Stage 1 Archaeological Assessment, Grand Renewable Energy Park, Haldimand County, Ontario

FINAL REPORT
Stage 1 Archaeological Assessment, Grand Renewable Energy Park, Haldimand County, Ontario

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August 24, 2010

CIF # P002-208-2010

Project No.: 161010624

EXECUTIVE SUMMARY

A Stage 1 Archaeological Assessment was required as part of an application for a Renewable Energy Approval for the proposed renewable energy park, consisting of both solar and wind power generation in Haldimand County, Ontario. The Project area consisted of the entirety of Dunn, Rainham, and South Cayuga Townships as well as Lots 32-51, Concessions 1, 2 and 3 South in North Cayuga Township and Lots 6-24, Concessions 2-11 in Walpole Township.

The archaeological study included a review of aerial imagery, existing archaeological potential mapping, information regarding registered archaeological sites in the vicinity, local physiography and topography as well as Census returns and mapping from the 19th century.

It is Stantec's professional opinion that most parts of the Project area demonstrate potential for the presence of significant archaeological deposits of integrity. It should be anticipated for Project component siting exercises that Stage 2 Archaeological Assessment is likely to be required for most locations of project related infrastructure construction, including all turbine pads, access roads, underground cable links, construction offices, laydowns and temporary storage areas and any other areas where soil disturbances into and below the topsoil may occur.

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

PROJECT PERSONNEL

Project Director	Colin Varley, M.A., R.P.A.
Archival Research	Tavis Maplesden, B.A. (Hons), Colin Varley, M.A., R.P.A.
Report	Tavis Maplesden, B.A. (Hons), Sarah Rogers, B.Sc. (Hons.), G.Dip., Colin Varley, M.A., R.P.A.

1 INTRODUCTION

Samsung Renewable Energy Inc. has proposed to construct a renewable energy park in the Regional Municipality of Haldimand-Norfolk, Ontario (Figure 1-1).

This Stage 1 AA report is one component of the Renewable Energy Approval (REA) application for the Project, and has been prepared in accordance with O. Reg. 359/09, and the Ontario Ministry of Natural Resources' (MNR's) Approval and Permitting Requirements Document for Renewable Energy Projects (September 2009). Archaeological assessments are provided to the Ministry of Culture and Tourism (MTC) for review in advance of submission as part of the REA application and are prepared according to their guidelines.

The Stage 1 study was completed by Tavis Maplesden, B.A., Archaeological Technician and Colin Varley, M.A., R.P.A., Senior Archaeologist and Heritage Planning Consultant.

2 PROJECT AREA

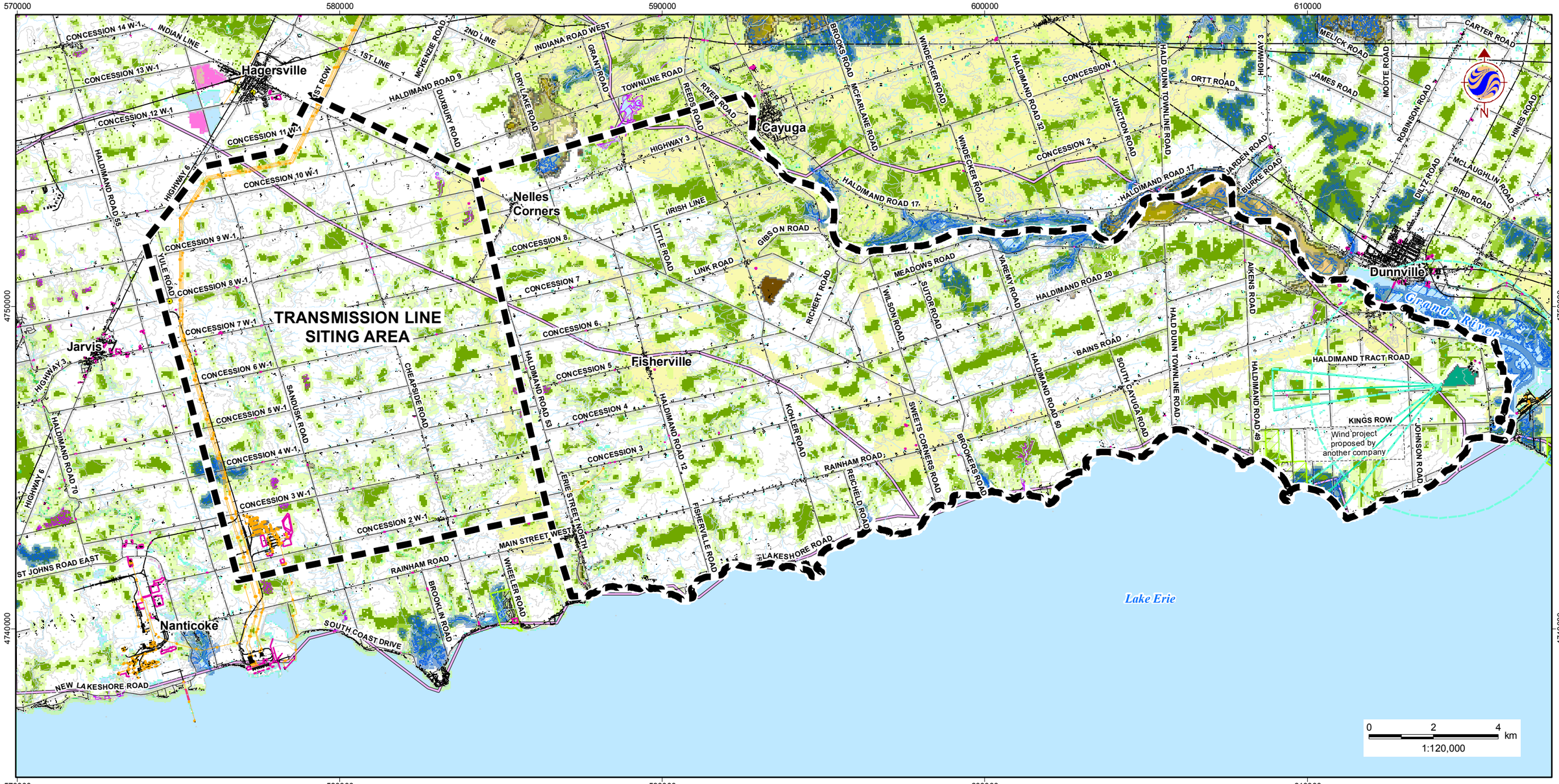
The Project area is composed of approximately 43000 ha (107000 acres) of developed and agricultural land, in the historic County of Haldimand, now part of the Regional Municipality of Haldimand-Norfolk (Figure 1-1).

