

Appendix D

Stage 1 Archaeological Assessment

Ministry of Citizenship and Multiculturalism (MCM)

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May 5, 2023

Matthew Beaudoin (P324)
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RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment St. Clair Energy Centre Natural Gas Fired Turbine Facility Expansion Environmental Assessment 790 Petrolia Line, Corunna Lot 22, Concession 11, Moore Township Lambton County, Ontario", Dated Apr 27, 2023, Filed with MCM Toronto Office on N/A, MCM Project Information Form Number P324-0793-2022, MCM File Number 0018010

Dear Dr. Beaudoin:

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

Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require further information, please do not hesitate to send your inquiry to Archaeology@Ontario.ca

cc. Archaeology Licensing Officer
Addie White, Dillon Consulting Limited
Addie White, Dillon Consulting Limited

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

**Stage I Archaeological Assessment
St. Clair Energy Centre
Natural Gas Fired Turbine Facility Expansion
Environmental Assessment
790 Petrolia Line, Corunna
Lot 22, Concession 11, Moore Township
Lambton County, Ontario**

Original Report

Submitted to:
Ministry of Citizenship and Multiculturalism

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Licensee: Matthew Beaudoin, PhD, P324
PIF No: P324-0793-2022
Project No: 2022-346
Dated: November 15, 2022



EXECUTIVE SUMMARY

In the fall of 2022, TMHC Inc. (TMHC) was contracted to carry out a Stage I archaeological assessment for the proposed expansion to the St. Clair Energy Centre at 790 Petrolia Line in Corunna, Ontario. The Project Area is 6.99 ha (17.27 ac) in size and consists of an agricultural parcel situated to the east of the existing St. Clair Energy Centre. The work was undertaken in accordance with the provisions of the *Environmental Assessment Act* and the *Provincial Policy Statement (PPS)*. The purpose of the assessment was to determine whether there was potential for the discovery of archaeological resources within the Project Area.

The Stage I background study included a review of current land use, historic and modern maps, past settlement history for the area and a consideration of topographic and physiographic features, soils and drainage. It also involved a review of previously registered archaeological resources within 1 km of the Project Area and previous archaeological assessments within 50 m. Based on the background study it was determined that the Project Area is not in proximity (i.e., within 300 m) to any features that signal archaeological potential. Furthermore, a review of historical aerial imagery shows that the Project Area underwent extensive ground disturbance during the construction of the St. Clair Energy Centre. In addition, our previous assessment (TMHC 2006), which also included a site visit and photo-documentation of the Project Area, did not recommend further work for the property.

At this time, we are not conducting another property inspection due to the lack of features indicating archaeological potential and the evidence of extensive disturbance as shown on aerial imagery.

Based on the Stage I background research, including a review of historical aerial photography, the following recommendations are made:

- The entire Project Area (6.99 ha; 100%) has been extensively disturbed by previous ground disturbance activities. As such, the Project Area does not retain archaeological potential and is not recommended for further assessment.

These recommendations are subject to the conditions laid out in Section 6.0 of this report and to the MCM's review and acceptance of this report into the provincial register.



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PROJECT PERSONNEL

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Report Writer	Katelyn Mather, MA (R443)
Senior Reviewer	Matthew Beaudoin, PhD (P324)

ACKNOWLEDGEMENTS

Addie White	Dillon Consulting Limited
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TERRITORIAL ACKNOWLEDGEMENT

The Project Area is located within the Huron Tract Purchase (Treaty No. 29) of 1827, on the traditional lands and territory of the Anishinaabek (Ah-nish-in-a-bek) people of the Aamjiwnaang (Am-JIN-nun) First Nation and the Walpole Island First Nation who represent the Three Fires Confederacy of Ojibwa (ow-jib-wei), Odawa (ow-daa-wuh), and Potawatomi (pow-tuh-waa-tuh-mee) Nations. These First Nation groups are the stewards of the lands, waters and resources of their territories, including archaeological resources and cultural heritage values. These lands also continue to be home to diverse Indigenous peoples (e.g., First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.



ABOUT TMHC

Established in 2003 with a head office in London, Ontario, TMHC Inc. (TMHC) provides a broad range of archaeological assessment, heritage planning and interpretation, cemetery, and community consultation services throughout the Province of Ontario. We specialize in providing heritage solutions that suit the past and present for a range of clients and intended audiences, while meeting the demands of the regulatory environment. Over the past two decades, TMHC has grown to become one of the largest privately-owned heritage consulting firms in Ontario and is today the largest predominately woman-owned CRM business in Canada.

Since 2004, TMHC has held retainers with Infrastructure Ontario, Hydro One, the Ministry of Transportation, Metrolinx, the City of Hamilton, and Niagara Parks Commission. In 2013, TMHC earned the Ontario Archaeological Society's award for Excellence in Cultural Resource Management. Our seasoned expertise and practical approach have allowed us to manage a wide variety of large, complex, and highly sensitive projects to successful completion. Through this work, we have gained corporate experience in helping our clients work through difficult issues to achieve resolution.

TMHC is skilled at meeting established deadlines and budgets, maintaining a healthy and safe work environment, and carrying out quality heritage activities to ensure that all projects are completed diligently and safely. Additionally, we have developed long-standing relationships of trust with Indigenous and descendent communities across Ontario and a good understanding of community interests and concerns in heritage matters, which assists in successful project completion.

TMHC is a Living Wage certified employer with the [Ontario Living Wage Network](#) and a member of the [Canadian Federation for Independent Business](#).



KEY STAFF BIOS

Matthew Beaudoin, PhD, Principal, Manager – Archaeological Assessments

Matthew received a PhD in Anthropology from Western University in 2013 and has a professional archaeological license with the Province of Ontario (P324). During his archaeological career, Matthew has conducted extensive field research and artifact analysis in Labrador and Ontario, and has taught the Field Methods Course and Principals of archaeology courses as a part-time faculty member at Western University. Matthew has also conducted ethnographic projects in Labrador, and has volunteered with the OAS to provide archaeological training to several Indigenous communities throughout the province.

Over the course of his career, Matthew has supervised over 600 archaeological assessments in Ontario, including Stages 1-4, under a variety of regulatory triggers including provincial and municipal Environmental Assessments, Green Energy projects, development projects under the *Planning Act*, and as due diligence process. Matthew has extensive experience managing large and complex archaeological projects in conjunction with other disciplines, specialists, and Indigenous communities including Enbridge Line 10 Westover Segment, Imperial Oil from Waterdown to Finch, and Highway 3 Widening in Kingsville. Since joining TMHC in 2008, Matthew has also been involved with several notable projects, such as the archaeological assessment of Stoney Point/Camp Ipperwash. For these and other projects, Matthew works closely with heritage staff at TMHC and with heritage staff employed by clients and stakeholder communities.

Matthew is an active member of the Canadian Archaeological Association, the Ontario Archaeological Association, the Society for American Archaeology, and the Society for Historical Archaeology.



STATEMENT OF QUALIFICATIONS AND LIMITATIONS

The attached Report (the “Report”) has been prepared by TMHC Inc. (TMHC) for the benefit of the Client (the “Client”) in accordance with the agreement between TMHC and the Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);
- represents TMHC’s professional judgment in light of the Limitation and industry standards for the preparation of similar reports;
- may be based on information provided to TMHC which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context; and
- was prepared for the specific purposes described in the Report and the Agreement.

TMHC shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. TMHC accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

TMHC agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but TMHC makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Except (1) as agreed to in writing by TMHC and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

TMHC accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information (“improper use of the Report”), except to the extent those parties have obtained the prior written consent of TMHC to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.



