Stage 1 Archaeological Assessment
Biggars Lane Landfill Expansion Environmental Assessment
Part of Lots 1 and 2, Range 2 East of Mount Pleasant
(Former Township of Brantford) and
Part of Lots 13 and 14, Concession 2
(Former Township of Oakland)
County of Brant, Ontario

ORIGINAL REPORT

Prepared for:

R.J. Burnside & Associates Limited
1465 Pickering Parkway, Suite 200
Pickering, ON L1V 7G7

Archaeological Licence #P094 (Merritt)
Ministry of Tourism, Culture and Sport PIF# P094-0222-2016
ASI File: 16EA-179

27 March 2017
ASI was contracted by R.J. Burnside & Associates Limited to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Biggars Lane Landfill Expansion Environmental Assessment in the County of Brant. This project involves the expansion of the existing Biggars Lane Landfill to provide landfill disposal capacity until at least 2050. The Site Study Area under review is defined as approximately 90 hectares of the County-owned lands at the Biggars Lane landfill, located in the south of Lot 1, 2nd Range East of Mount Pleasant Road in the County of Brant.

The Stage 1 background study determined that no previously registered archaeological sites are located within two kilometres of the Site Study Area. The property inspection determined that part of the Site Study Area retains archaeological potential and requires Stage 2 assessment prior to any proposed impacts to the property.

In light of these results, the following recommendations are made:

1. The Site Study Area retains archaeological potential. These lands require Stage 2 archaeological assessment by a combination of test pit and pedestrian survey, where appropriate, at a 5 m intervals, prior to any proposed impacts to the property;

2. Parts of the Site Study Area require test pit survey according to professional judgement to confirm disturbance;

3. The remainder of the Site Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, or slopes in excess of 20 degrees. These lands do not require further archaeological assessment; and,

4. Should the proposed work extend beyond the current Site Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.
PROJECT PERSONNEL

Senior Project Manager: Lisa Merritt, MSc. (P094)
Partner & Director
Environmental Assessment Division

Project Coordinator: Sarah Jagelewski, Hon. BA (R405)
Archaeologist, Assistant Manager
Environmental Assessment Division

Project Director (Licensee): Lisa Merritt

Project Manager: Eliza Brandy, MA (R1109)
Archaeologist, Project Manager
Environmental Assessment Division

Field Director: Peter Carruthers, MA (P163)
Senior Associate

Report Preparation: Eliza Brandy

Graphics: Blake Williams, MLitt (P383)
Archaeologist Geomatics Specialist

Report Reviewer: Lisa Merritt
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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by R.J. Burnside & Associates Limited to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Biggars Lane Landfill Expansion Environmental Assessment (EA) in the County of Brant. This project involves the expansion of the existing Biggars Lane Landfill to provide landfill disposal capacity until at least 2050. The Site Study Area under review is defined as approximately 90 hectares of County-owned lands at the Biggars Lane landfill, located in the south of Lot 1, 2nd Range East of Mount Pleasant Road in the County of Brant (Figure 1).

All activities carried out during this assessment were completed in accordance with the Ontario Heritage Act (1990, as amended in 2009) and the 2011 Standards and Guidelines for Consultant Archaeologists (S & G), administered by the Ministry of Tourism, Culture and Sport (MTCS).

In the S & G, Section 1, the objectives of a Stage 1 archaeological assessment are discussed as follows:

- To provide information about the history, current land conditions, geography, and previous archaeological fieldwork of the Site Study Area;

- To evaluate in detail the archaeological potential of the Site Study Area that can be used, if necessary, to support recommendations for Stage 2 archaeological assessment for all or parts of the Site Study Area; and,

- To recommend appropriate strategies for Stage 2 archaeological assessment, if necessary.

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

1.1 Development Context

All work has been undertaken as required by the Environmental Assessment Act, RSO (1990) and regulations made under the Act, and are therefore subject to all associated legislation.

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by R.J. Burnside & Associates Limited on June 24, 2016.

1.2 Historical Context

The purpose of this section, according to the S & G, Section 7.5.7, Standard 1, is to describe the past and present land use, the settlement history and any other relevant historical information pertaining to the Site.
Study Area. A summary is first presented of the current understanding of the Indigenous land use of the Site Study Area. This is then followed by a review of the historical Euro-Canadian settlement history.

