: P392-0019-2013

In 2013, Archaeological Services Inc. (ASI) was contracted by GENIVAR Inc. (Markham), on behalf of the City of Hamilton, to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Carlisle Well and Water Storage Facility Municipal Class Environmental Assessment (EA) study.

The study area consists of three parcels for potential well sites: 1a-A, 1b-B, and 2B. Well Site 1a-A was deemed to retain archaeological potential, and both Stage 2 Test Pit Survey, as well as Stage 2 Pedestrian Survey were recommended.

The Natural and Physical Environment

The study area is situated within the Flamborough Plains physiographic region (Chapman & Putnam 1984, pp.129-130). The Flamborough Plains consists of

> *An isolated tract of shallow drift on the Niagara cuesta…It is an area of about 150 square miles, bounded on the northwest by the Galt Moraine, and on the south by the silts and sands of glacial Lake Warren. A few drumlins are found scattered over this limestone plain and swamps are plentiful. The limestone has been swept bare in places…what little overburden there is on the bedrock, apart from the drumlins, is either bouldery glacial till or sand and gravel…Good soil is not plentiful in the little region: the soil is either wet or stony and shallow.*
>
> *Chapman & Putnam:129-130*

The Flamborough Plain slopes south from 1200 feet above sea level to approximately 900 feet above sea level. The Flamborough Plain has a thin overburden of either glacial till with boulders or sand and gravel. The Flamborough Plain is drained by Spencer Creek and tributaries of Bronte Creek. Soil is poor in the Flamborough Plain except for that found on the drumlins and gravel terraces (Chapman and Putnam 1984: 129-130).

The study area consists of Grimsby sandy loam and Flamborough sandy loam. Grimsby sandy loam is a well-drained medium and fine sandy loam soil of alluvial and lacustrine origin. The topography is gently to moderately sloping. Where topography is moderately and steeply sloping this soil experiences erosion and doughtiness. Drought is also a problem on Grimsby sandy loam in the Flamborough Plain where soil is shallow. Moisture deficiency can be a problem during dry periods (Presant et al. 1965: 40).

Flamborough sandy loam is a poorly drained soil developed from calcareous sand deposits. Flamborough sandy loam occupies level or depressional areas. This soil is shallow in the Flamborough Plain. Approximately half of Flamborough sandy loam is woodland (Presant et al. 1965: 41).

Field Methods

A property inspection was not conducted as part of this Stage 1 assessment. **Map 8** illustrates the results of the assessment, based on previous Stage 1 archaeological assessments, as well as historical and modern mapping as well as aerial images from 1954, and Google Earth satellite imagery from 2004-2021.

Satellite imagery from 2004-2020 shows some disturbance throughout much of the Subject property encompassing Area 1, particularly though the centre of the property running east to west. Imagery from 2013 particularly identifies quite extensive disturbance taking place throughout the majority of the site, specifically in the northwest, southwest, and central portions of the study area (**Image 2**). The southeast corner, however, appears to remain relatively untouched (**Images 1-5**). Aerial imagery form 1954 indicates the area was still primarily agricultural fields at this time (**Map 6**). Between the 1950's and the earliest satellite image from 2004, the areas to the south and west of the subject property had been developed with residential buildings. Although this aerial imagery indicates disturbance throughout much of subject property, it is recommended that the entirety of *Area 1* be subject to Test Pit Survey to confirm the degree of the disturbance and determine if any portions have intact soils.

In 2013, Archaeological Services Inc (ASI) conducted a Stage 1 archaeological assessment of the lands that now encompass Area 2, with a property inspection being undertaken on July 23rd of the same year. At that time, ASI concluded that that the subject property for *Area 2* retained archaeological potential and Stage 2 assessment was recommended through both Pedestrian Survey and Test Pit Survey (ASI, 2013). Examination of Google Earth satellite imagery shows that no major alteration or disturbance has occurred on the subject property up to the time of this assessment (**Images 6-8**). As such, there is a reasonable expectation that *Area 2* retains archaeological potential.

Record of Documentation

The purpose of this section is to document all finds according to the standards (MCM Section 7.8.2). An inventory of the documentary record generated by the property inspection is provided in Table 2 (MCM Section 7.8.2 Standard 2).