QUALITY INFORMATION

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Staff Archaeologist/Report Writer

Report reviewed by:

Matthew Beaudoin, PhD (P324)
Principal/Manager of Archaeological Assessment



I PROJECT CONTEXT

I.1 Development Context

I.1.1 Introduction

In the fall of 2022, TMHC Inc. (TMHC) was contracted to carry out a Stage I archaeological assessment for the proposed expansion to the St. Clair Energy Centre at 790 Petrolia Line in Corunna, Ontario. The Project Area is 6.99 ha (17.27 ac) in size and consists of an agricultural parcel situated to the east of the existing St. Clair Energy Centre. The work was undertaken in accordance with the provisions of the *Environmental Assessment Act* and the *Provincial Policy Statement (PPS)*. The purpose of the assessment was to determine whether there was potential for the discovery of archaeological resources within the Project Area.

All archaeological assessment activities were performed under the professional archaeological license of Matthew Beaudoin, PhD (P324) and in accordance with the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011, “Standards and Guidelines”). Permission to commence the study was given by Addie White of Dillon Consulting Limited.



1.1.2 Purpose and Legislative Context

The *Ontario Heritage Act* (R.S.O. 1990) makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the *Provincial Policy Statement* (PPS 2020) which states:

development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved.

In the PPS, the term conserved means:

the identification, protection, management and use of *built heritage resources, cultural heritage landscapes and archaeological resources* in a manner that ensures their cultural heritage value or interest is retained. This may be achieved by the implementation of recommendations set out in a conservation plan, archaeological assessment and/or heritage impact assessment that has been approved, accepted or adopted by the relevant planning authority and/or decision-maker. Mitigative measures and/or alternative development approaches can be included in these plans and assessments.

The *Environmental Assessment Act* provides for the protection and conservation of the environment. In this case, the environment is widely defined to cover “cultural heritage” resources. Section 5(3)(c) of the *Act* stipulates that heritage resources to be affected by a proposed undertaking be identified during the environmental screening process. Within the EA process, the purpose of a Stage I background study is to determine if there are known cultural resources within the proposed study area, or potential for such resources to exist. Subsequently, it can act as a planning tool by identifying areas of concern that, where possible, could be avoided to minimize environmental impact.



2 STAGE I BACKGROUND REVIEW

2.1 Research Methods and Sources

A Stage I overview and background study was conducted to gather information about known and potential cultural heritage resources within the Project Area. According to the *Standards and Guidelines*, a Stage I background study must include a review of:

- an up-to-date listing of sites from the Ministry of Citizenship and Multiculturalism's (MCM) PastPortal for 1 km around the property;
- reports of previous archaeological fieldwork within a radius of 50 m around the property;
- topographic maps at 1:10,000 (recent and historical) or the most detailed scale available;
- historical settlement maps (e.g., historical atlas, survey);
- archaeological management plans or other archaeological potential mapping when available; and,
- commemorative plaques or monuments on or near the property.

For this project, the following activities were carried out to satisfy or exceed the above requirements:

- a database search was completed through MCM's PastPortal system that compiled a list of registered archaeological sites within 1 km of the Project Area (completed October 31, 2022);
- a review of known prior archaeological reports for the property and adjacent lands;
- Ontario Base Mapping (1:10,000) was reviewed through ArcGIS and mapping layers under the Open Government Licence – Canada and the Open Government Licence- Ontario;
- detailed mapping provided by the client was also reviewed; and
- a series of historic maps and photographs was reviewed related to the post-1800 land settlement.

Additional sources of information were also consulted, including modern aerial photographs, local history accounts, soils data provided by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), physiographic data provided by the Ontario Ministry of Northern Development and Mines, and detailed topographic data provided by Land Information Ontario.

When compiled, background information was used to create a summary of the characteristics of the Project Area, in an effort to evaluate its archaeological potential. The Province of Ontario (MTC 2011; Section 1.3.1) has defined the criteria that identify archaeological potential as:

- previously identified archaeological sites;
- water sources;
 - primary water sources (e.g., lakes, rivers, streams, creeks);
 - secondary water sources (e.g., intermittent streams and creeks, springs, marshes, swamps);
 - features indicating past water sources (e.g., glacial lake shorelines, relic river or stream channels, shorelines of drained lakes or marshes, cobble beaches);
 - accessible or inaccessible shorelines (e.g., high bluffs, sandbars stretching into a marsh);
- elevated topography (e.g., eskers, drumlins, large knolls, plateau);
- pockets of well-drained sandy soils;
- distinctive land formations that might have been special or spiritual places (e.g., waterfalls, rock outcrops, caverns, mounds, promontories and their bases);



- resource areas, including:
 - food or medicinal plants (e.g., migratory routes, spawning areas, prairies);
 - scarce raw materials (e.g., quartz, copper, ochre, or chert outcrops);
 - early Settler industry (e.g., fur trade, logging, prospecting, mining);
- areas of early 19th-century settlement, including:
 - early military locations;
 - pioneer settlement (e.g., homesteads, isolated cabins, farmstead complexes);
 - wharf or dock complexes;
 - pioneer churches;
 - early cemeteries;
- early transportation routes (e.g., trails, passes, roads, railways, portage routes);
- a property listed on a municipal register, designated under the *Ontario Heritage Act*, or that is a federal, provincial, or municipal historic landmark or site; and,
- a property that local histories or informants have identified with possible archaeological sites, historical event, activities, or occupations.

In Southern Ontario (south of the Canadian Shield), any lands within 300 m of any of the features listed above are considered to have potential for the discovery of archaeological resources.

Typically, a Stage I assessment will determine potential for Indigenous and 19th-century period sites independently. This is due to the fact that lifeways varied considerably during these eras, so the criteria used to evaluate potential for each type of site also varies.

It should be noted that some factors can also negate the potential for discovery of intact archaeological deposits. The *Standards and Guidelines* (MTC 2011; Section 1.3.2) indicates that archaeological potential can be removed in instances where land has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. Major disturbances indicating removal of archaeological potential include, but are not limited to:

- quarrying;
- major landscaping involving grading below topsoil;
- building footprints; and,
- sewage and infrastructure development.

Some activities (agricultural cultivation, surface landscaping, installation of gravel trails, etc.) may result in minor alterations to the surface topsoil but do not necessarily affect or remove archaeological potential. It is not uncommon for archaeological sites, including structural foundations, subsurface features and burials, to be found intact beneath major surface features like roadways and parking lots. Archaeological potential is, therefore, not removed in cases where there is a chance of deeply buried deposits, as in a developed or urban context or floodplain where modern features or alluvial soils can effectively cap and preserve archaeological resources.



2.2 Project Context: Archaeological Context

2.2.1 Project Area: Overview and Physical Setting

The Project Area is roughly 6.99 ha (17.27 ac) in size and is located at 790 Petrolia Line in Corunna, Ontario. The Project Area consists of agricultural fields adjacent to the existing St. Clair Energy Centre, a 615 MW combined cycle natural gas fired electricity generating station. A small portion of the industrial complex falls within the current Project Area. The Project Area is bound to the north, east, south by agricultural fields, and to the west by the St. Clair Energy Centre.

The Project Area falls within the St. Clair Clay Plains physiographic region (Map 3), as defined by Chapman and Putnam (1984:147). The region is an extensive clay plain covering over 2,000 square miles east of the St. Clair River and south of the Lake Huron shoreline. The plain shows very little notable relief yet minor elevation changes have a marked effect on soils and vegetation. The St. Clair Clay Plain was formerly the bed of glacial lakes Whittlesey and Warren, the former shorelines of which have been documented along the eastern edge of the plain, near Alvinston and Watford. In Lambton County, the clay plain is categorized as a beveled till plain given that a shallow layer of clay overlies an underlying till plain (Chapman and Putnam 1984:149-150). The Project Area is located within a beveled till plain.