The project area is located in the Haldimand Clay Plain physiographic region, a large region that occupies the majority of the Niagara Peninsula south of the Escarpment down to Lake Erie. It is a region of approximately 1,350 square miles characterized by recessional moraines in the northern part, deep river valley in the middle, and flat and low lying ground to the south (Chapman and Putnam 1984) (Figure 2-1).

The vast majority of the surficial geology of the Project area is silty clay loam till with the only other soil types being various alluvial deposits in flood plains spanning the length of the various waterways and a small pocket of lacustrine silty clay in the northern-most portion of the Project area. The silty clay loam tills, such as the Gobles and Kelvin series of soils, are characterized by poor to imperfect drainage (Presant and Acton. 1984).

The majority of land use is agricultural with some pockets of undeveloped and wooded areas throughout. As the Project area covers an area that constitutes the majority of a historical county, there are small hamlets and towns to be found as well.

The major topographic feature of the area is Lake Erie, directly to the south of the Project area. A secondary feature is the Grand River, creating the eastern border of the area (Figure 1-1).



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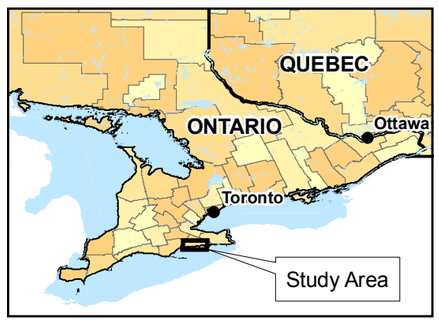
Legend

- Project Location
- Airport Runway Area Point
- Airport Runway Area Polyline
- Airport Runway Area
- Airport (OBM)
- Motorsports Park
- Spot Elevation Height (OBM)
- Building Point (OBM)
- Building Area (OBM)
- Tower (OBM)
- Wireless Communication Point
- Contour (OBM)
- Road
- Railway
- Abandoned Railway
- Watercourse (OBM)
- Transmission Line (OBM)
- Transport Line (OBM)
- Conservation Authority Boundary (OBM)
- Provincial Park (OBM)
- Tank (OBM)
- Pit or Quarry (OBM)
- Wireless Communication Corridor
- Provincially Significant Wetland
- Non-Provincially Significant Wetland
- Waterbody (OBM)
- Wooded Area
- Road - 59m Setback
- Provincially Significant Wetland - 120m Setback
- Waterbody - 30m Setback
- Woodlot - 120m Setback
- ANSI (Earth Science) - 50m Setback
- ANSI (Life Science) - 120m Setback

Area of Natural and Scientific Interest (ANSI)

- Life Science, Provincially Significant
- Earth Science, Provincially Significant
- Earth Science, Regionally Significant



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Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources: Ontario Ministry of Natural Resources © Queens Printer Ontario, 2009; © GREP, 2010; © Samsung, 2010.

Client/Project

SAMSUNG C&T
GRAND RENEWABLE ENERGY PARK

Figure No.