TABLE 2 - RECORD OF DOCUMENTATION

Document Type	Location of Document	Additional Comments	Quantity
Field Notes	PHC Office	1 lined sheet stored in project file	1 page
Maps Provided by Client	PHC Office	In project file (Site Map)	3 maps
Digital Photographs	PHC Office	Stored digitally in project file	N/A

Analysis and Conclusion

Archaeological Potential

Archaeological Potential for the Study Area

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

Previously identified archaeological sites;

- Water sources:
    - Primary water sources (lakes, rivers, streams, creeks);
    - Secondary water sources (intermittent streams and creeks; springs; marshes; swamps);
    - Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised gravel, sand, or beach ridges; relic river or stream channels indicated by clear dip or swale in the topography; shorelines of drained lakes or marshes; and cobble beaches);
    - Accessible or inaccessible shoreline (e.g. high bluffs, swamps or marsh fields by the edge of a lake; sandbars stretching into marsh);
- Elevated topography (eskers, drumlins, large knolls, plateaux);
- Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground; Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases (there may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings);
- Resource areas including:
    - Food or medicinal plants;
    - Scarce raw minerals (e.g. quartz, copper, ochre or outcrops of chert);
    - Early Euro-Canadian industry (fur trade, mining, logging);
- Areas of Euro-Canadian settlement; and,
- Early historical transportation routes.

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

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

Archaeological Integrity

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

Activities that are recognized to cause sufficient disturbance to remove archaeological potential include: major landscaping involving grading below topsoil, building footprints, and infrastructure development. Activities including agricultural cultivation, gardening, minor grading, and minor landscaping do not necessarily remove archaeological potential (MCM 2011: 18).

Potential for Archaeological Resources

Following the criteria outlined above to determine archaeological potential, the study area is considered to exhibit archaeological potential for the following reasons:

- The soils of the study areas would have been suitable for Indigenous and Settler agricultural practices.
- 19th century mapping indicates the study areas are within an area of early Euro-Canadian settlement.
- The study areas are within 100m of Centre Road, a historic transportation route.

Recommendations

Although Area 1 appears to have been partially disturbed, it is recommended to undergo Stage 2 test pit survey at 5m intervals per Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists (2011) to confirm the degree of disturbance and determine if any intact soils remain within the proposed study area.

Area 2 has not been disturbed and is recommended to undergo Stage 2 property survey through a combination of test pit survey and pedestrian survey, per Section 2.1 of the MCM Standards and Guidelines (2011). Approximately 1.39 acres (75.6% of the study area) is considered to be agricultural field, and as such should undergo Stage 2 assessment via Stage 2 pedestrian survey at 5m intervals in accordance with Section 2.1.1 of the Standards and Guidelines for Consultant Archaeologists (2011). Approximately 0.44 acres (24.4% of the study area) is treed and cannot be ploughed. As such, it is recommended that these areas are subject to Stage 2 test pit survey at 5 metre intervals in accordance with Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists (2011).

These recommendations are illustrated on **Map 8.**

It is requested that this report be entered into the Ontario Public Register of Archaeological Reports, as provided for in Section 65.1 of the Ontario Heritage Act (1990).

Advice on Compliance with Legislation

Advice on the compliance with legislation is not part of the archaeological record. However, for the benefit of the proponent and approval authority in the land use planning and development process, the report must include the following standard statements:

This report is submitted to the Minister of Tourism, Culture, and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c O.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection, and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issue by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* (1990) for any party other than a licenced archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licenced archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