The soils within the Project Area are described as Brookston Clay (Map 4). Brookston Clay is a dark grey gleisolic soil developed from water-washed till that is poorly drained, almost stonefree, and usually characterized by very gently sloping topography. In parts of Moore Township, the subsoil of the Brookston soils is heavy, which makes drainage difficult (Matthews et al. 1957:47). Most of the soils in Lambton County are not particularly well drained, so much so that farming regularly requires drainage improvement to make it profitable (Matthews et al. 1957:11). In some cases, this is accomplished through the excavation of ditches along property boundaries or the installation of drainage tile.

In the vicinity of the Project Area, the land is drained by Talfourd Creek and its subsidiary branches (Map 1), some of which have been artificially altered. By 1912, municipal drains formed a significant part of the drainage system in the general vicinity (Elford 1967). Most municipal drains are either ditches or closed systems such as pipes or tiles buried in the ground. Even some creeks and small rivers are now considered to be municipal drains and therefore, the drains may have been historic watercourses. Gibb Drain is located roughly 330 m west of the Project Area and Payne Drain is roughly 315 m to the east; these drains do not appear to be historical watercourses that have been channelized.

2.2.2 Summary of Registered or Known Archaeological Sites

According to PastPortal (accessed October 31, 2022) there are no registered archaeological sites within 1 km of the Project Area.



2.2.3 Summary of Past Archaeological Investigations within 50 m

During the course of this study, records were found for two archaeological investigations within 50 m of the Project Area. However, it should be noted that the MCM currently does not provide an inventory of archaeological assessments to assist in this determination.

2.2.3.1 Stage I Archaeological Assessment – St. Clair Energy Centre (Map 5)

In 2005, TMHC conducted a Stage I archaeological assessment as part of the preparation of an Environmental Screening Report for a proposed 570 MW natural gas-fired power generating facility. The Project Area was a roughly 61 ha (150 ac) area located on Petrolia Line in St. Clair Township. This report entirely encompasses the current Project Area. The Stage I background research and property inspections determined that the property had low archaeological potential due to the lack of naturally occurring potable water on the property and within 300 m, and the fact there was no evidence for any historical settlement on or near the land. No further archaeological assessment was recommended for the Project Area. The results of this assessment are presented in a report entitled *Stage I Archaeological Assessment, St. Clair Energy Centre, Petrolia Line Alternative, St. Clair Township, Lambton County, Ontario* (TMHC 2006; Licensee, Peter Timmins, PIF PI 18-041).

2.2.3.2 Stage I Archaeological Assessment – Pipeline Corridors, Shell Canada Products, Proposed Refinery Expansion Project (Map 6)

In 2007, Jacques Whitford Environment Ltd. conducted a Stage I archaeological assessment as part of the Environmental Assessment process for the proposed Sarnia Refinery Project, which involved the construction of expanded facilities by Shell Canada Products in St. Clair Township to process crude oil. The study area comprised three proposed alternative routes for the Interconnecting Pipeline Corridors and three proposed alternative routes for the Third-Party Pipeline Corridor (Map 6). The Stage I background research determined that the proposed routes retained archaeological potential and Stage 2 assessment was recommended. The results of this assessment are presented in a report entitled *Stage I Archaeological Assessment, Pipeline Corridors, Shell Canada Products, Proposed Refinery Expansion Project (Hoist) No. 1021510.14* (Jacques Whitford Environment Ltd. 2008; Licensee, Colin Varley, PIF P002-128-2007).



2.3 Project Context: Historical Context

2.3.1 Indigenous Settlement in Lambton County

Our knowledge of the Indigenous occupation of the Lambton County area is incomplete. Nevertheless, based on our knowledge of existing sites and using models generated from Province-wide and region-specific archaeological data, it is possible to provide a basic summary of Indigenous settlement in Lambton County. There is archaeological and historical evidence of Indigenous occupation in the area from Paleo times through the period of European contact and into the period of earliest European settlement. The general themes, time periods and cultural traditions of Indigenous settlement, based on archaeological evidence, are provided below and in Table 1.

Table 1: Chronology of Indigenous Settlement in Lambton County

Period	Time Range (circa)	Diagnostic Features	Archaeological Complexes
Early Paleo	9000-8400 BCE	fluted projectile points	Gainey, Barnes, Crowfield
Late Paleo	8400-8000 BCE	non-fluted and lanceolate points	Holcombe, Hi-Lo, Lanceolate
Early Archaic	8000-6000 BCE	serrated, notched, bifurcate base points	Nettling, Bifurcate Base Horizon
Middle Archaic	6000-2500 BCE	stemmed, side & corner notched points	Brewerton, Otter Creek, Stanly/Neville
Late Archaic	2000-1800 BCE	narrow points	Lamoka
Late Archaic	1800-1500 BCE	broad points	Genesee, Adder Orchard, Perkiomen
Late Archaic	1500-1100 BCE	small points	Crawford Knoll
Terminal Archaic	1100-950 BCE	first true cemeteries	Hind
Early Woodland	950-400 BCE	expanding stemmed points, Vinette pottery	Meadowood
Middle Woodland	400 BCE-500 CE	dentate, pseudo-scallop pottery	Saugeen/Couture
Transitional Woodland	500-900 CE	first corn, cord-wrapped stick pottery	Princess Point/Riviere au Vase
Late Woodland	900-1300 CE	first villages, corn horticulture, longhouses	Glen Meyer/Youngie
Late Woodland	1300-1400 CE	large villages and houses	Uren, Middleport/Springwell
Late Woodland	1400-1650 CE	tribal emergence, territoriality	Neutral Iroquois/Wolf
Contact Period - Indigenous	1700 CE-present	treaties, mixture of Indigenous & European items	Ojibwa
Contact Period - Settler	1796 CE-present	industrial goods, homesteads	pioneer life, municipal settlement



2.3.1.1 Paleo Period

The first human populations to inhabit the Lambton County region arrived between 12,000 and 10,000 years ago, coincident with the end of the last period of glaciation. Climate and environmental conditions were significantly different then they are today; local environs would not have been welcoming to anything but short-term settlement. Termed Paleoindians by archaeologists, Ontario's Indigenous peoples would have crossed the landscape in small groups (i.e., bands or family units) searching for food, particularly migratory game species. In this area, caribou may have provided the staple of the Paleo period diet, supplemented by wild plants, small game, birds and fish.

Given the low density of populations on the landscape at this time and their mobile nature, Paleo period sites are small and ephemeral. They are sometimes identified by the presence of fluted projectile points manufactured on a highly distinctive whitish-grey chert named "Fossil Hill" (after the formation) or "Collingwood." This material was acquired from sources near the edge of the escarpment on Blue Mountain. It was exploited by populations from as far south as the London area, who would have traveled to the source as part of their seasonal round.

2.3.1.2 Archaic Period

Settlement and subsistence patterns changed significantly during the Archaic period as both the landscape and ecosystem adjusted to the retreat of the glaciers. Building on earlier patterns, early Archaic period populations continued the mobile lifestyle of their predecessors. Through time and with the development of more resource rich local environments, these groups gradually reduced the size of the territories they exploited on a regular basis. A seasonal pattern of warm season riverine or lakeshore settlements and interior cold weather occupations has been documented in the archaeological record.