1.1

Title

PROJECT LOCATION MAP

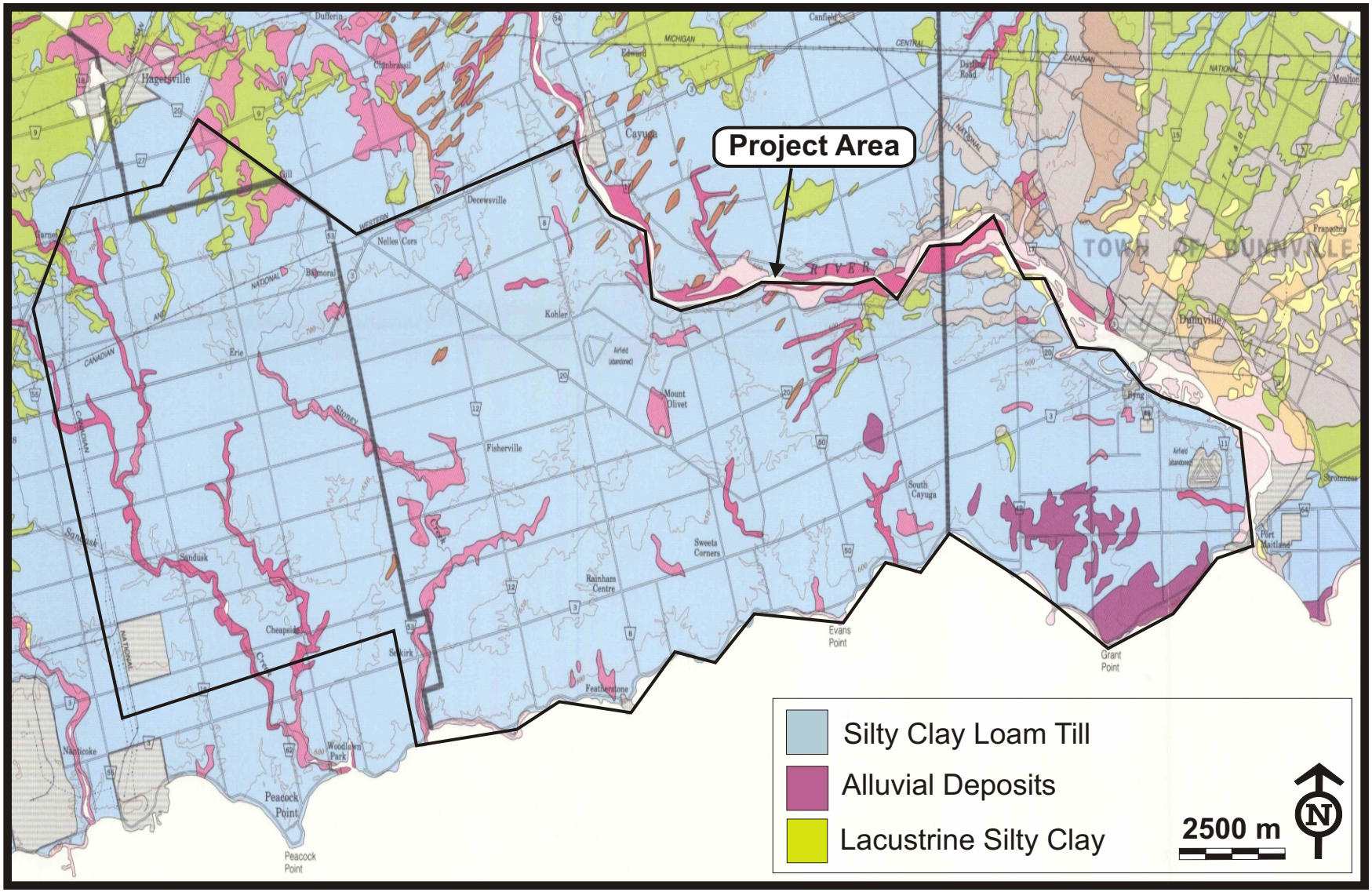

Figure 2-1 Soil Types in the Project Area

(Base Map Source: NTS 31 N)

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3 EXISTING CONDITIONS

The assessment of archaeological potential for the site considered both prehistoric and historic period resources. Archaeological potential modeling for prehistoric era sites is based largely on the identification of landscape features which are either known to have attracted past habitation or land use, or which appear to have potential for attracting human use. These features include: navigable rivers and lakes; confluences of watercourses; smaller sources of potable water; ridges or knolls that overlook areas of resource potential; outcrops of high-quality stone for tool making; and, most importantly, combinations of these features. In general it has been demonstrated that areas within 200-300 m of watercourses, or other significant bodies of water (ASI, 1990; Cox, 1989), and in particular those areas with multiple water sources (Young et al., 1995), are considered to be of elevated archaeological potential.

Patterns of land use by historic Euro-Canadians to some extent mirror those of the prehistoric period. This is not surprising, since the same general needs must be met, i.e., proximity to potable water, access to natural resources, and a level, well drained habitation site. On the other hand, the Euro-Canadian conversion of both fertile and more marginal land for agricultural purposes, the development of non-water travel routes, the exploitation of different resources such as subsurface mineral deposits, and other differences in land use patterns make potential modeling of Euro-Canadian and other non-Aboriginal historic sites somewhat less reliable. Fortunately, these sites are more visible than their prehistoric counterparts, which helps offset this lower level of predictive reliability.

3.1 ARCHAEOLOGICAL CULTURE HISTORY OF SOUTHERN ONTARIO

The following summary of the prehistoric occupation of Southern Ontario (see Table 3.1 for chronological chart) is based on syntheses in Archaeologix (2008), Ellis and Ferris (1990) and Jacques Whitford (2008).

The first identified human occupation of Ontario begins just after the end of the Wisconsin Glacial period. The first human settlement can be traced back 11,000 years, when this area was settled by Native groups that had been living to the south of the emerging Great Lakes. This initial occupation is referred to as the "Palaeo-Indian" archaeological culture.

Early Palaeo-Indian (EPI) (11,000-10,400 BP) settlement patterns suggest that small groups, or “bands”, followed a pattern of seasonal mobility extending over large territories. Many (although by no means all) of the EPI sites were located on former beach ridges associated with Lake Algonquin, the post-glacial lake occupying the Lake Huron/Georgian Bay basin, and it is likely that the vegetative cover of these areas would have consisted of open spruce parkland, given the cool climatic conditions. Sites tend to be located on well-drained loamy soils, and on elevations in the landscape, such as knolls. The fact that artifact assemblages of EPI sites are composed exclusively of stone skews our understanding of the general patterns of resource extraction and use. However, the taking of large game, such as caribou, mastodon and mammoth, appears to be of central importance to the sustenance of these early inhabitants. Moreover, EPI site location often appears to be located in areas which would have intersected with migratory caribou herds.