### 1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (BP) (Ferris 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988) and populations now occupied less extensive territories (Ellis and Deller 1990).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 BP; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 BP and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Ellis et al. 1990, 2009; Brown 1995:13).

Between 3,000-2,500 BP, populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. Exchange and interaction networks broaden at this time (Spence et al. 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence et al. 1990:155, 164). It is also during this period that maize was first introduced into southern Ontario, though it would have only supplemented people’s diet (Birch and Williamson 2013:13–15). Bands likely retreated to interior camps during the winter. It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From approximately 1,000 BP until approximately 300 BP, lifeways became more similar to that described in early historical documents. During the Early Iroquoian phase (AD 1000-1300), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990:317). By the second quarter of the first millennium BP, during the Middle Iroquoian phase (AD 1300-1450), this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). In the Late Iroquoian phase (AD 1450-1649) this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By AD 1600, the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee ¹ and the Huron-Wendat (and their Algonkian allies such as the Nippissing and Odawa) led to the dispersal of the Huron-Wendat.

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¹ The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian-speaking groups - the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.
Samuel de Champlain in 1615 reported that a group of Iroquoian-speaking people situated between the Haudenosaunee and the Huron-Wendat were at peace and remained “la nation neutre”. In subsequent years, the French visited and traded among the Neutral, but the first documented visit was not until 1626, when the Recollet missionary Joseph de la Roche Daillon recorded his visit to the villages of the Attiwandaron, whose name in the Huron-Wendat language meant “those who speak a slightly different tongue” (the Neutral apparently referred to the Huron-Wendat by the same term). Like the Huron-Wendat, Petun, and Haudenosaunee, the Neutral people were settled village agriculturalists. Several discrete settlement clusters have been identified in the lower Grand River, Fairchild-Big Creek, Upper Twenty Mile Creek, Spencer-Bronte Creek drainages, Milton, Grimsby, Eastern Niagara Escarpment and Onondaga Escarpment areas, which are attributed to Iroquoian populations. These settlement clusters are believed by some scholars to have been inhabited by populations of the Neutral Nation or pre- (or ancestral) Neutral Nation (Lennox and Fitzgerald 1990).

Between 1647 and 1651, the Neutral were decimated by epidemics and ultimately dispersed by the Haudenosaunee, who subsequently settled along strategic trade routes on the north shore of Lake Ontario for a brief period during the mid-seventeenth-century. Compared to settlements of the Haudenosaunee, the “Iroquois du Nord” occupation of the landscape was less intensive. Only seven villages are identified by the early historic cartographers on the north shore, and they are documented as considerably smaller than those in New York State. The populations were agriculturalists, growing maize, pumpkins, and squash. These settlements also played the important alternate role of serving as stopovers and bases for Haudenosaunee travelling to the north shore for the annual beaver hunt (Konrad 1974).

After the dispersal, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario, including Teiaiagon, near the mouth of the Humber River; and Ganestiquiagon, near the mouth of the Rouge River. Their locations near the mouths of the Humber and Rouge Rivers, two branches of the Toronto Carrying Place, strategically linked these settlements with the upper Great Lakes through Lake Simcoe. The west branch of the Carrying Place followed the Humber River valley northward over the drainage divide, skirting the west end of the Oak Ridges Moraine, to the East Branch of the Holland River. Another trail followed the Don River watershed.

When the Senecas established Teiaiagon at the mouth of the Humber, they were in command of the traffic across the peninsula to Lake Simcoe and the Georgian Bay. Later, the Mississaugas’ and early Europeans’ presence along the north shore of Lake Ontario was also largely defined by the area’s strategic importance for accessing and controlling long established economic networks. Prior to the arrival of the Seneca, these economic networks would have been used by indigenous groups for thousands of years. While the trail played an important part during the fur trade, people would also travel the trail in order to exploit the resources available to them across south-central Ontario, including the various spawning runs, such as the salmon coming up from Lake Ontario or herring or lake trout in Lake Simcoe.