Since the large cold weather mammal species that formed the basis of the Paleo period subsistence pattern became extinct or moved northward with the onset of warmer climate conditions, Archaic period populations had a more varied diet, exploiting a range of plant, bird, mammal and fish species. Reliance on specific food resources like fish, deer and nuts becomes more pronounced through time and the presence of more hospitable environments and resource abundance led to the expansion of band and family sizes. In the archaeological record, this is evident in the presence of larger sites and aggregation camps, where several families or bands would come together in times of plenty. The change to more preferable environmental circumstances led to a rise in population density. As a result, Archaic sites are more plentiful than those from the earlier period. Artifacts typical of these occupations include a variety of stemmed and notched projectile points, chipped stone scrapers, ground stone tools (e.g., celts, adzes) and ornaments (e.g., bannerstones, gorgets), bifaces or tool blanks, animal bone (where and when preserved) and waste flakes, a by-product of the tool making process.

2.3.1.3 Early, Middle and Transitional Woodland Periods

Significant changes in cultural and environmental patterns are witnessed in the Woodland period (c. 950 BCE-1700 CE). By this time, the coniferous forests of earlier times were replaced by stands of mixed and deciduous species. Occupations became increasingly more substantial in this period, culminating in major semi-permanent villages by 1,000 years ago. Archaeologically, the most significant changes by Woodland times are the appearance of artifacts manufactured from modeled clay and the construction of house structures. The Woodland period is often defined by the occurrence of pottery, storage facilities and residential areas similar to those that define the incipient agricultural or Neolithic period in Europe.



Early and Middle Woodland period peoples are also known for a well-developed burial complex and ground stone tool industry. Unique Early Woodland period ground stone items include pop-eyed birdstones and gorgets. In addition, there is evidence of the development of widespread trading with groups throughout the northeast. The recovery of marine shells from the Gulf of Mexico in the Lake Superior area indicates that exchanges of exotic materials and finished items from distant places were commonplace.

2.3.1.4 Late Woodland Period

During the Late Woodland period, much of Southwestern Ontario was occupied by two groups: Iroquoians and what are thought by archaeologists to be Algonquin speaking populations (the term “Western Basin Tradition” has been used to describe this cultural complex). In the east, the Iroquoian occupants were the Attawandaron, a tribal group described by European missionaries and whose historic homeland was significantly further east. Like other known Iroquoian groups including the Huron (Wendat) and Petun (Tionontati), the Attawandaron practiced a system of intensive horticulture based on three primary subsistence crops (corn, beans and squash). Their villages incorporated a number of longhouses, multi-family dwellings that contained several families related through the female line. *The Jesuit Relations* describe several Attawandaron centres in existence in the 17th century, including a number of sites where missions were later established. While precontact Attawandaron sites may be identified by a predominance of well-made pottery decorated with various simple and geometric motifs, triangular stone projectile points, clay pipes and ground stone implements, sites post-dating European contact are recognized through the appearance of various items of European manufacture. The latter include materials acquired by trade (e.g., glass beads, copper/brass kettles, iron axes, knives and other metal implements) in addition to the personal items of European visitors and Jesuit priests (e.g., finger rings, stoneware, rosaries, glassware). The Attawandaron were dispersed and their population decimated by the arrival of epidemic European diseases and inter-tribal warfare. Many were adopted into other Iroquoian communities.

In southwestern Ontario west of the London area, archaeologists have also documented the in-situ development of Late Woodland period archaeological traditions from Middle Woodland period precedents that are believed to have an Algonquin cultural origin, quite distinct from Iroquoian populations who lived to the east. The archaeological record of these groups has been labeled the “Western Basin Tradition.” During the Late Woodland period, complex settlements are characteristic of these people and, at their peak, are characterized by fortified villages containing large, likely extended family, structures. Some of the villages are surrounded by earthworks. There is evidence for the cultivation of corn and beans by roughly 900 CE. The pottery traditions of these people varied significantly from those of their Iroquoian neighbors. Early vessels, called Wayne ware, are small, thin-walled pots covered with vertical cord marking and tool impressions. Vessels become more elaborate through time, incorporating multiple bands of tool impressions, castellated rims and incised decoration. Late pottery is characteristically bag-shaped and often incorporates dentate stamping as well as appliqué strips and strap handles, similar to some Mississippian tradition pottery. As was not the case with much Iroquoian pottery, clay fabrics were mixed with shell temper.



2.3.2 Treaty History

Indigenous peoples have used the lands that are now known as Lambton County for thousands of years. Prior to the displacement caused by early European settlement, this area was actively used for hunting and camping by a number of Anishinaabe peoples. The area which became Sarnia Township was part of the Huron Tract, approximately 2.76 million acres of land subject to Provisional Treaty No. 27 ½ between the local Chippewa nations and the British Crown signed on April 26, 1825 (Surtees 1984). An earlier 1819 agreement was never realized and for six years the territory remained in limbo. The provisional treaty was finally reached as a result of John Galt's intention to form the Canada Company, which required one million acres of land to sell to prospective settlers (Surtees 1894).

The Chippewa nations transferred most of the Huron Tract to the Crown but maintained their territories in four reserve lands along the St. Clair River and on the shores of Lake Huron near Kettle Point and the Ausable River (River aux Sable). These reserves would become the Aamjiwnaang First Nation and the Chippewas of Kettle and Stony Point First Nation. The agreement was formalized in 1827 through Treaty No. 29 (Canadian Legal Information Institute 2000; Duern 2017).

2.3.3 Nineteenth-Century and Municipal Settlement

The Project Area falls within Lot 22, Concession 11, in the Geographic Township of Moore, now St. Clair Township, Lambton County, Ontario. A brief discussion of 18th and 19th-century settlement and land use in the county and township is provided below in an effort to identify features signaling archaeological potential.

2.3.3.1 Lambton County

Prior to the 1830s Lambton County was sparsely occupied by people of European descent. One of the reasons for this was that historical Lambton County was composed of mainly forested and swampy areas that made settling and traveling to the County difficult. A few French settlers were living along the banks of the St. Clair River. An unfortified British military reserve was set up in the along the eastern bank of the St. Clair River at the entrance to Lake Huron, in the location of what was to eventually become the Village of Point Edward around 1800. This military reserve was established to protect the entrance of Lake Huron from possible American invaders (Elford 1982:114). It is thought that the earliest European settlement in Lambton County was focused along Bear Creek (or the Sydenham River) in what has come to be known as the Baldoon Settlement (H. Belden & Co. 1880:4). This area was settled by Highland Scotch immigrants who came to the area around 1804 under the direction of Lord Selkirk (H. Belden & Co. 1880:4). However, no sizable European populations settled in the County until the early 1830s when there was an influx of British settlers. By 1834, there were 1,728 settlers in the county and by 1891 the population had increased to 58,810 people (Elford 1982:3-5). By 1835 the ten townships that would eventually comprise the County were laid out and surveyed. It was not until 1850 that Lambton became a provisional county and three years later it became an independent municipality (Elford 1967). By 1881 nearly half the county was still in timber (Matthews et al. 1957:23).

The Grand Trunk Railway first opened in 1859 and helped increase the County's shipping profile and provided passage to new immigrants. Transportation through the County was considerably hindered by the lack of good thoroughfares. Given that much of the county was essentially a vast level clay plain with few streams and rivers, it was poorly drained and good, dry roads were hard to come by. Swamplands often prohibited the establishment of early through roads. Nonetheless, a few early major transportation routes offered some



solace to travelers. These included the Egremont/London Road (now Highway 22), the Plank Road (connecting Sarnia to Petrolia) and the Fourth Line (Confederation Line). The Plank Road was “planked” between 1862 and 1865 following the discovery of oil in Enniskillen Township (Elford 1967:41-42).