Table 3.1 - Southern Ontario Prehistoric Cultural Chronology, Years Before Present (BP)

ARCHAEOLOGICAL PERIOD	TIME	CHARACTERISTICS
Early Paleo-Indian	11,000–10,400 BP	caribou and extinct Pleistocene mammal hunters, small camps
Late Paleo-Indian	10,400–10,000 BP	smaller but more numerous sites
Early Archaic	10,000-8,000 BP	slow population growth, emergence of woodworking industry, development of specialised tools
Middle Archaic	8,000–4,500 BP	environment similar to present, fishing becomes important component of subsistence, wide trade networks for exotic goods
Late Archaic	4,500-3,100 BP	increasing site size, large chipped lithic tools, introduction of bow hunting
Terminal Archaic	3,100-2,950 BP	emergence of true cemeteries with inclusion of exotic trade goods
Early Woodland	2,950-2,400 BP	introduction of pottery, continuation of Terminal Archaic settlement and subsistence patterns
Middle Woodland	2,400-1,400 BP	increased sedentism, larger settlements in spring and summer, dispersed smaller settlement in fall and winter, some elaborate mortuary ceremonialism
Transitional Woodland	1,400-1,100 BP	incipient agriculture in some locations, seasonal hunting & gathering
Late Woodland (Early Iroquoian)	1,100-700 BP	limited agriculture, development of small village settlement, small communal longhouses
Late Woodland (Middle Iroquoian)	700-600 BP	shift to agriculture as major component of subsistence, larger villages with large longhouses, increasing political complexity
Late Woodland (Late Iroquoian)	600- 350 BP	very large villages with smaller houses, politically allied regional populations, increasing trading network

The Late Palaeo-Indian (LPI) period (10,400-10,000 BP) is poorly understood compared to the EPI, the result of less research focus than the EPI. As the climate warmed the spruce parkland was gradually replaced and the vegetation of Southern Ontario began to be dominated by closed coniferous forests. As a result many of the large game species that had been hunted in the EPI period either moved north with the more open vegetation, or became extinct. Like the EPI, LPI peoples covered large territories as they moved around to exploit different resources.

The transition from the Palaeo-Indian period to the Archaic archaeological culture of Ontario prehistory is evidenced in the archaeological record by the development of new tool technologies, the result of using an increasing number of resources as compared to peoples from earlier archaeological cultures, and developing a broader based series of tools to more intensively exploit those resources. During the Early Archaic period (10,000-8,000 BP), the jack and red pine forests that characterized the LPI environment were replaced by forests dominated by white pine with some associated deciduous elements. Early Archaic projectile points differ from Palaeo-Indian forms most notably by the presence of side and corner notching on their bases. A ground stone tool industry, including celts and axes, also emerges, indicating that woodworking was an important component of the technological development of Archaic peoples. Although there may have been some reduction in the degree of seasonal movement, it is still likely that population density during the Early Archaic was low, and band territories large.

The development of a more diversified tool technology continued into the Middle Archaic period (8,000 -4,500 BP). The presence of grooved stone net-sinkers suggests an increase in the importance of fishing in subsistence activities. Another new tool, the bannerstone, also made its first appearance during this period. Bannerstones are ground stone weights that served as a

counterbalance for "atlatls" or spear-throwers, again indicating the emergence of a new technology. The increased reliance on local, often poor quality chert resources for chipped stone tools suggests that in the Middle Archaic groups inhabited smaller territories that often did not encompass a source of high quality raw material. In these instances lower quality materials which had been glacially deposited in local tills and river gravels were used.

This reduction in territory size appears to have been the result of gradual region-wide population growth, which forced a reorganization of subsistence practices, as more people had to be supported from the resources of a smaller area. Stone tools especially designed for the preparation of wild plant foods suggest that subsistence catchment was being widened and new resources being more intensively exploited. A major development of the later part of the Middle Archaic period was the initiation of long distance trade. In particular, native copper tools manufactured from sources near Lake Superior were being widely traded.

The trend towards decreased territory size and a broadening subsistence base continued during the Late Archaic (4,500-2,900 BP). Late Archaic sites are far more numerous than either Early or Middle Archaic sites. It appears that the increase in numbers of sites at least partly represents an increase in population. However, around 4,500 BP water levels in the Great Lakes began to take their modern form, rising from lower levels in the Early and Middle Archaic periods. It is likely that the relative paucity of earlier Archaic sites is due to their being inundated under the rising lake levels.

The appearance of the first true cemeteries occurs during the Late Archaic. Prior to this period, individuals were interred close to the location where they died. However, with the advent of the Late Archaic and local cemeteries individuals who died at a distance from the cemetery would be returned for final burial at the group cemetery, often resulting in disarticulated skeletons, occasionally missing minor bone elements (e.g. finger bones). The emergence of local group cemeteries has been interpreted as being a response to both increased population densities and competition between local groups for access to resources as cemeteries would have provided symbolic claims over a local territory and its resources.

Increased territoriality and more limited movement are also consistent with the development of distinct local styles of projectile points. The trade networks which began in the Middle Archaic expand during this period, and begin to include marine shell artifacts (such as beads and gorgets) from as far away as the Mid-Atlantic coast. These marine shell artifacts and native copper implements show up as grave goods, indicating the value of the items. Other artifacts such as polished stone pipes and slate gorgets also appear on Late Archaic sites. One of the more unusual of the Late Archaic artifacts is the "birdstone", a small, bird-like effigy usually manufactured from green banded slate.

The Early Woodland period (2,900-2,200 BP) is distinguished from the Late Archaic period primarily by the addition of ceramic technology. While the introduction of pottery provides a useful demarcation point for archaeologists, it may have made less difference in the lives of the Early Woodland peoples. The first pots were very crudely constructed, thick walled, and friable. It has been suggested that they were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil. These vessels were not easily portable, and individual pots must not have enjoyed a long use life. There have also been numerous Early Woodland sites located at which no pottery was found, suggesting that these poorly constructed, undecorated vessels had yet to assume a central position in the day-to-day lives of Early Woodland peoples.

Other than the introduction of this limited ceramic technology, the life-ways of Early Woodland peoples show a great deal of continuity with the preceding Late Archaic period. For instance, birdstones continue to be manufactured, although the Early Woodland varieties have "pop-eyes" which protrude from the sides of their heads. Likewise, the thin, well-made projectile points which were produced during the terminal part of the Archaic period continue in use. However, the Early Woodland variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance. The trade networks which were established in the Middle and Late Archaic also continued to function, although there does not appear to have been as much traffic in marine shell during the Early Woodland period. These trade items were included in increasingly sophisticated burial ceremonies, some of which involved construction of burial mounds.