Due in large part to increased military pressure from the French upon their homelands south of Lake Ontario, the Haudenosaunee abandoned their north shore frontier settlements by the late 1680s, although they did not relinquish their interest in the resources of the area, as they continued to claim the north shore as part of their traditional hunting territory. The territory was immediately occupied or re-occupied by Anishinaabek groups, including the Mississauga, Ojibwa (or Chippewa) and Odawa, who, in the early seventeenth century, occupied the vast area extending from the east shore of Georgian Bay, and the north shore of Lake Huron, to the northeast shore of Lake Superior and into the upper peninsula of Michigan. Individual bands were politically autonomous and numbered several hundred people. Nevertheless, they shared common cultural traditions and relations with one another and the land. These groups were highly
mobile, with a subsistence economy based on hunting, fishing, gathering of wild plants, and garden farming. Their movement southward also brought them into conflict with the Haudenosaunee.

Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases to the north of Lake Ontario in the early nineteenth century, the Crown acknowledged the Mississaugas as the owners of the lands between Georgian Bay and Lake Simcoe and entered into negotiations for additional tracts of land as the need arose to facilitate European settlement.

During the American Revolution, Mississauga warriors supported the English military. Rebel forces destroyed the villages of the Six Nations Iroquois in New York and many people were forced to move to the Niagara area. When Six Nations Iroquois leaders learned that the English planned to make a peace treaty with the Americans and establish a boundary line that would give away their homelands they were angry. The English government offered to protect Six Nations Iroquois peoples and give them land within their boundaries. On August 8, 1783, Lord North instructed Governor Haldimand to set apart land for the Six Nations Iroquois and ensure that they carried on their hunting and fur trading with the British. On May 22, 1784, a tract of land along the Grand River was purchased by the British government from the Mississaugas who lived in the vicinity (Johnston 1964; Lytwyn 2005). The land set apart is called the Haldimand Tract. Joseph Brant led Haudenosaunee loyalists (1600 people) to the Haldimand tract in 1784 and in the fall of 1784, Sir Frederick Haldimand formally awarded the tract to the Mohawks “and others of the Six Nations [Iroquois].” They were authorized to “Settle upon the Banks of the River” and were allotted “for that Purpose six miles [10 km] deep from each Side of [it] beginning at Lake Erie, & extending in the Proportion to [its] Head.” The precise boundaries of the grant were unclear as there was no survey; for example, the northern boundary of the original deed from the Mississaugas to the Crown stated that the line extended “from the creek that falls from a small lake into…the bay known by the name of Waghquata [Burlington Bay]…until it strikes the river La Tranche [Thames].” The 1790 survey by Augustus Jones intentionally failed to include the headwaters of the Grand, an action made all the more difficult to address given the unclear description of the extent in the original deeds (Johnston 1964; Lytwyn 2005).

Brant regarded the territory as his own to manage on behalf of the Confederacy and interpreted the proclamation as tantamount to full national recognition of the Mohawks and fellow tribesmen. This interpretation was strongly denied by the British (Johnston 1964; Lytwyn 2005). Appointed as Lieutenant Governor of the new colony of Upper Canada in 1791, Simcoe refused to permit the Six Nations Iroquois to sell/lease any part of their reserve because they were arranged independently of the Crown. Brant, on the other hand, argued for the Six Nations Iroquois’ need for an immediate assured income from land sales as they could no longer hope to survive by hunting exclusively. Simcoe thought that if such practices were permitted, it could lead to other Europeans attempting to seize control by any means of the better part of the Six Nations Iroquois’ reserve and it was therefore unresolved as to whether Six Nations Iroquois people could dispose of their lands directly to whomever they chose (Johnston 1964; Lytwyn 2005).
In the first few years, Brant, who had been described, by some, as a Europeanized entrepreneur, took the initiative and invited white friends and acquaintances to the tract and provided them with rough land titles. Over the next 25 years (1784-1810), a considerable number of Europeans and Americans obtained similar leases authorizing them (in Brant’s opinion) to occupy and improve lots overlooking the river (Johnston 1964; Lytwyn 2005).

