

**Stage 1 Archaeological Assessment
Highway 17 Route Planning Study
From Bonfield Easterly to
Boundary Road between the Townships of Calvin
and Papineau-Cameron,
Township of Bonfield and Municipality of Calvin
Nipissing District, Ontario**

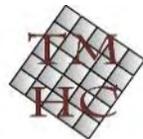
Submitted to

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and

The Ontario Ministry of Tourism, Culture and Sport

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Executive Summary

In 2012, the Ontario Ministry of Transportation retained AECOM to undertake a Route Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study (W.P. 5670-10-00) for a 23.5 km section of Highway 17 from 2.2 km east of Highway 531 easterly to the Boundary Road between the Townships of Calvin and Papineau-Cameron. Timmins Martelle Heritage Consultants Inc. (TMHC) was contracted by AECOM to complete the required archaeological, built heritage and cultural landscape studies for the Highway 17 route planning study, based on a general study area defined for the project which extends from just west of Trout Pond Road in the Township of Bonfield easterly to Boundary Road at the juncture of the Municipality of Calvin (formally the Township of Calvin) and the Township of Papineau-Cameron, in Nipissing District. The northern and southern boundaries parallel the route of Highway 17 and form a study area of roughly 6.3 km in width, with a narrower section (between 0.5 and 1 km) north of the thoroughfare and a wider section (maximum width of 5.25 km) to the south. This report presents the results of a Stage 1 archaeological assessment of the study area, incorporating both a background review and preliminary field reconnaissance, while the built heritage and cultural landscape study is presented in a separate report entitled *Built Heritage and Cultural Heritage Factors, Highway 17 Bonfield Easterly Route Planning Study, GWP 5670-10-00, Township of Bonfield, Municipality of Calvin and Township of Papineau-Cameron, Nipissing District, Ontario* (DRAFT). The latter report, dated May 29, 2012, was prepared by Archaeological Research Associates under contract to Timmins Martelle Heritage Consultants Inc.

The Stage 1 archaeological assessment consisted of a review of soils, physiography, and drainage for the study area, registered and known archaeological sites within and adjacent to it as well as previous archaeological assessments that have been undertaken for the study area or adjacent lands. A consideration of historic and current land use, as well as First Nations and Euro-Canadian settlement was also undertaken. According to the map-based review, the study area contains or is in proximity to numerous features signalling archaeological potential: 1) pre-1900 historic transportation routes (i.e., significant watercourses, portage routes, and early fur trade/logging roads such as Highway 630, railway); 2) pre-contact First Peoples trails and/or portage routes; 3) registered archaeological sites; and 4) potential and known early 1800s fur trading and logging locations. Current aerial photography suggests that much of the land within the study area has not undergone development since the clearing of land for agricultural use in the mid- to late-1800s. However, assessing potential for archaeological resources in Northern Ontario cannot be established by mapping alone, as numerous areas are characterized by exposed bedrock or swampy ground that otherwise may not retain potential for the discovery of intact archaeological resources. Therefore, a preliminary reconnaissance survey of existing conditions within the study area was also undertaken to assist in the collection of better information regarding existing conditions and features of archaeological potential.

The information collected during the background study and roadside field reconnaissance was compiled and mapped on topographic mapping of the study area using ArcGIS. A generalized map of areas of archaeological potential was created for the entire study area, although further refinements will be necessary as not all of the study area could be physically inspected due to its large size. Overall, the preliminary mapping indicates that roughly 40% of the study area has archaeological potential based on proximity (within 50 to 150 metres) of features identified to date. The remaining lands are not within 50 metres of a modern watercourse or 150 metres of other features signalling archaeological potential and therefore are not likely to contain intact archaeological deposits. The lands with established archaeological potential include wooded areas, pockets of active farm land and livestock pasture, terraces surrounding waterways, and plateaus with some exposed bedrock. As a full field inspection was not undertaken, it is acknowledged that some lands currently identified as having archaeological potential may be reclassified upon field inspection as there may be areas that are low-lying and permanently wet, steeply sloped or consisting only of natural bedrock outcrops.