In terms of settlement and subsistence patterns, the Middle Woodland (2,200 B.C.-1,100 BP) provides a major point of departure from the Archaic and Early Woodland periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet. Middle Woodland vessels are often heavily decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. Consequently, even very small fragments of Middle Woodland vessels are easily identifiable.

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

The relatively brief period of the Transitional Woodland period is marked by the acquisition of cultivar plants species, such as maize and squash, from communities living south of the Great Lakes. The appearance of these plants began a transition to food production, which consequently led to a much reduced need to acquire naturally occurring food resources. Sites were thus occupied for longer periods and by larger numbers of people. Sites of the Transitional Woodland in the Hamilton and Niagara Peninsula area are part of the Princess Point Complex, named after the Princess Point site in Cootes Paradise, at the west end of Burlington Bay on Lake Ontario.

The Late Woodland period in southern Ontario is associated with societies referred to as the Ontario Iroquois Tradition. This period is often divided into three temporal components; Early, Middle and Late Iroquoian (see Table 3.1).

Early Iroquoian peoples continued to practice similar subsistence and settlement patterns as the Transitional Woodland. Villages tended to be small, with small longhouse dwellings that housed either nuclear or, with increasingly, extended families. Smaller camps and hamlets associated with villages served as temporary bases from which wild plant and game resources were acquired. Horticulture appears to have been for the most part a supplement to wild foods, rather than a staple.

The Middle Iroquoian period marks the point at which a fully developed horticultural system (based on corn, bean, and squash) emerged, and at which point cultivars became the staple food source. In this period villages become much larger than in the Early Iroquoian period, and longhouses also become much larger, housing multiple, though related, nuclear families. Food production through horticulture resulted in the abandonment of seasonal mobility that had characterized aboriginal life for millennia. Hunting, fishing, and gathering of wild food activities continued to occur at satellite camps. However, for the most part most Iroquoian people inhabited large, sometimes fortified villages throughout southern Ontario.

The Late Iroquoian period in the Niagara Peninsula, along the north shore of Lake Erie and at the western end of Lake Ontario is marked by the emergence of the Neutral Iroquoians, one of several discrete groups that emerge from the Middle Iroquoian period. Neutral settlements include large villages of several longhouses and a number of associated smaller satellite villages (hamlets), seasonally occupied sites with only one or two small “cabins” (usually associated with working horticultural fields), and camps for specialised extractive activities such as hunting and fishing.

Discrete clusters of politically allied Neutral villages have been identified from the late prehistoric and early historic period, and in the case of the Project area the nearest cluster is the Lower Grand River cluster, located on both sides of the Grand River above and below the Town of Cayuga, some of which is within the limits of the Project area.

3.2 Prehistoric Period Resources

There are at present two hundred and ten (210) registered prehistoric period archaeological sites or components within the Project area (MTC, 2010). Of these 210 sites, eight (8) sites, or site components of multi-component sites, date to the Palaeo-Indian period, sixty-seven (67) date to the Archaic period, thirty-five (35) date to the Woodland period and sixty-nine (69) are undetermined as to age or cultural affiliation. Another fifty-one (51) sites had no date or cultural affiliation information attached to their records.

The large number of archaeological sites in the Project area is largely due to intensive and systematic surveys carried out by four main research programs. The first and most extensive research program was completed by David Stothers of the Archaeological Survey of Canada in 1974. He undertook a survey of the Grand River from Cayuga to the mouth of the river, and registered ninety-six individual sites. Fred Moerschfelder and Bill Fox did some survey work together in 1981, also along the Grand River. Later, in 1981 and again in 1985, Moerschfelder surveyed parts of the interior of the county, particularly in South Cayuga, North Cayuga and Rainham Townships, and a section of Rainham along the Lake Erie shoreline. Moerschfelder and Fox’s work accounts for another fifty-three (53) sites. Also in 1985, and again in 1986 and 1987, Lorenz Bruechert surveyed inland parts of Walpole Township and parts of the Lake Erie shoreline in Rainham. Bruechert’s work resulted in the registration of a further twenty-two (22) sites. The last directed research program in the Project area was Gary Crawford’s work in 1997 along the Grand River, just below Cayuga. Crawford’s survey registered another nine archaeological sites.

The information presented by the sites database suggests that archaeological resources are widespread and numerous throughout western Haldimand County. Part of the reason for such intensive use of the region by prehistoric peoples is the fact that there are three well known sources of high quality tool stone in the region, all of which occur within the limits of the Project area (Fox, 2009). These tool stone sources include Selkirk chert, Haldimand chert and Onondaga chert.

Onondaga and Haldimand chert are found in the Bois Blanc geological formation and have general similarities in colour and workability. Onondaga chert outcrops are located along the Lake Erie shoreline. Haldimand chert has its source along the Grand River near Cayuga. Selkirk chert is found in the later Dundee formation, and outcrops near the western extreme of the county (Fox, 2009). The result of these rich tool stone sources is that there are numerous quarry and lithic reduction sites (MTC, 2010).

Overall conditions in the Project area were very favourable for prehistoric occupation, including access to a wide variety of econiches for the harvesting of plant, fish and animal resources, a number of excellent sources of tool stone, and access to major transportation routes along the Grand River and Lake Erie shoreline.

3.3 Historic Period Resources

There are at present no registered historic period archaeological sites within a 2 km radius of the Project area (MTC 2010). Also, as of 2005, there are ten (10) designated heritage properties in the vicinity of the Project area (OHPD 2010).