The subsequent Peter Russel administration (1797-1798), however, recognized the leases and the sales that Brant arranged with white settlers along the Grand River Valley. Trustees were appointed to act on the behalf of the Six Nations Iroquois with the authority to receive payment of purchases. On the other hand, some Six Nations Iroquois thought that the land sale practices violated the ancient principle that land was not a “commodity which could be conveyed.” Two Mohawk sachems even tried to take up arms to depose Brant because they did not agree with his ways. Their efforts were for naught and they returned to the Bay of Quinte where other Six Nation Iroquois peoples, led by Sachem John Deseronto, had settled after the American Revolution (Johnston 1964; Lytwyn 2005).

A formal investigation of the matter was launched in 1812 although leases were not set aside. Due to problems of white encroachment including squatters without titles, settlers who bought land from individuals or through other transactions with Six Nations Iroquois, many of the leases were confirmed by the Crown in 1834-5. Unauthorized sales and agreements remained rampant (Johnston 1964; Lytwyn 2005).

In 1841, Samuel P. Jarvis (Indian Superintendent) informed the Six Nations Iroquois that the only way to keep white intruders off their land would be for them to surrender it to the Crown, to be administered for their sole benefit. With this plan, the Six Nations Iroquois would retain lands that they actually occupied and a reserve of approximately 8,094 ha. The surrender of land was made by the Confederacy in January, 1841 (Johnston 1964; Lytwyn 2005).

Today, this history and those surrenders are still contested and there are numerous specific land claims that have been filed by the Six Nations Iroquois with the federal government in regard to lands within the Haldimand Tract (Johnston 1964; Lytwyn 2005).

The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Living in both Euro-Canadian and Indigenous societies, the Métis acted as agents and subagents in the fur trade but also as surveyors and interpreters. Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). By the mid-twentieth century, Indigenous communities, including the Métis, began to advance their rights within Ontario and across Canada, and in 1982, the Métis were federally recognized as one of the distinct Indigenous peoples in Canada. Recent decisions by the Supreme Court of Canada have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867 (Supreme Court of Canada 2003, 2016).
1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Site Study Area is located in the County of Brant on part of Lots 13 and 14, Concession 2 in the Former Township of Oakland, and on part of Lots 1 and 2, Range 2 East of Mount Pleasant (EMP) in the Former Township of Brantford.

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

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

Brantford Township originally formed part of a tract of land six miles wide on either side of the Grand River that was granted to the Six Nations of western New York by Governor Frederick Haldimand on October 25, 1784. This grant was made partly in consideration of their loyalty and services during the American Revolutionary War, and also on account of the subsequent loss of their ancestral territory. The township is said to have received its name around 1825, in honour of the Chief Joseph Brant or Thayendanegea (1742-1807), who was the Mohawk leader at the time of the grant. Much of the area covered by Brantford Township was not formally surveyed until 1830-31, when this task was undertaken by Lewis Burwell. The majority of the early “legal” Euro-Canadian settlers did not take up their land holdings until the 1830s. Several additional surveys followed in the years between 1833 and 1853 (Reville 1920).

After survey of the township, a network of concession roads and railroads developed through the nineteenth century. These transportation routes frequently influenced the siting of farmsteads and businesses. The Toronto, Hamilton and Buffalo rail line was constructed through Brantford in 1889 and abandoned in 1965. The Lake Erie and Northern rail line was constructed through Brantford in 1915 and abandoned in 1989 (Andreae 1997:132–135).
1.2.3 Historical Map Review

The 1858 Map of the County of Brant (Tremaine 1858) and the 1875 Brantford and Oakland Townships pages within the Illustrated Historical Atlas of the County of Brant (Page & Smith 1875) were examined to determine the presence of historic features within the Site Study Area during the nineteenth century (Figure 2 and 3).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

Table 1: Nineteenth-century property owner(s) and historical features(s) within the Site Study Area