2.3.3.2 Township of Moore

As early as 1812, two Frenchmen, Champleau and Papineau, had settled near present day Mooretown; the earliest known village in the township. Early French settlers to the area held their land by “squatter’s rights” until the Township of Moore was surveyed in 1829 by Boswell Mount (Johnston 1925:46). Sir John Colborne named this Township after the noted British General John Moore, who died on the battlefield of Corunna in 1809. Moore Township was noted for its relatively large number of settlements in Lambton County, owing largely to the presence of and access to the Saint Clair Division of Canada’s Southern Railway line, which bisects the township west to east just south of Mooretown between the communities of Courtright and Brigden (H. Belden & Co. 1880). Though the St. Clair riverfront portion of Moore Township was settled early in the 19th century, settlement of interior portions of the township did not begin until the 1830s because forested swampland dominated these interior lands. In these interior areas land grants were made to the sons of United Empire Loyalists in reward for their loyalty to the British Crown during the War of 1812, many of whom quickly sold their land to other incoming settlers and land speculators. Thus, two distinct sections of the township, the riverfront and the interior, received two distinct groups of settlers. People of official class (e.g., army and navy men, businessmen, physicians, mechanics) settled the riverfront, whereas those of the labouring class (e.g., farmers, shepherds, sailors, fishermen, carpenters) settled the less hospitable interior.

Until at least 1839, the only passable roadway in Moore Township was the one along the river (now the St. Clair Parkway), which itself had limited access to areas farther north. Even when concession lines were opened up and ditches dug alongside these, it was many years thereafter before these roads could be travelled by wagon due to the extensive dense and wet clay soils in the poorly drained interior regions. It was not until the 1880s that the main road arteries running into Sarnia (River Road, Reserve Road, and Kimball Side Road) were graveled. Most of the concession roads in Moore Township were open by mid-century and were likely somewhat accessible by the 1830s when the concessions were settled.

2.3.4 Review of Historic Maps and Aerial Photography

There are no names or structures depicted in the vicinity of the Project Area on Belden’s 1880 *Illustrated Historical Atlas of the County of Lambton* (Map 7); however, the 1880 map does depict Petrolia Line and Ladysmith Road as open at this time. Petrolia Line is roughly 815 m south of the Project Area and Ladysmith Road is roughly 315 m east of the Project Area.

A review of a 1954 aerial photograph shows that the Project Area, and the general area surrounding it, is characterized as agricultural as of this date (Map 8). The Project Area appears to be located largely within cleared lands, likely agricultural in nature, with a small portion of the western edge within a woodlot.

In 2008, construction for the St. Clair Energy Centre was underway, and aerial imagery shows the Project Area was in use as a staging, parking and/or storage area (Map 9). The lands within the Project Area appear to be graded, with machine travel evidence throughout, and soil stockpiles shown in the northeast corner. A large berm is present along the eastern edge of the property.

Oblique aerial photography provided by the client was also reviewed (Images 1 and 2). These 2008 photographs, show the extent of ground disturbance as a result of the construction activities for the St. Clair



Energy Centre. Soil stockpiles and machine travel is visible in the northern portion of the Project Area, while the large berm and construction staging area is present in the southern portion.

By 2009, the construction of the centre was complete, and the Project Area was once again returned to agricultural land; the large berm, stockpiles, and machines and equipment have all been removed, and the lands again appear in use for agricultural purposes (Map 10).

2.3.5 Review of Heritage Properties

There are no designated heritage properties or plaques within 50 m of the Project Area.



3 ANALYSIS AND CONCLUSIONS

As noted in Section 2.1, the Province of Ontario has identified numerous factors that signal the potential of a property to contain archaeological resources. Based on the archaeological and historical context reviewed above, it was determined that the Project Area is not in proximity (i.e., within 300 m) to any features that signal archaeological potential. Furthermore, a review of historical aerial imagery shows that the Project Area underwent extensive ground disturbance during the construction of the St. Clair Energy Centre. In addition, our previous assessment (TMHC 2006), which also included two site visits and photo-documentation of the existing condition of the land, did not recommend further work for the property.

At this time, we are not conducting another property inspection due to the lack of features indicating archaeological potential and the evidence of extensive past ground disturbance as shown on aerial imagery.

The results of the Stage I archaeological assessment, as well as the location and orientation of report photographs, are presented on Map I I. As the client provided the Project Area as a digital shapefile, there is no separate proponent mapping on which to present the results.



4 RECOMMENDATIONS

A Stage I archaeological assessment was conducted for the proposed expansion to the St. Clair Energy Centre at 790 Petrolia Line in Corunna, Ontario. Based on the Stage I background research, including a review of historical aerial photography, the following recommendations are made:

- The entire Project Area (6.99 ha; 100%) has been extensively disturbed by previous ground disturbance activities. Further, there are no features of archaeological potential within 300 m of the Project Area. As such, the Project Area does not retain archaeological potential and is not recommended for further assessment.

These recommendations are subject to the conditions laid out in Section 6.0 of this report and to the MCM's review and acceptance of this report into the provincial register.



5 SUMMARY

A Stage I archaeological assessment was conducted for the proposed expansion to the St. Clair Energy Centre at 790 Petrolia Line in Corunna, Ontario. The background research indicated that the Project Area was not in proximity to any features signaling archaeological potential and a review of historical aerial imagery showed that the Project Area has undergone extensive disturbance. The entirety of the Project Area was determined to not contain archaeological potential. As such, no further Stage 2 assessment is recommended for these lands.



6 ADVICE ON COMPLIANCE WITH LEGISLATION

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

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

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

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and Crystal Forrest, A/Registrar of Burial Sites, Ontario Ministry of Government and Consumer Services. Her telephone number is 416-212-7499 and e-mail address is Crystal.Forrest@ontario.ca.