Named after Sir Frederick Haldimand, a German mercenary soldier fighting for the British in the American War of Independence and later Governor of Quebec, Haldimand was originally created as part of Norfolk County in 1792 from lands originally seeded to the Joseph Brant and the Six Nations People in 1784, but sold back to and taken back by, the Crown. Haldimand County was designated as its own County in 1800 (Brueton, 1967). Originally, the land given to the Six Nations was an area of six miles on either side of the Grand River, from its head to its mouth at Lake Erie. Brant, who had fought for and alongside the British in the American War of Independence subsequently leased tracts of the land to allies of the Six Nations, particularly members of the 'Butler's Rangers', a Loyalist unit that fought for the British. These men were the first European settlers in the county.

The county was officially opened for settlement by the Government in 1832 but settlement was slow due to the tough conditions of the heavily forested and sometimes swampy lands. The land was so poor in spots, in fact, that it had been fairly unused by Native populations since the destruction and dispersion of the Neutral tribe by the Iroqouis in the mid-15th Century (Harper, 1950). Like much of Ontario, settlers were a mix of United Empire Loyalists (UEL) fleeing a post-revolution United States and immigrants from Britain and other European countries. In Haldimand County, these settlers found that the waterfront (front) of the county was far more acceptable than the interior and tended to set up residence close to the banks of Lake Erie. Even though grants were given for lots in the rear of the County, it would take much longer for these to be cleared and settled (Nelles, 1905).

3.3.1 Dunn Township, Township Survey and Early Settlement

Two of Butler's Rangers had land leased to them by Joseph Brant in Dunn Township. In and around 1784, Hugh Earl, Brant's brother-in-law, and a man name William Butler Sheehan each received 1000 acres which would become known as the 'Earl' and 'Sheehan' tracts. Another 1000 acres was leased, in 1803, to a James Muirhead and would become known as the 'Haldimand tract' (Nelles, 1905).

The first settler after the opening of the township was a Colonel Agnew P. Farrell, who arrived in 1833 in a small clearing in the otherwise untouched wilderness. Mainly settled by Irish and Scottish

immigrants, Dunn Township quickly expanded and thrived. By 1845, fifteen hundred acres were cultivated and by 1850 that number had risen to seven thousand (Cowell, 1967).

In 1835, the population of the relatively small township was only 200 people but by the time of the 1861 Census that number had grown to 955. Of the 10,000 acres of the township at the time, just over 4,000 were under cultivation (Irwin and Burnham, 1867).

3.3.2 Rainham Township, Township Survey and Early Settlement

The Township of Rainham was surveyed by Thomas Walsh around the same time as Walpole Township. Like Walpole, Rainham had not been part of the lands given to Brant and was opened at an earlier date and in keeping, was equally slow in attracting settlers. By 1816, in fact, only six families were living in the entire township after others had come and gone, finding it much too hard to settle. One of the earliest and most successful families to immigrate to Rainham was the Hoover family, displaced Loyalists of Swiss heritage that had originally fled Europe in fear of persecution who arrived and quickly prospered (Nelles, 1905).

By the time of the 1861 Census, the population of Rainham Township had steadily grown to 2,116; up from 552 in 1835 and 1,618 in 1852. Of the 23,000 acres of good quality soil at the time, over 15,000 was under cultivation (Irwin and Burnham, 1867).

3.3.3 South Cayuga Township, Township Survey and Early Settlement

The only 'Brant Lease' in South Cayuga was given to a John Dochstader, who, like John Huff, deserted to the Americans during the War of 1812. His land, however, was not expropriated, but was instead passed down to his family (Harper, 1950).

South Cayuga was officially opened for settlement in 1832 but records indicate that the first man to settle there was a John Honsburger in 1835 (Harper, 1950). The majority of early settlers were of German descent, some of whom were Mennonite and are still represented in the area.

By the time of the 1861 Census, roughly half of the 14,000 acres of the township were under cultivation with the other half consisting of still wild and wooded land (Irwin and Burnham, 1867).

3.3.4 North Cayuga Township, Township Survey and Early Settlement

The first European settlement of North Cayuga Township consisted of two tracts of land leased out by Joseph Brant. These 'Brant Leases' as they were known were usually given in out in good faith to people who had either helped or become friendly with the Six Nations People. The earliest of these leases was given to a Butler's Ranger by the name of John Huff. The land would subsequently be known as the 'Huff tract.' During the War of 1812, Huff deserted to America and his land was repossessed. In 1797, a parcel of land of 4800 acres was leased to Augustus Jones, the man who had surveyed the lands around the Grand River that had been ceded to Brant, as payment for services rendered (Harper, 1950).

In 1826, another tract, the 'Claus tract', was leased to a William Claus in return for having close ties and a family history with the Six Nations Peoples. The 15,300 acre claim, which along with the 'Jones tract' made up the entirety of North Cayuga Township, was deemed by the Government to have been somewhat fraudulent and exploitive of the Native peoples and was cancelled. The land was subsequently taken over by the Government and opened for settlement in 1832.

In 1835, the population of both North and South Cayuga was only 296 and yet by 1852, that number had multiplied almost ten-fold. The Census of 1861 indicates that, at the time, the population of both North and South Cayuga was 2,919 with just under half the 30,000 acres of North Cayuga Township being under cultivation (Irwin and Burnham, 1867).