<table>
<thead>
<tr>
<th>Con #</th>
<th>Lot #</th>
<th>Property Owner(s)</th>
<th>Historical Feature(s)</th>
<th>Property Owner(s)</th>
<th>Historical Feature(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range 2 EMP</td>
<td>1E</td>
<td>N. McIntyre</td>
<td>None</td>
<td>H Bartch</td>
<td>House, orchard</td>
</tr>
<tr>
<td></td>
<td>1W</td>
<td>A. Westbrook</td>
<td>None</td>
<td>N. McIntyre</td>
<td>House, orchard</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>H. Wes[l]brook Heirs</td>
<td>House, orchard</td>
</tr>
<tr>
<td></td>
<td>2E</td>
<td>Jacob Henry</td>
<td>None</td>
<td>J.W. N. McIntyre</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>2W</td>
<td>James Biggar</td>
<td>None</td>
<td>James Biggar</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>McIntyre Estate</td>
<td>None</td>
<td>P. C. McIntyre</td>
<td>House, orchard</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>S. Matthews</td>
<td>None</td>
<td>P. C. McIntyre</td>
<td>Orchard</td>
</tr>
</tbody>
</table>

According to the map, only one structure is illustrated within the Site Study Area in 1875 on the Westbrook property of the western half of Lot 1, Range 2 EMP. Both maps illustrate that what are now Biggars Lane and Hagan Road were historically surveyed, and that a former road followed the division of Oakland and Brantford townships – a northwestern extension of what is now Indian Line.
1.2.4 Twentieth-Century Mapping Review

The 1956 National Topographic Series Brantford Sheet was examined to determine the extent and nature of development and land uses within the Site Study Area (Figure 4). The map illustrates four structures within the Site Study Area, along Biggars Lane. The map also shows an abandoned airfield (previously Burtch Airfield in the 1940s) northeast of the Site Study Area. It also appears that the former township line was no longer in use as a transportation route. The Site Study Area appears to have remained within an agricultural landscape through the twentieth century.

A review of available Google satellite imagery shows that the Site Study Area has remained as predominantly agricultural fields since 2003. After 2006 the existing landfill expanded beyond the southern half of Lot 1 Range 2 EMP into the northern half, as well as into Lot 13 Concession 2. Construction of the first stormwater management pond in Lot 13 occurred before 2012. The abandoned airfield adjacent to the Site Study Area was later Burtch Correctional Facility, demolished in 2004.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Site Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MTCS through “Ontario’s Past Portal”; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

A Stage 1 property inspection was conducted on November 30, 2016 that noted the Site Study Area contains the site of the existing Biggars Lane Landfill, east of Biggars Lane and Hagan Road, west of Cockshutt Road, in the County of Brant. It is adjacent to the Fescue’s Edge Golf Club. The Site Study Area is located within a relatively agricultural landscape, and comprises active agricultural fields, wetlands, and woodlot.

1.3.2 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Site Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.
Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990:Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of archaeological site location.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, and 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 (eg. migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Norfolk Sand Plain physiographic region is a wedge-shaped feature that extends from the Lake Erie shoreline and tapers northward to a point in Brantford on the Grand River. 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 (Chapman and Putnam 1984:153–154).

Figure 5 depicts surficial geology for the Site Study Area. The surficial geology mapping demonstrates that the Site Study Area is underlain by coarse and fine-textured glaciolacustrine deposits (Ontario Geological Survey 2010). Soils in the Site Study Area include: well drained Bookton and Brant sand; moderately drained Brantford Lacustrine silty clay; imperfectly drained Beverly silty clay and Tuscola silt loam; and variably drained alluvium. Figure 6 depicts soil drainage within the Site Study Area.

The Site Study Area is located within the Grand River watershed, which drains an area of approximately 673,397 ha. Its main stream begins northeast of Dundalk at 526 m above sea level and flows for approximately 290 km to Lake Erie at Port Maitland (Chapman and Putnam 1984:95). The Grand River was an important transportation route and a critical resource extraction area for Indigenous people for thousands of years. Historically, the Grand River has been utilized as a navigable waterway, as a power source (such power sites served as settlement nuclei), and above Brantford as a course for driving logs (Chapman and Putnam 1984:98). It is also the focus of the Haldimand Tract; Joseph Brant was awarded six miles (10 km) on either side of the river (Johnston 1964:35–38; Lytwyn 2005). The Grand River (and its tributaries the Nith, Conestogo, Speed and Eramosa Rivers) was designated as a Canadian Heritage River in 1994 for its cultural history and recreation (Canadian Heritage Rivers System 2016).