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

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

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Images

IMAGE 1: AREA 1, SATELLITE IMAGERY 2005, SHOWING DISTURBANCE THROUGH CENTRE OF AREA

IMAGE 2: AREA 1, SATELLITE IMAGERY 2013, SHOWING EXTENSIVE SURFACE DISTURBANCE

IMAGE 3: AREA 1, SATELLITE IMAGERY 2015

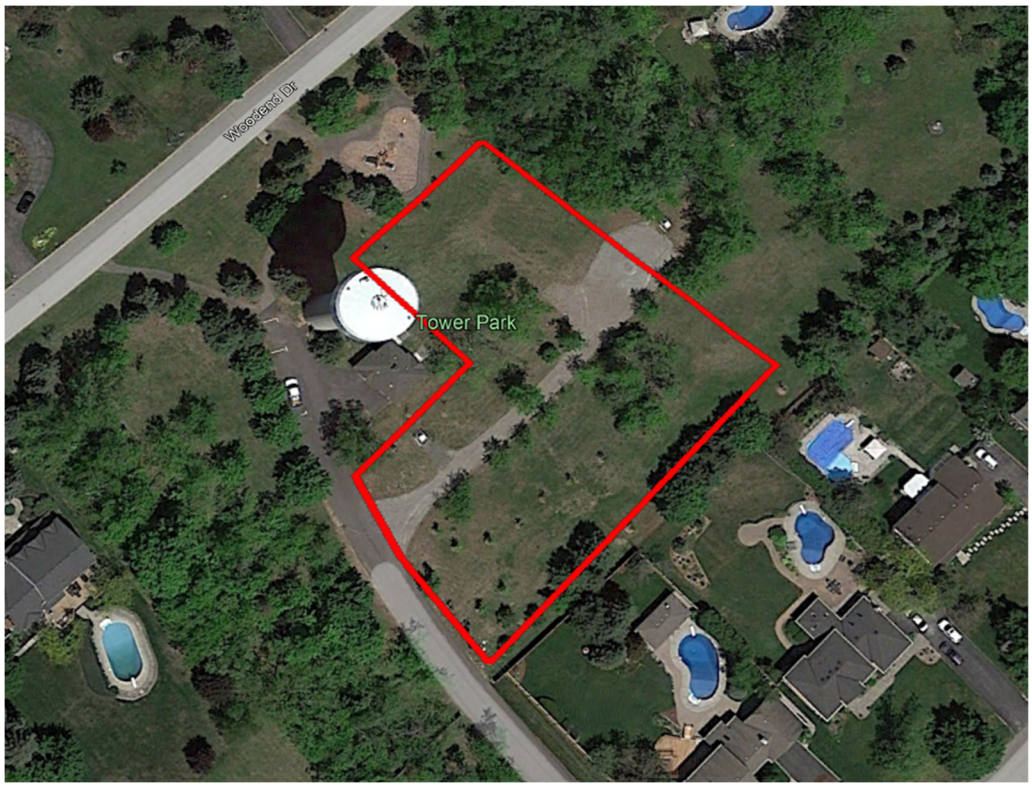


IMAGE 4: AREA 1, SATELLITE IMAGERY 2018

IMAGE 5: AREA 1, SATELLITE IMAGERY 2023

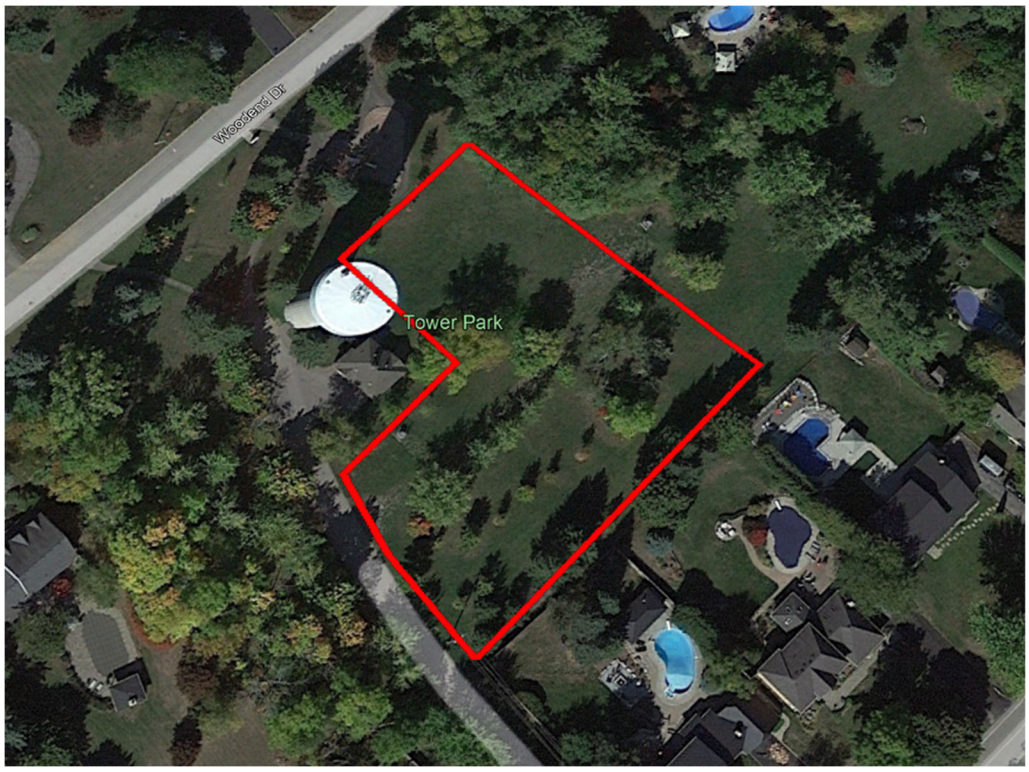
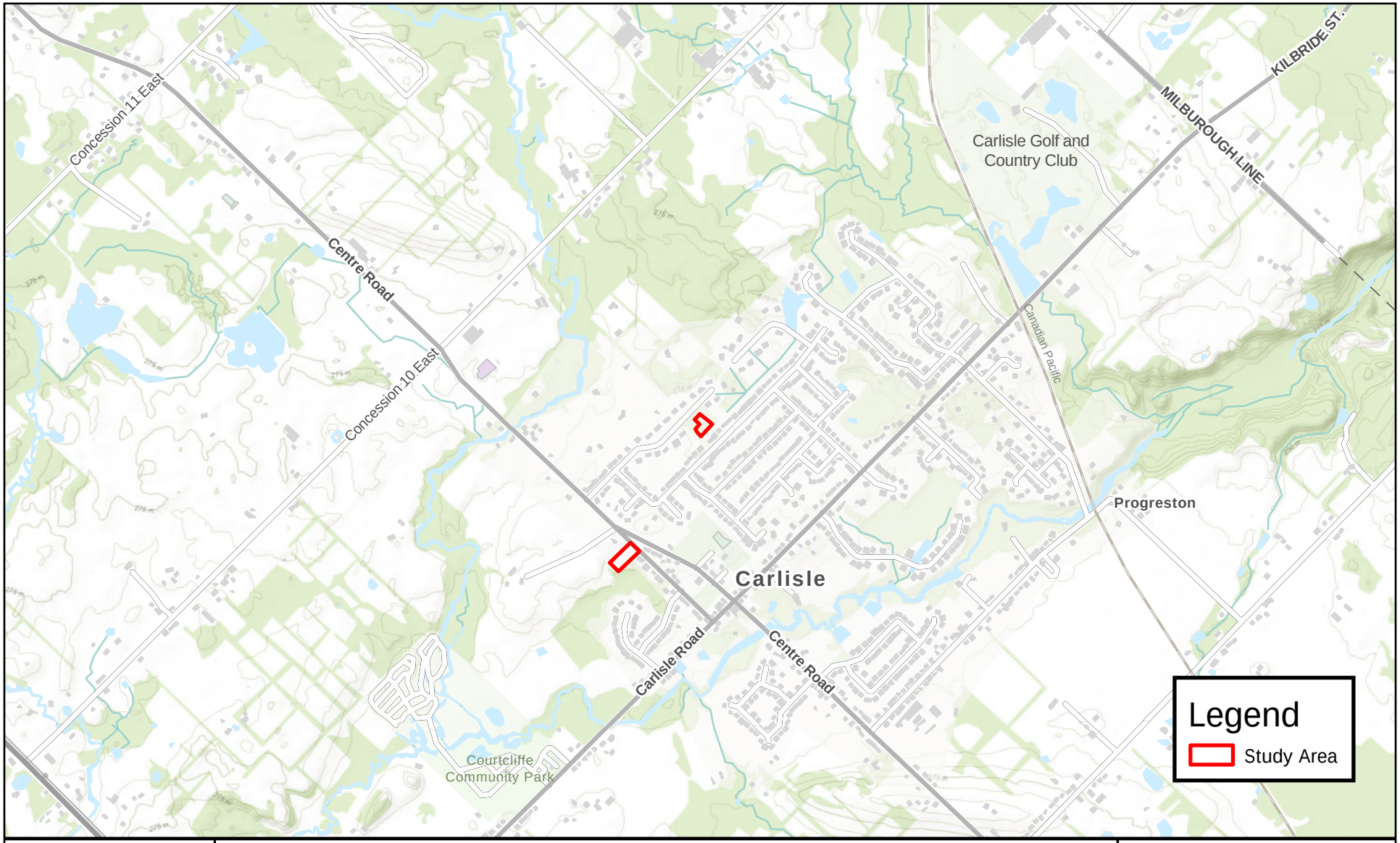