3.3.5 Walpole Township, Township Survey and Early Settlement

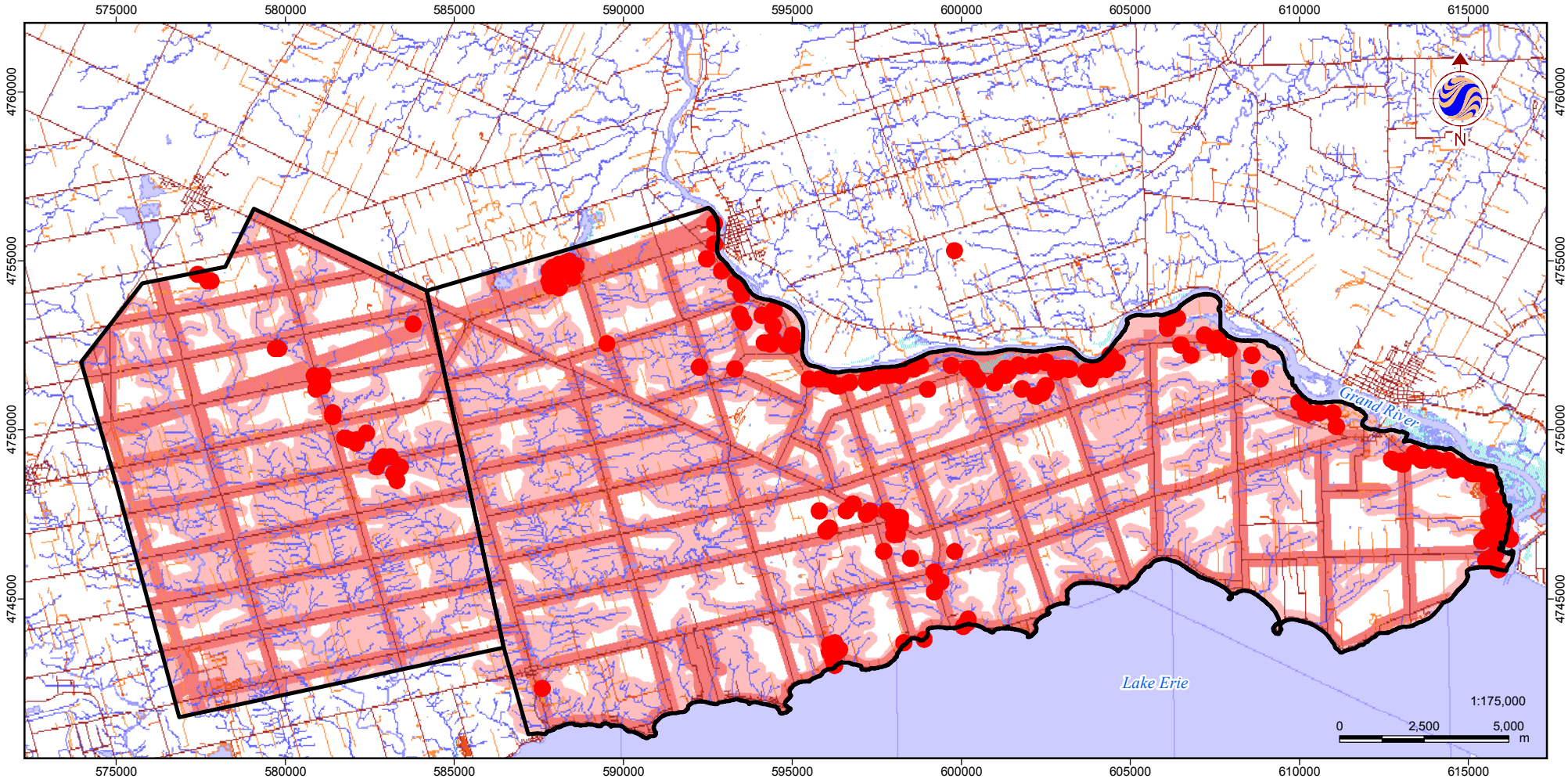
Walpole Township was initially surveyed in 1780 by Thomas Walsh, Registrar with the County of Norfolk. Unlike the previously mentioned townships, Walpole was never part of the land ceded to Joseph Brant and, as such, was available to be opened for settlement by Europeans much earlier (Nelles, 1905). The first settlers started to arrive over the course of the next decade. Settlement was slow and grueling as the land itself was either thick forest or swamp and the initial survey marks aged poorly or disappeared, making Lots and Concessions nearly impossible to properly locate. The majority of settlers who did come to the township settled close to the lakeshore where the land was more suitable for both agriculture and building. By 1833, the settlers had petitioned for a new township survey on the grounds that new settlers were wary of choosing the township and that the lack of numbers in the area made the upkeep of roads and bridges much too difficult. In spite of the rejection of the survey petition the township continued to grow and develop and by the 1830s was beginning to establish industries, stores and the small towns of Nanticoke and Selkirk. The township was not incorporated until 1850, one year after being officially declared part of Haldimand County. Prior to that, it had been considered part of Norfolk County (Brueton, 1967).

The growth of the large township of Walpole was much faster and more intensive than the majority of the others in the county owing to the high quality of the land and the vast amount of it available. In 1835, the population was only 683 but that number would jump dramatically to 2,778 by 1850 and further still to 4,842 by the time of the 1861 Census. Of the roughly 60,000 acres in the township, over 30,000 were under cultivation by the same time (Irwin and Burnham, 1867).

Although there are at present no registered archaeological sites in the Project area this is undoubtedly the result of a research bias toward prehistoric archaeological resources, particularly as most of the work to date in Haldimand has been undertaken by academic or avocational archaeologists. The limited amount of large scale development in the Project area to date has limited the number of surveys completed by Cultural Resource Management (CRM) research, which is for the most part less directed toward the identification and recovery of specific types of archaeological sites. An increase in archaeological survey by CRM firms may result in an increase in the number of historic period archaeological resources registered in the general area.