Based on the results of the Stage 1 background study and preliminary property inspection, the following recommendations are made:

- 1) Stage 2 field survey is recommended for all areas identified herein as having archaeological potential that may be impacted by the recommended highway alignment. Once a final highway plan is developed, a more detailed property inspection should be undertaken for all of the lands that will be subject to impact. This will allow for the preparation of more accurate archaeological potential mapping based on existing conditions and more precise delimiting of Stage 2 assessment areas. All lands deemed to have low archaeological potential following the field inspection can then be eliminated from Stage 2 survey.

All lands that consist of formerly cleared agricultural field or pasture will require ploughing and pedestrian survey (5 m interval) when their width is 10 metres or greater. Survey must be undertaken after the ground is significantly weathered under rain and when surface visibility is 80% or greater. For unploughable treed and grassed areas, the Stage 2 assessment should consist of a standard test pit survey at a five metre interval; survey distances should follow those defined in Section 2.1.5 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011), namely 150 metres or less from features of archaeological potential. Field and reporting methodologies must follow the 2011 *Standards and Guidelines for Consultant Archaeologists*.

- 2) If public or First Nations consultation or further background research documents additional features of archaeological potential that have not been identified in this study, these must also be taken into consideration during Stage 2 survey. Prior to the initiation of the Stage 2 survey a new inquiry should be made of the Ontario Archaeological Sites Database to establish if new archaeological resources have been registered.
- 3) The Stage 1 background study identified a number of known cemeteries within the study area. These are major planning concerns, should work occur in their immediate vicinity. As per provincial requirements, any work done immediately adjacent to a cemetery must be monitored by a licensed consultant archaeologist or, more preferably, preceded by a boundary investigation undertaken in keeping with protocols established by the Cemeteries Registrar in consultation with the Ministry of Tourism, Culture and Sport. The investigation should involve the mechanical removal of topsoil around the affected peripheries of the cemetery and the investigation of the exposed soil surface for the presence of unmarked graves. The following cemeteries were herein identified as in the current study: St. Margaret Cemetery (opened in 1883), Mt. Pleasant Cemetery (opened in 1884), St. Therese Cemetery (opened in 1905), the "Abandoned Cemetery" (Bonfield Township Cemetery) (unknown date), and the Calvin Township Public Cemetery (unknown date). If additional marked or unmarked cemeteries are identified within the study area, the same recommendation will apply.
- 4) If the limits of the study area change to incorporate new lands not addressed in this study, further background study will be required prior to the initiation of the Stage 2 survey.
- 5) This report addresses land-based archaeological potential only. Should potential for marine features be identified (e.g., associated with mill sites or portage routes), a marine-based archaeological assessment should be undertaken.



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**Stage 1 Archaeological Assessment
Highway 17 Route Planning Study
from 2.2 km east of Highway 531 easterly to
6.5 km east of Highway 630
Township of Bonfield and Municipality of Calvin
District of Nipissing**