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8 IMAGES



Image 1: Oblique Aerial Photograph of Project Area, Dated May 14, 2008

Looking Northwest



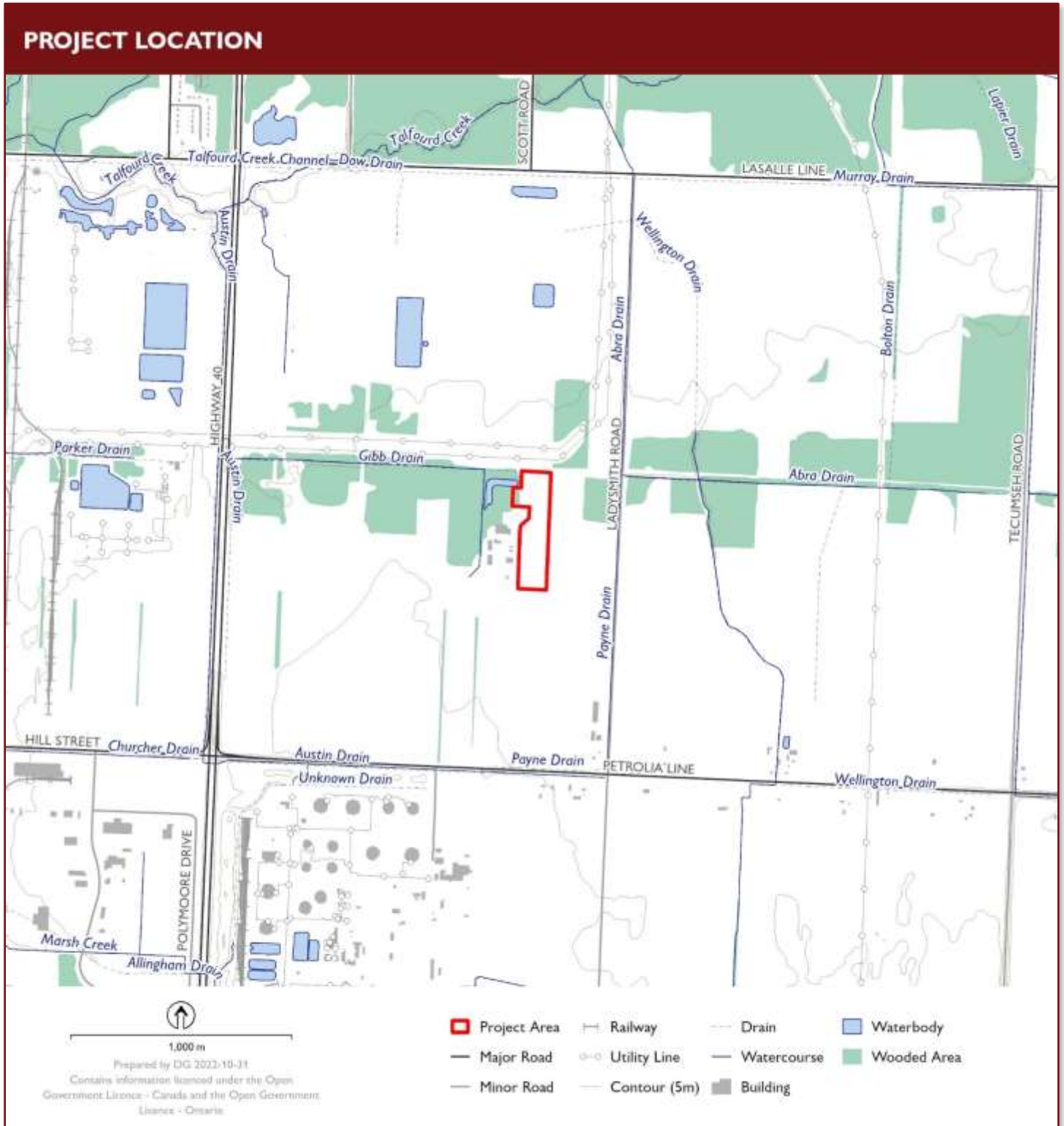
Image 2: Oblique Aerial Photograph of Project Area, Dated May 14, 2008