IMAGE 6: AREA 2, SATELLITE IMAGERY 2005

IMAGE 7: AREA 2, SATELLITE IMAGERY 2018

IMAGE 8: AREA 2, SATELLITE IMAGERY 2022

Maps



Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 1: Study Area on Topographic Map

Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, NRCan, Parks Canada, Esri, NASA, NGA, USGS, FEMA

Coordinate System: NAD 1983 UTM Zone 17N

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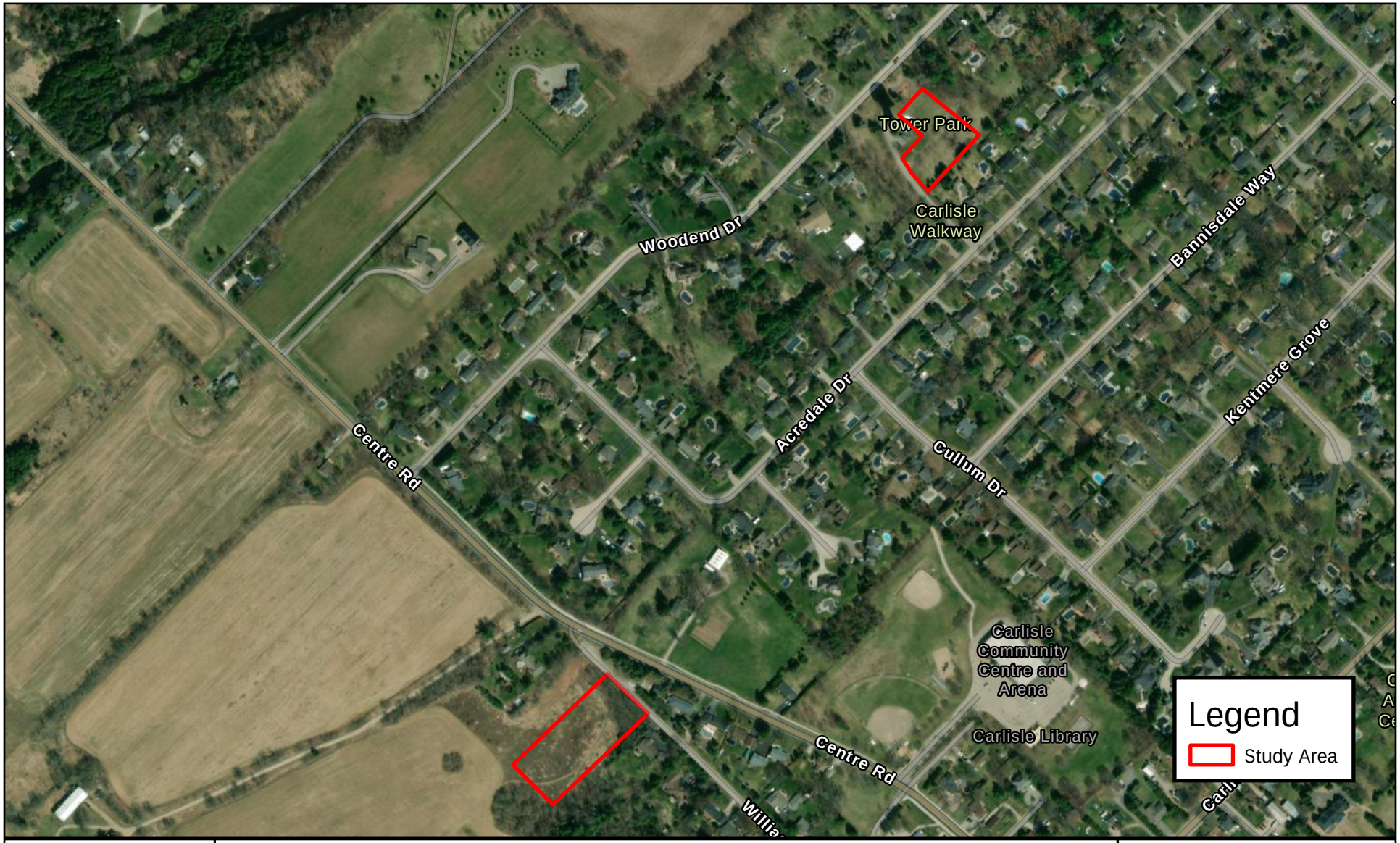

Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 2: Study Area on Modern Aerial Image

Esri Community Maps Contributors, City of Hamilton, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, NRCan, Parks Canada, Town of Oakville,

Coordinate System: NAD 1983 UTM Zone 17N

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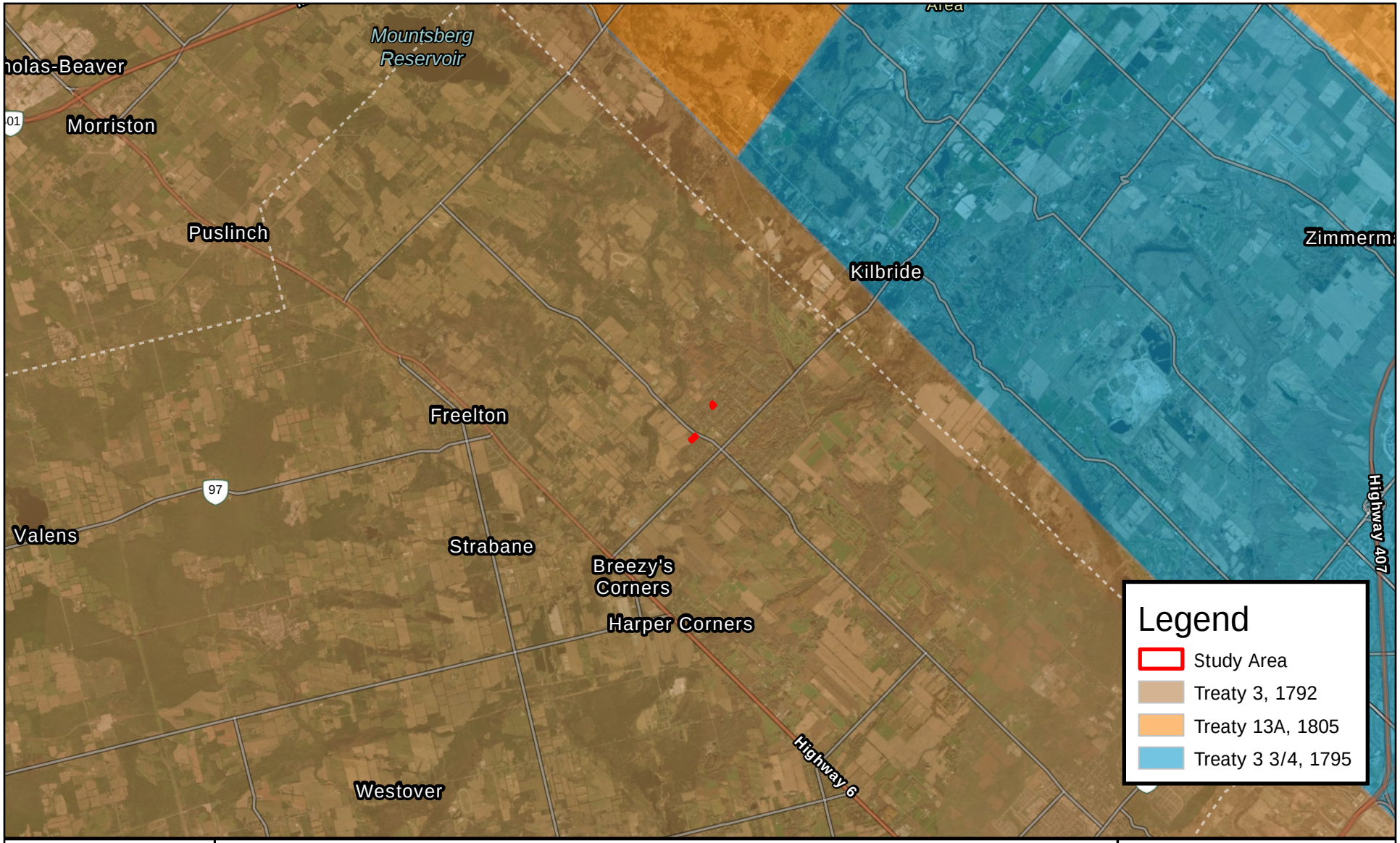

Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 3: Study Area on Treaties Map

Town of Oakville, Earthstar Geographics, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

Coordinate System: NAD 1983 UTM Zone 17N

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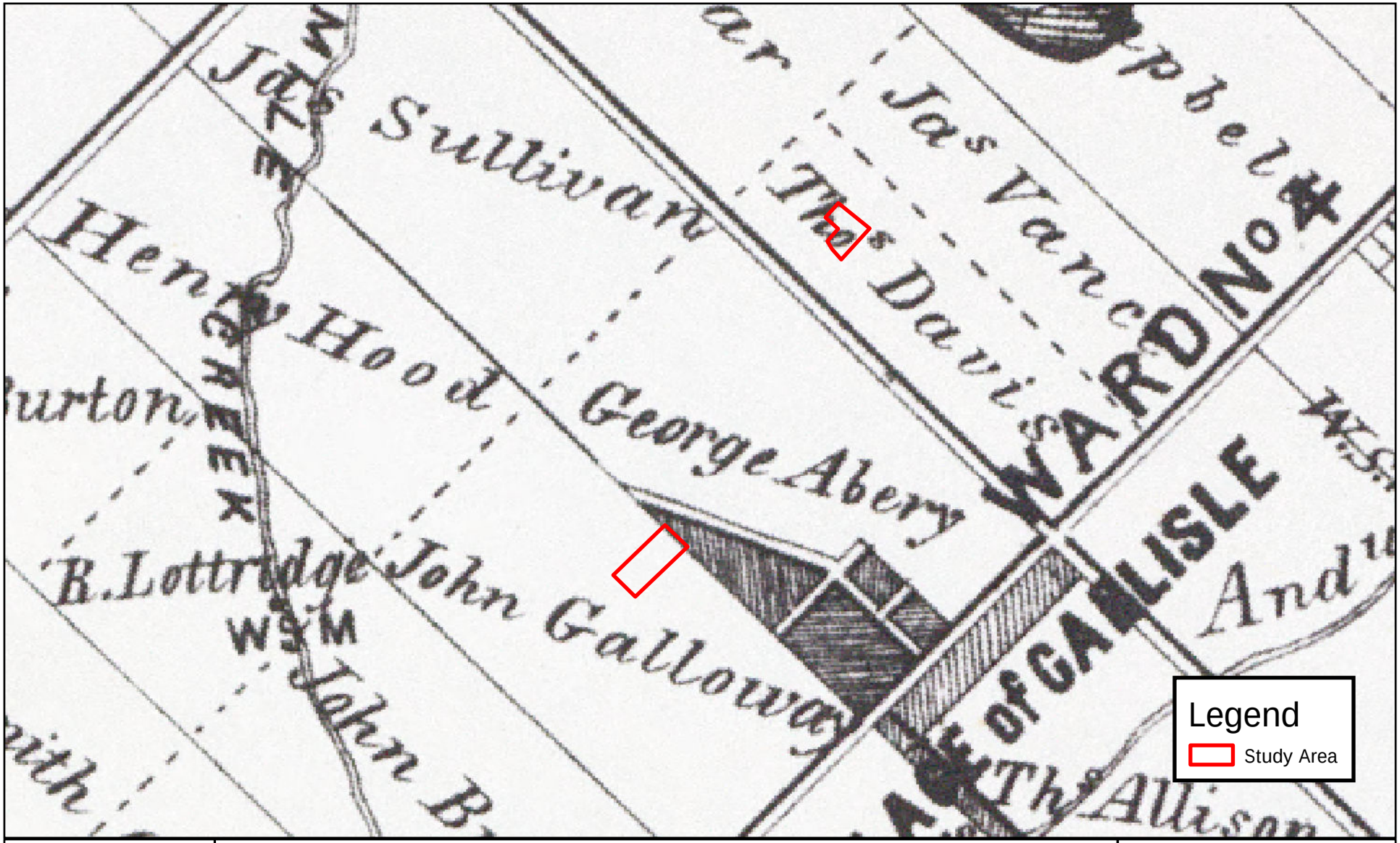

Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 4: Study Area on 1858 Tremaine Map

Esri Community Maps Contributors, City of Hamilton, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, NRCan, Parks Canada, Esri, NASA, NGA,

Coordinate System: NAD 1983 UTM Zone 17N

Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 5: Study Area on 1878 Illustrated Historical Atlas

Esri Community Maps Contributors, City of Hamilton, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, NRCan, Parks Canada, Esri, NASA, NGA,

Coordinate System: NAD 1983 UTM Zone 17N

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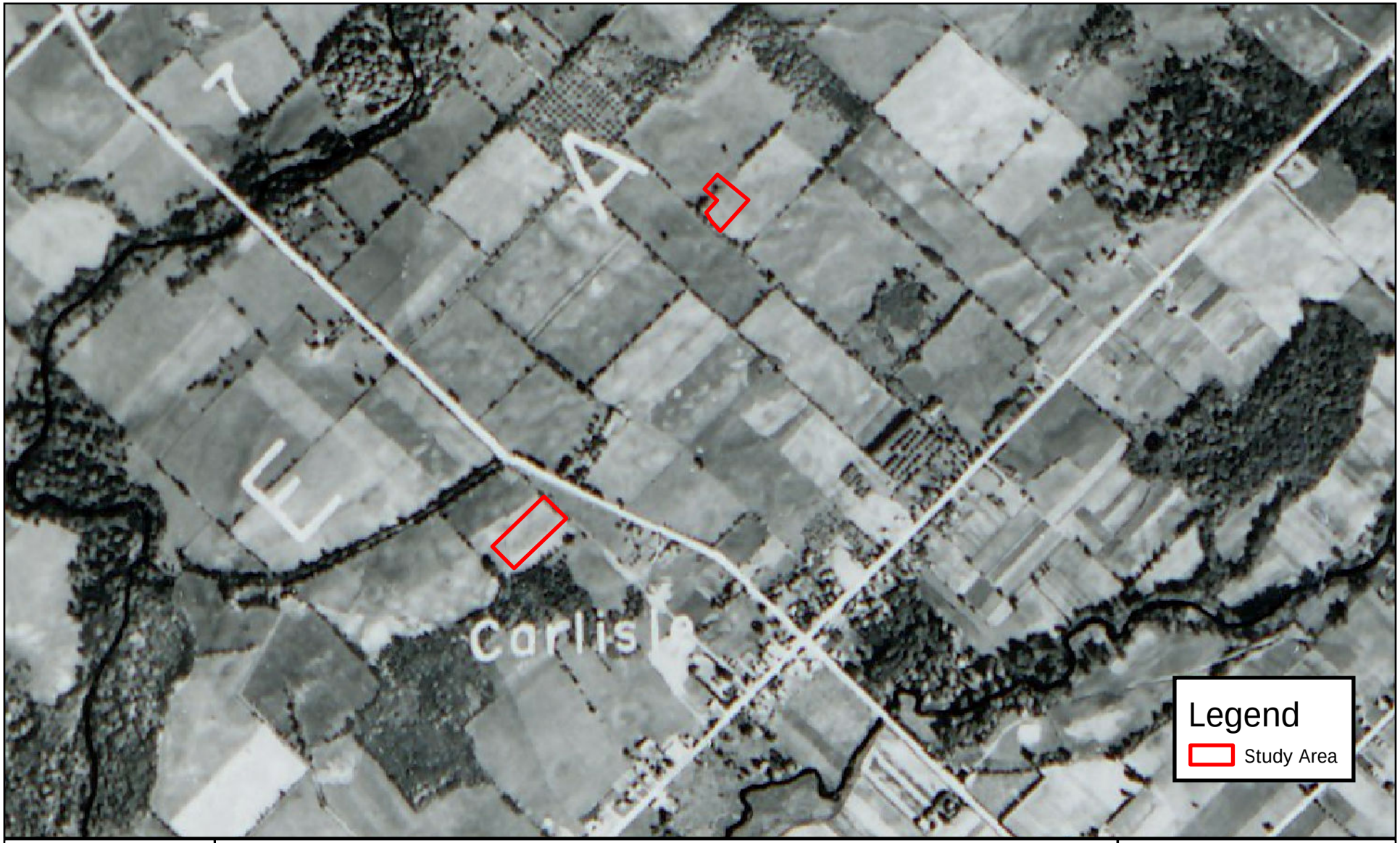

Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 6: Study Area on 1954 Aerial Image

Coordinate System: NAD 1983 UTM Zone 17N

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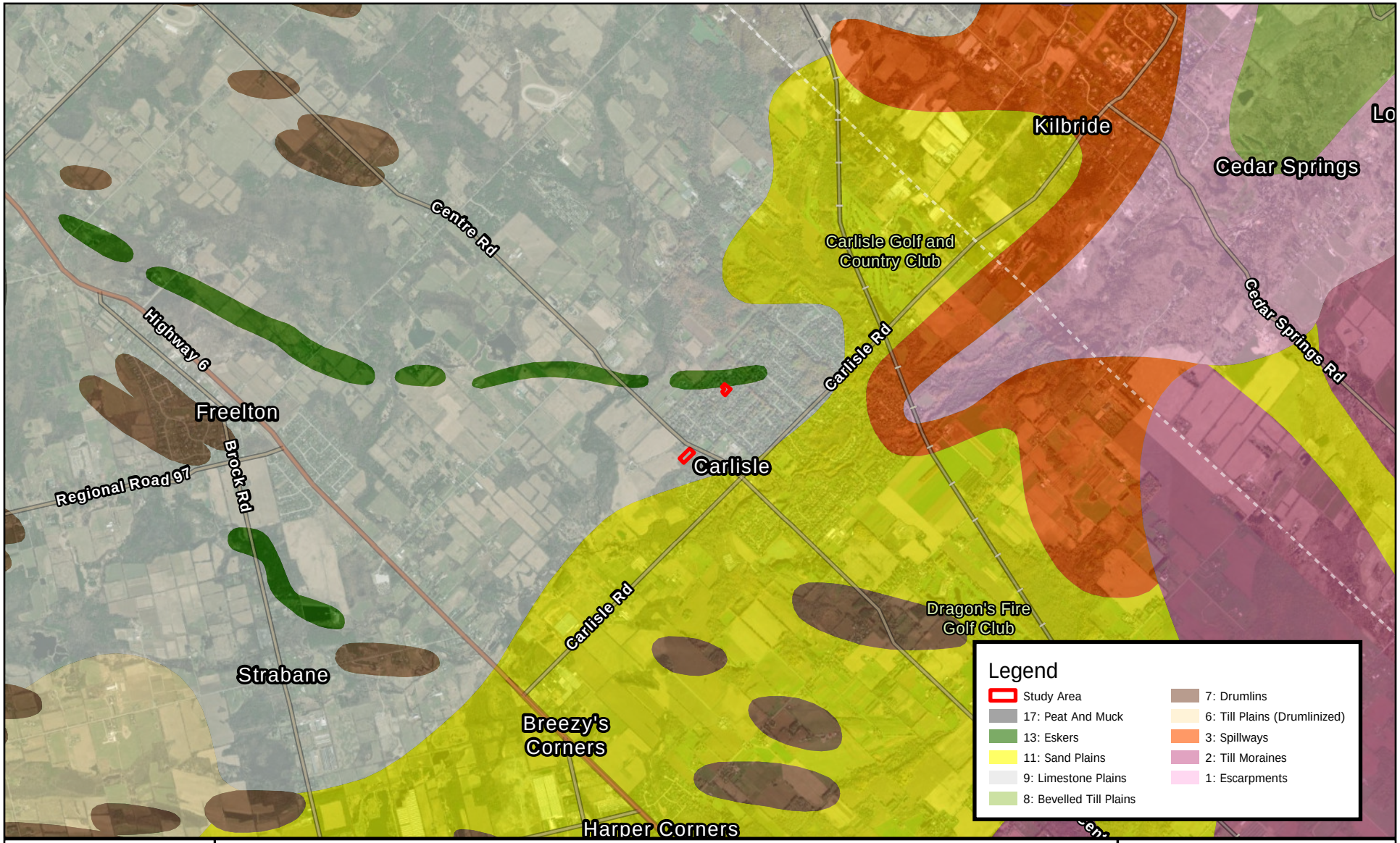

Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 7: Study Area on Physiographic Map

Town of Oakville, Maxar, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

Coordinate System: NAD 1983 UTM Zone 17N

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Scale 1:50,000

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Stage 1 Archaeological Assessment - Carlisle Water Storage

Map 8: Stage 1 Results and Recommendations

Esri Community Maps Contributors, City of Hamilton, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, NRCan, Parks Canada, Town of Oakville,

Coordinate System: NAD 1983 UTM Zone 17N

N

Scale 1:5,000

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883 St. Clair Avenue West, Rear, Toronto, ON, M6C 1C4

Telephone: 647-348-4887

Email: admin@phcgroup.ca

Website: www.phcgroup.ca