1.0 PROJECT CONTEXT

1.1 Development Context

1.1.1 Introduction

In 2012, the Ontario Ministry of Transportation retained AECOM to undertake a Route Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study (W.P. 5670-10-00) for a 23.5 km section of Highway 17 from 2.2 km east of Highway 531 easterly to the Boundary Road between the Townships of Calvin and Papineau-Cameron. Timmins Martelle Heritage Consultants Inc. (TMHC) was contracted by AECOM to complete the required archaeological, built heritage and cultural landscape studies for the Highway 17 route planning study, based on a general study area defined for the project which extends from just west of Trout Pond Road in the Township of Bonfield easterly to Boundary Road at the juncture of the Municipality of Calvin (formally the Township of Calvin) and the Township of Papineau-Cameron, in Nipissing District. The northern and southern boundaries parallel the route of Highway 17 and form a study area of roughly 6.3 km in width, with a narrower section (between 0.5 and 1 km) north of the thoroughfare and a wider section (maximum width of 5.25 km) to the south. This report presents the results of a Stage 1 archaeological assessment of the study area, incorporating both a background review and preliminary field reconnaissance, while the built heritage and cultural landscape study is presented in a separate report entitled Built Heritage and Cultural Heritage Factors, Highway 17 Bonfield Easterly Route Planning Study, GWP 5670-10-00, Township of Bonfield, Municipality of Calvin and Township of Papineau-Cameron, Nipissing District, Ontario (DRAFT). The latter report, dated May 29, 2012, was prepared by Archaeological Research Associates under contract to Timmins Martelle Heritage Consultants Inc.

Permission to carry out all required archaeological activities was granted by Fred Leech of AECOM, the corporation coordinating the Class EA on behalf of the Ministry of Transportation. All archaeological consulting activities were performed under the Professional Archaeological License of John Sweeney, M.A. (P349). Tara Jenkins, M.A. (P357) conducted the land-based Stage 1 property inspection entirely from public roadways, which required no permission-to-enter from private land owners. All aspects of the Stage 1 archaeological assessment were carried out in accordance with the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (2011).

1.1.2 Purpose and Legislative Context

The *Ontario Heritage Act* makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Our archaeological assessment work is part of an environmental review which is intended to identify areas of environmental interest as specified in the *Provincial Policy Statement*. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the *Provincial Policy Statement* which states:

development and site alteration shall only be permitted on lands containing archaeological resources or areas of *archaeological potential* if the *significant archaeological resources* have been conserved by removal and documentation, or by preservation on site. Where *significant archaeological resources* must be preserved on site, only *development* and *site alteration* which maintain the heritage integrity of the site may be permitted. (emphasis in the original)

Section 5(3)(c) of the *Environmental Assessment Act* recognizes the provincial interest in the cultural heritage “environment” and requires that all environmental resources that will be impacted by a proposed undertaking be identified, evaluated and mitigated. In keeping with provincial requirements, the Ministry of Transportation has prepared an internal review system based on its *Environmental Reference for Highway Design* (2009) that outlines the technical requirements for environmental impact study and environmental protection/mitigation for highway projects. Section 3.8 outlines the requirements for the study of impacts to cultural heritage – archaeology, including the identification of archaeological resources, their evaluation and mitigation. This study also follows these standards established by the Ministry of Transportation for archaeological studies.

1.1.3 Detailed Project Background

The Ministry of Transportation (MTO) is proposing to carry out improvements to a 23.5 km stretch of Highway 17 from Bonfield easterly to Boundary Road at the juncture of the Municipality of Calvin and the Township of Papineau-Cameron (Maps 1 to 3). A study has been initiated that will involve route selection, planning and preliminary design for a controlled access four-lane highway. MTO requires a freeway with two lanes in each direction, a 30 m median within a 110 m right-of-way, and access restricted to two (possibly three) interchange locations only. In some areas, this will require service roads on one or both sides of the highway, each within its own 30 m right-of-way. Based on preliminary discussions, it is anticipated that the preferred route alternative will include both widening and improvements to sections of the existing highway, and entirely new sections to be constructed. Key planning issues have already been identified (AECOM 2012: 2-3) and include the need to minimize impacts to significant natural features,



functions, systems and communities (e.g., water bodies, fish habitat features, significant vegetation and wetlands, wildlife travel corridors, etc.) as well as existing and planned population and employment areas. Planning will generate alternatives that are efficient and direct for addressing transportation problems, while meeting MTO standards for design.

The Stage 1 archaeological assessment data and results for the project study area (Map 1) were summarized and incorporated at an overview level in a *Summary of Existing Environmental Conditions and Constraints Report* (edited by AECOM) and used to generate highway route alternatives. Following the evaluation of route alternatives and the selection of a preferred route, environmental fieldwork and other investigations of existing environmental conditions will be undertaken to provide more detailed information to support the generation and selection of preliminary design alternatives and the development of the Highway 17 recommended plan.