Looking Southeast





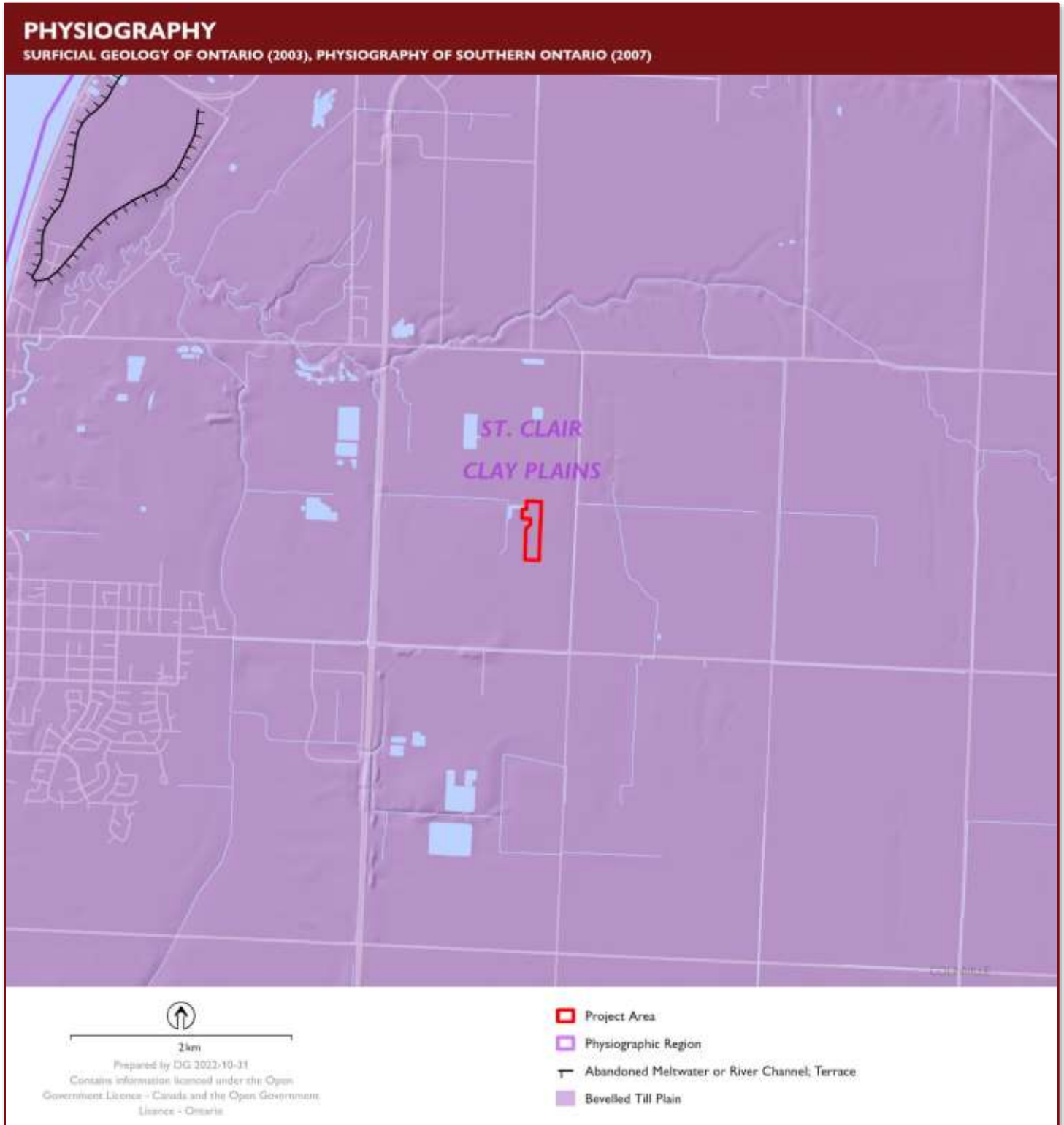
9 MAPS



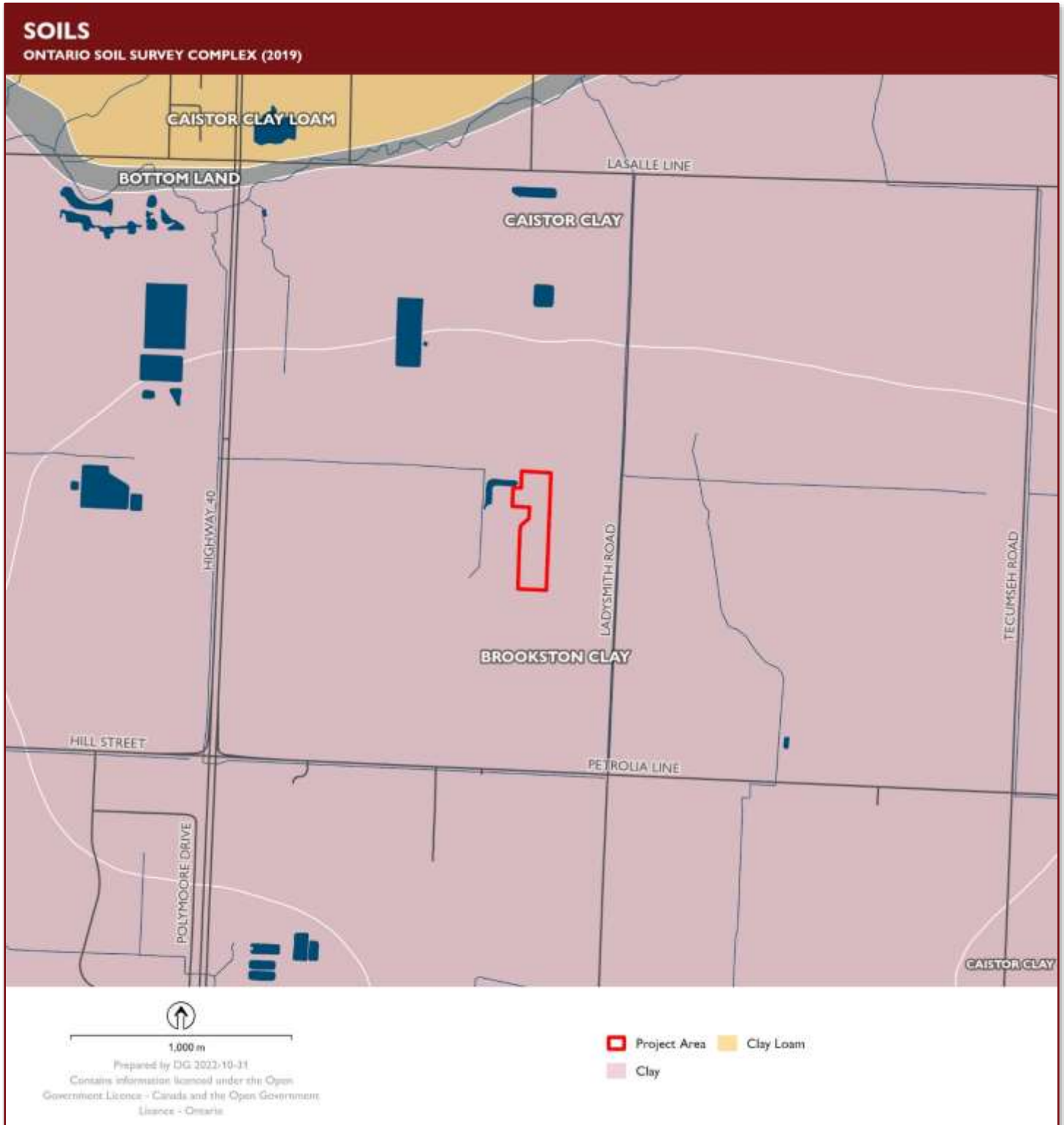
Map I: Location of the Project Area in St. Clair Township, ON



Map 2: Aerial Photograph Showing the Location of the Project Area



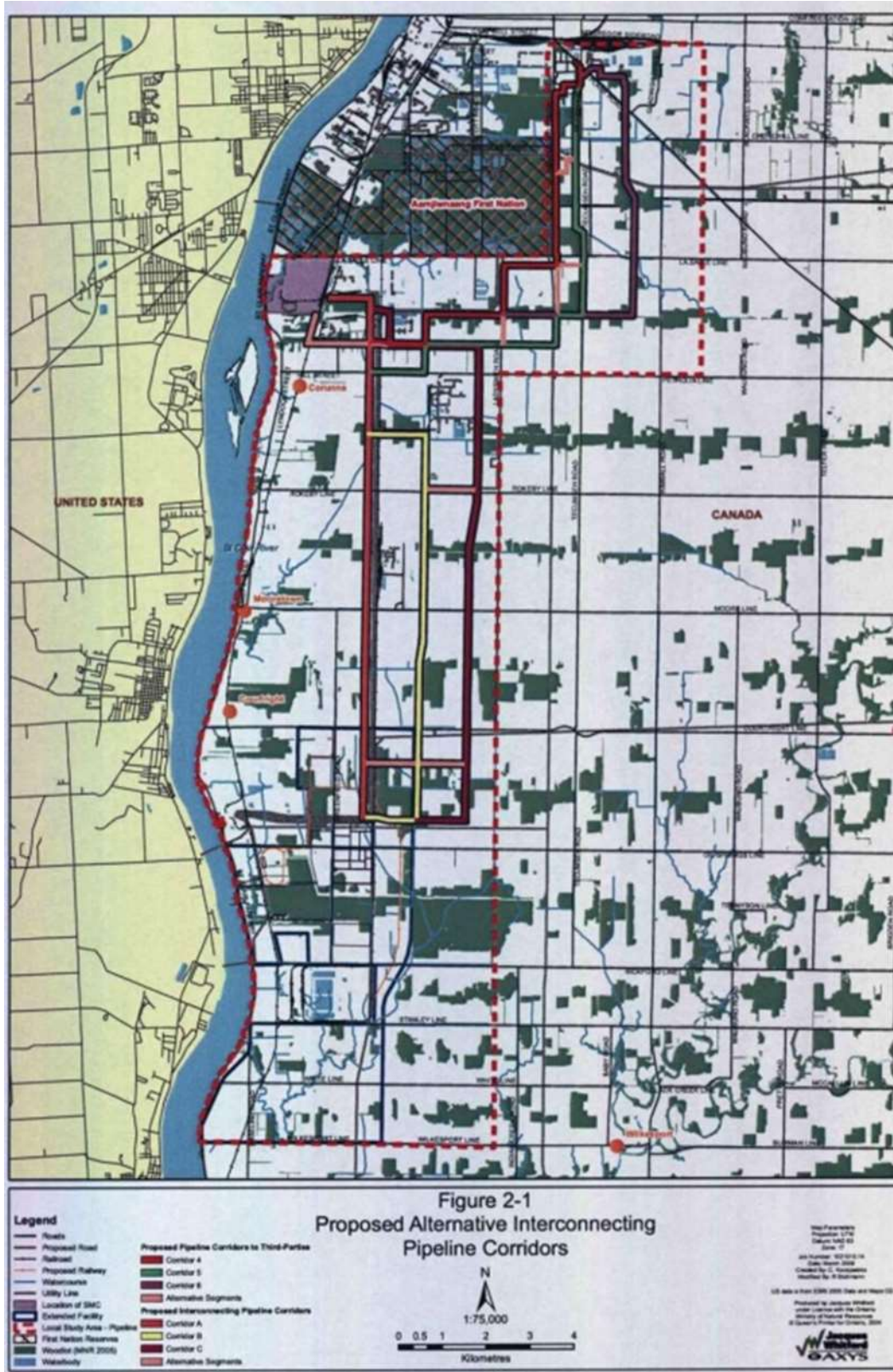
Map 3: Physiography Within the Vicinity of the Project Area