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MTCS. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Site Study Area under review is located in Borden block AgHb.
According to the OASD, no previously registered archaeological sites are located within two kilometres of the Site Study Area (Ministry of Tourism, Culture and Sport 2016). According to the background research, one previous report detail fieldwork within 50 m of the Site Study Area. ASI (2000) conducted a Stage 1 and 2 archaeological assessment of the Burtch Adult Training and Correctional Centre on approximately 158 hectares in the Township of Brantford, County of Brant. The Stage 1 property inspection determined that all agricultural lands beyond the detention facility and old airfield complex retained archaeological potential. Stage 2 survey identified three isolated find spots consisting of non-diagnostic lithic flake fragments, none of which required registration with MTCS as sites. The remainder of the property was considered to be cleared of further archaeological concern.

2.0 FIELD METHODS: PROPERTY INSPECTION

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.

The Stage 1 archaeological assessment property inspection was conducted under the field direction of Peter Carruthers (P163) of ASI, on November 30, 2016, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Site Study Area. It was a visual inspection only and did not include excavation or collection of archaeological resources.

Fieldwork was only conducted when weather conditions were deemed suitable, per S & G Section 2. Previously identified features of archaeological potential were examined; additional features of archaeological potential not visible on mapping were identified and documented as well as any features that will affect assessment strategies. Field observations are compiled onto the existing conditions of the Site Study Area in Section 7.0 (Figure 7) and associated photographic plates are presented in Section 8.0 (Plates 1-24).

3.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts have been analyzed to help determine the archaeological potential of the Site Study Area. These data are presented below in Section 3.1. Results of the analysis of the Site Study Area property inspection are presented in Section 3.2.
3.1 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Site Study Area meets the following criteria indicative of archaeological potential:

- Early historic transportation routes (Biggars Lane, historic Oakland-Brantford Townline);
- Proximity to early settlements (Mount Pleasant); and
- Well-drained soils (Bookton sand, Brant sand)

These criteria are indicative of potential for the identification of Indigenous and Euro-Canadian archaeological resources, depending on soil conditions and the degree to which soils have been subject to deep disturbance.

3.2 Analysis of Property Inspection Results

The property inspection determined that parts of the Site Study Area within the existing landfill property have been subjected to deep and extensive soil disturbance events associated with grading, use of the landfill, and construction of stormwater management ponds and according to the S & G Section 1.3.2 do not retain archaeological potential (Plates 1-4, 11-15, 23-24; Figure 7: areas highlighted in yellow). Parts of the Site Study Area are located in low and wet conditions (Plates 14, 20, 22; Figure 7: areas highlighted in blue), or on slopes in excess of 20 degrees (Plate 15; Figure 7: areas highlighted in pink), and according to the S & G Section 2.1 do not retain potential. These areas do not require further survey.

Parts of the Site Study Area require test pit survey according to professional judgement to confirm disturbance (approximately 3.7 ha) in accordance with the S & G Section 2.1.8 Standard 2 (Plates 1, 11; Figure 7: areas in teal).

The remainder of the Site Study Area retains archaeological potential (Plates 5-12, 16-19, 21; Figure 7: areas highlighted in green and orange). These areas will require Stage 2 archaeological assessment prior to any development. According to the S & G Section 2.1.1, pedestrian survey is required in actively or recently cultivated fields (approximately 46.2 ha), where crews walk in 5 metre transects over a properly prepared and weathered field looking for artifacts on the surface (eg. Plates 5-7, 9, 10, 17, 18). According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable (approximately 10.3 ha), such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide (eg. Plates 8, 12, 16, 19, 21). Test pit survey consists of 5 m transects of small pits excavated to sterile subsoil at regular intervals; the soil is then screened through 6 mm mesh and examined for artifacts.