4 STUDY RESULTS AND RECOMMENDATIONS

Areas of archaeological potential are largely determined from a limited number of criteria generally accepted as being of importance in human land-use, and thus in the deposition of materials that eventually result in archaeological sites. In order to demonstrate the widespread archaeological potential of the project area we have created a map of the Project area and overlaid on this map buffer zones for various elements that elevate archaeological potential as partly determined by criteria set out by the MTC (see also Finalyson, 2009). The resulting map, Figure 4-1, shows that most of Walpole, Rainham, North Cayuga and South Cayuga can be considered to have elevated archaeological potential. Specific criteria upon which the map was based are shown in Appendix A.



July 2010
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Legend

- Project Location
- Registered Archaeological Sites
- Prehistoric Resources Potential
- Historic Resources Potential

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Base data © Ontario Base Mapping

Client/Project

Samsung Grand Renewable Energy Park

Figure No.
4-1

Title

Zones of Archaeological Potential as Determined From MTC Defined Buffers

Stantec

It is Stantec's professional opinion that most parts of the Project area demonstrate potential for the presence of significant archaeological deposits of integrity. It should be anticipated for Project component siting exercises that Stage 2 Archaeological Assessment is likely to be required for most locations of project-related infrastructure construction, including all turbine pads, access roads, underground cable links, construction offices, laydown areas and temporary storage areas and any other areas where soil disturbances into and below the topsoil may occur.

Stage 2 archaeological survey generally takes two forms: pedestrian survey and test pit excavation survey Pedestrian survey, the preferred methodology, requires that the area to be surveyed be ploughed as if the ground were to be cultivated and allowed to weather through one hard or several light rainfalls. After weathering the ground is walked at a slow pace and the locations of artifacts recorded using a Geographic Positioning System (GPS). During a pedestrian survey only diagnostic artifacts are collected; all others are left *in situ*.

If ploughing is not technically feasible in some locations due to the nature and extent of existing ground cover or other conditions, Stage 2 assessment will need to be completed using a test pit excavation strategy. In this instance standard archaeological test pits of 30 x 30 cm or greater are excavated and all excavated soils passed through screens of 6 mm mesh. During test pit survey all artifacts encountered are retained. In either case the survey interval will be at no more than 5 m. During Stage 2 assessment all field activities will be recorded using a GPS.

Stantec cautions, however, that it is possible that deeply buried archaeological resources, could still exist within the limits of the proposed project and that the following standard conditions will continue to apply:

- Should human remains be identified during operations, all work in the vicinity of the discovery will be suspended immediately. Notification will be made to the Ontario Provincial Police, or local police, who will conduct a site investigation and contact the district coroner. Notification must also be made to the Ministry of Tourism and Culture and the Registrar of Cemeteries, Cemeteries Regulation Unit, Ministry of Small Business and Consumer Services.
- Should other cultural heritage values (archaeological or historical materials or features) be identified during operations, all work in the vicinity of the discovery will be suspended and the Ministry of Tourism and Culture archaeologist contacted. This condition provides for the potential for deeply buried or enigmatic local site areas that are not typically identified in archaeological field assessments.

Stantec archaeological staff will also be available to give advice and guidance should such discoveries occur.

5 CLOSURE

This report has been prepared for the sole benefit of the Samsung Renewable Energy Inc. without the express written consent of Stantec Consulting Ltd and Samsung Renewable Energy Inc. Any use which a third party makes of this report is the responsibility of such third party.

This report is filed with the Minister of Tourism and Culture in compliance with sec. 65 (1) of the Ontario Heritage Act. The ministry reviews reports to ensure that the licensee has met the terms and conditions of the licence and archaeological resources have been identified and documented according to the standards and guidelines set by the Ministry of Tourism and Culture, ensuring the conservation, protection and preservation of the heritage of Ontario. It is recommended that development not proceed before receiving confirmation that the Ministry of Tourism and Culture has entered the report into the provincial register of reports.

We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this project.

Yours truly,
Stantec Consulting Ltd.

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APPENDIX A

Archaeological Potential Determination Checklist

Archaeological Potential Determination Checklist					
	Feature of Archaeological Potential	**Yes**	**No**	**Not Available**	**Comment**
1	Known archaeological sites within 250 m?	✓			If Yes, potential determined
PHYSICAL FEATURES					
2	Is there water on or near the property?	✓			
2a	Primary water source within 300m	✓			If Yes, potential determined
2b	Secondary water source within 200m	✓			If Yes, potential determined
2c	Past water source within 300m	✓			If Yes, potential determined
3	Elevated topography		✓		If yes, and Yes for any of 4-9, potential determined
4	Pockets of sandy soil in a clay or rocky area		✓		If yes, and Yes for any of 3, 5-9, potential determined
5	Distinctive land formations		✓		If yes, and Yes for any of 3-4, 6-9, potential determined
HISTORIC USE FEATURES					
6	Associated with food or scarce resource harvest areas	✓			If yes, and Yes for any of 3-5, 7-9, potential determined
7	Indications of early historic settlement	✓			If yes, and Yes for any of 3-6, 8-9, potential determined
8	Associated with historic transportation route	✓			If yes, and Yes for any of 3-7 or 9, potential determined
9	Contains property designated under the Ontario Heritage Act	✓			If yes, and Yes for any of 3-8, potential determined
APPLICATION SPECIFIC INFORMATION					
10	Local knowledge	✓			If Yes, potential determined
11	Recent (post-1960) disturbance (confirmed extensive and intensive)		✓		If Yes, no potential

Summary:

- If Yes to any of 1, 2a-c, or 10 — Archaeological Potential is **confirmed**
- If Yes to two or more of 3-9 — Archaeological Potential is **confirmed**
- If Yes to 11 or No to 1-10 — **Low** Archaeological Potential is confirmed

Based on example in Ontario Ministry of Culture *Standards and Guidelines for Consultant Archaeologists, final draft, August 2006, Unit 1C-Stage 1*