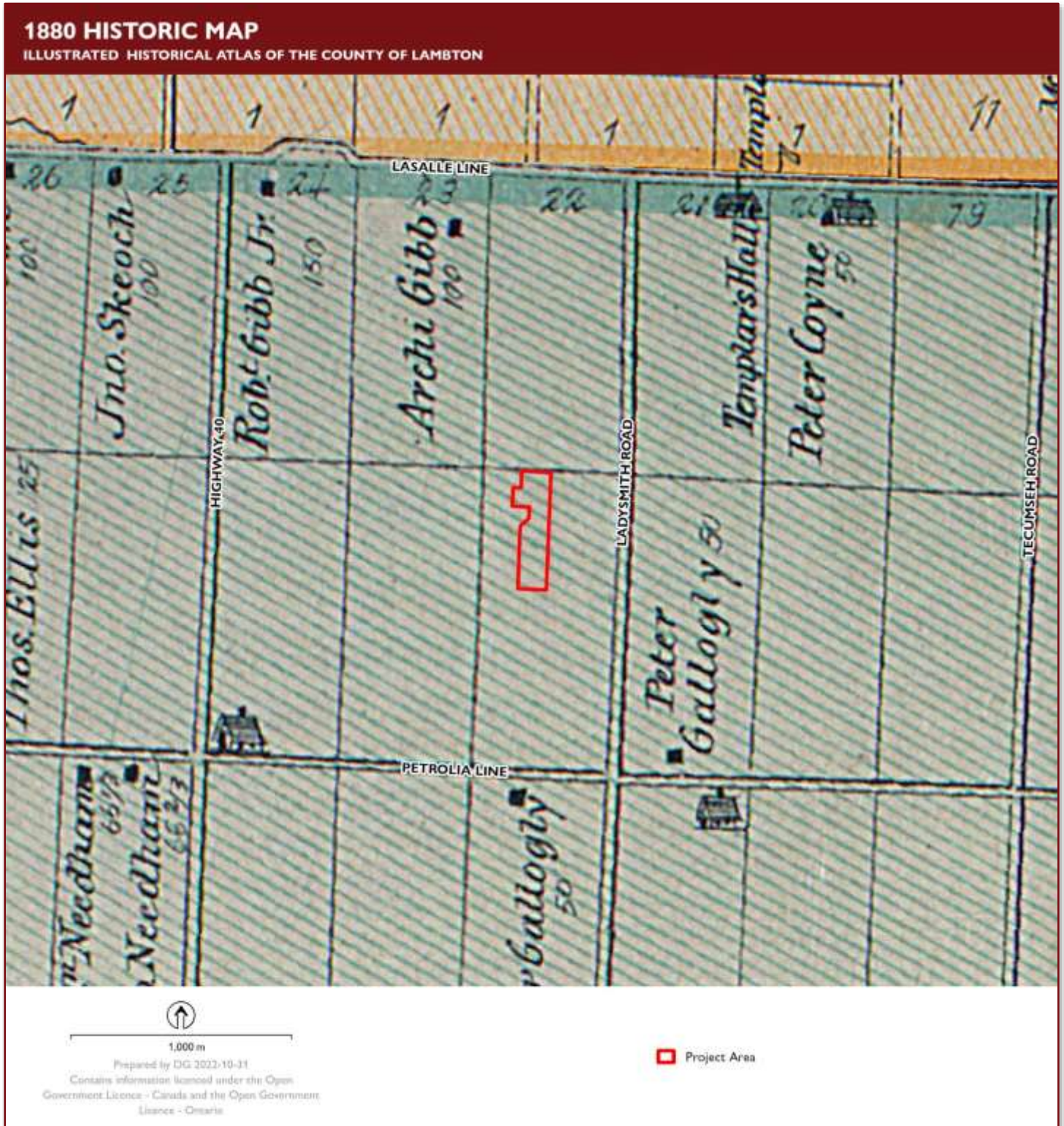
Map 4: Soils Within the Vicinity of the Project Area



Map 5: Stage I Archaeological Assessment Results (TMHC 2006)



Map 6: Stage I Local Study Area (Jacques Whitford Environment Ltd. 2008)



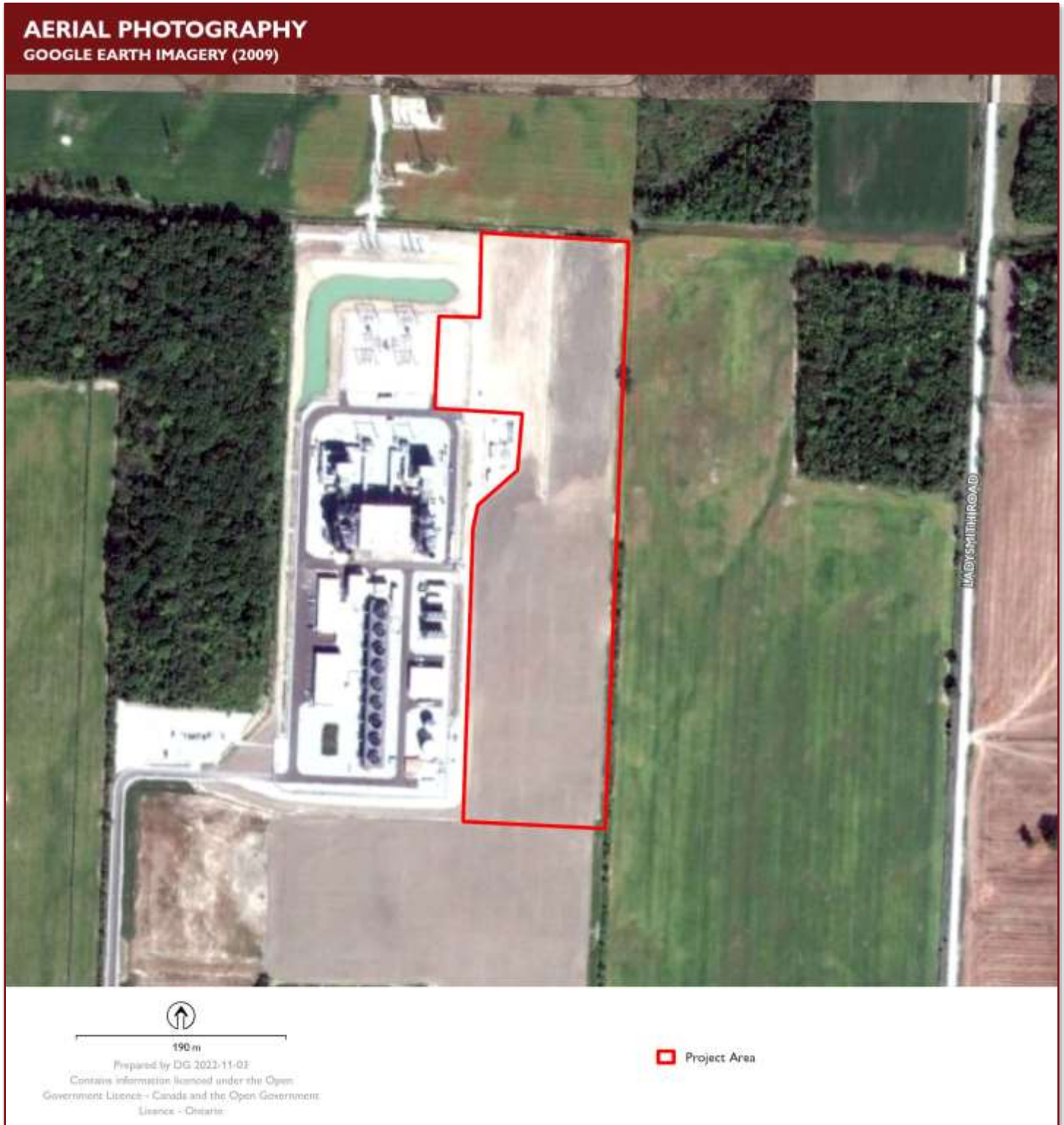
Map 7: Location of the Project Area on the 1880 Historical Atlas Map



Map 8: Location of the Project Area on a 1954 Aerial Photograph



Map 9: Location of the Project Area on a 2008 Aerial Photograph



Map 10: Location of the Project Area on a 2009 Aerial Photograph

ST. CLAIR ENERGY CENTRE - NATURAL GAS FIRED TURBINE FACILITY EXPANSION
STAGE 1 RESULTS & RECOMMENDATIONS



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- Project Area
- STAGE 1 ASSESSMENT RESULTS**
- Areas of Low Archaeological Potential
 (No Assessment Required)
- Disturbed (Historic Disturbances based on 2008
 Aerial)

Map 11: Stage I Results and Recommendations