3.3 Conclusions

The Stage 1 background study determined that no previously registered archaeological sites are located within two kilometres of the Site Study Area. The property inspection determined that part of the Site Study Area retains archaeological potential and requires Stage 2 assessment prior to any proposed impacts to the property.
4.0 RECOMMENDATIONS

In light of these results, the following recommendations are made:

1. The Site Study Area retains archaeological potential. These lands require Stage 2 archaeological assessment by a combination of test pit and pedestrian survey, where appropriate, at a 5 m intervals, prior to any proposed impacts to the property;

2. Parts of the Site Study Area require test pit survey according to professional judgement to confirm disturbance;

3. The remainder of the Site Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, or slopes in excess of 20 degrees. These lands do not require further archaeological assessment; and,

4. Should the proposed work extend beyond the current Site Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

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

ASI also advises compliance with the following legislation:

- This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

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

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

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7.0 MAPS
Figure 1: Biggars Lane Landfill Expansion EA - Location of the Site Study Area
Figure 2: Biggars Lane Landfill Expansion EA Site Study Area (Approximate Location) Overlaid on the 1858 Map of the County of Brant

Figure 3: Biggars Lane Landfill Expansion EA Site Study Area (Approximate Location) Overlaid on the 1875 Illustrated Historical Atlas of the County of Brant
Figure 4: Biggars Land Landfill Expansion EA Site Study Area (Approximate Location) Overlaid on the 1956 NTS Brantford Sheet
Figure 5: Biggars Land Landfill Expansion EA Site Study Area - Surficial Geology

Figure 6: Biggars Land Landfill Expansion EA Site Study Area - Soil Drainage
Figure 7: Biggars Lane Landfill Expansion EA - Results of the Property Inspection
8.0 IMAGES

Plate 1: Southwest view of the Site Study Area from existing landfill access road; Area beyond existing disturbed landfill retains potential, requires Stage 2 judgmental test pit survey to confirm disturbance.

Plate 2: Northwest view of the Site Study Area from existing landfill access road; Area retains potential, requires Stage 2 pedestrian survey
Plate 3: East view of the Site Study Area from existing landfill access road; Area retains potential, requires Stage 2 pedestrian survey.

Plate 4: South view of the existing landfill; Area is disturbed, no potential.

Plate 5: Northwest view of the Site Study Area northwest field; Area retains potential, requires Stage 2 pedestrian survey.

Plate 6: Southeast view of the Site Study Area northwest field; Area retains potential, requires Stage 2 pedestrian survey.
Plate 7: North view of the Site Study Area northwest field; Area retains potential, requires Stage 2 pedestrian survey

Plate 8: Northeast view of the farmstead; Area retains potential, requires Stage 2 pedestrian survey

Plate 9: West view of the Site Study Area northwest field; Area retains potential, requires Stage 2 pedestrian survey

Plate 10: East view of the Site Study Area from Biggars lane; Area beyond ROW retains potential, requires Stage 2 pedestrian survey
Plate 11: East view of the existing landfill access road; Area north of disturbed ROW retains potential, requires Stage 2 judgmental test pit survey

Plate 12: West view of the existing landfill access road; Area south of disturbed ROW retains potential, requires Stage 2 test pit survey

Plate 13: West view of the existing landfill access road; Area south of disturbed ROW and landfill is low and wet, no potential

Plate 14: South view of wetland from existing landfill access road; Area is low and wet, no potential
Plate 15: North view of Site Study Area; Area within the woodlot east of disturbed landfill is sloped, no potential

Plate 16: East view of Site Study Area woodlot; Area retains potential, requires Stage 2 test pit survey

Plate 17: Northeast view of Site Study Area northeast field; Area retains potential, requires Stage 2 pedestrian survey

Plate 18: West view of Site Study Area southeast field; Area retains potential, requires Stage 2 pedestrian survey
Plate 19: Southwest view of Site Study Area woodlot; Area within woodlot retains potential, requires Stage 2 pedestrian survey. Note: rolling terrain drops into golf course.

Plate 20: West view of Site Study Area wetland; Area north in the woodlot and high ground to the west retains potential, requires Stage 2 pedestrian survey. Area surrounding creek is low and wet, no potential.

Plate 21: Northwest view of Site Study Area woodlot; Area retains potential, requires Stage 2 pedestrian survey.

Plate 22: North view of Hagan Road and wetland; Area east of the ROW is low and wet, no potential.
Plate 23: Northwest view of Site Study Area near stormwater management pond; Area is disturbed, no potential

Plate 24: East view of graded and bermed stormwater management pond; Area is disturbed, no potential.