2.0 STAGE 1 BACKGROUND STUDY

2.1 Field/Research Methods and Sources

A Stage 1 background study was conducted to gather information about known and potential archaeological resources within the defined study area for the Highway 17 route planning study. According to the 2011 *Standards and Guidelines for Consultant Archaeologists* (MTC), a Stage 1 background study must include a review of:

- an up-to-date listing of archaeological sites in the vicinity of the study area as recorded in Ontario Archaeological Sites Database maintained by the Ministry of Tourism, Culture and Sport (Toronto);
- reports of previous archaeological fieldwork within the study area and for a radius of 50m around it;
- topographic maps at 1:10,000 (recent and historical) or the most detailed scale available;
- historic settlement maps (e.g., historical atlas);
- archaeological management plans or other archaeological potential mapping (when available); and,
- commemorative plaques or monuments within or near the study area.

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

- a database search was filed with Robert von Bitter of the Ministry of Tourism, Culture and Sport on March 29, 2012 requesting a listing of registered archaeological sites within 1 km of the study area (received March 30, 2012);
- a review was undertaken for known prior archaeological reports for the study area and adjacent lands (Note: The Ministry of Tourism, Culture and Sport does not keep a publicly accessible record of archaeological assessments carried out in the



- Province of Ontario. Therefore, a complete inventory of prior assessment work nearby is not available);
- Ontario Base Mapping (1:10,000) was analyzed through ArcGIS and mapping layers provided by geographynetwork.ca; detailed mapping provided by the client was also reviewed;
 - Additional sources of information were also consulted, including modern aerial photographs, local history accounts, soils and physiography data provided by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), and both 1:50,000 (Natural Resources Canada) and finer scale topographic mapping; and,
 - a series of historic maps related to post-1800 land settlement were also studied.

Once compiled, this information was used to create a summary of the characteristics of the study area in an effort to evaluate its archaeological potential. In a 1997 document, the Province of Ontario identified criteria to determine archaeological potential. These relate to geographic and cultural-historic features which would have influenced past land and resource use, as well as encouraged settlement (MCCR 1997:11). The presence or absence of such features allows the researcher to estimate the likelihood of ancient land use and thus the presence of archaeological sites. The Province refined these criteria in their 2011 *Standards and Guidelines for Consultant Archaeologists*. Section 1.3 describes how consultant archaeologists are to evaluate the archaeological potential of a study area and Subsection 1.3.1 (MTC 2011) lists the following features that indicate archaeological potential:

- previously identified archaeological sites
- water sources
 - primary water sources (lakes, rivers, streams, creeks)
 - secondary watercourses (intermittent streams and creeks, springs, marshes, swamps)
 - features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in topography, shorelines of drained lakes or marshes, cobble beaches)
 - accessible or inaccessible shorelines (e.g., high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh)
- elevated topography (e.g., eskers, drumlins, large knolls, plateaux)
- pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground
- distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases; These may signify physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings



- resource areas, including:
 - food or medicinal plants (e.g., migratory routes, spawning areas, prairie)
 - scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert)
 - early Euro-Canadian industries (e.g., fur trade, logging, prospecting, mining)
- locations of early Euro-Canadian settlement. These include places of early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks
- early historical transportation routes (e.g., trails, passes, roads, railways, portage routes)
- properties listed on a municipal register or designated under the *Ontario Heritage Act* or that is a federal, provincial, or municipal historic landmark or site
- properties that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Typically, a Stage 1 assessment will determine potential for pre-contact First Peoples' and historic era sites, independently. This is due to the fact that lifeways varied considerably during these eras. Therefore, criteria used to evaluate potential for each type of site also varies.

This background study focussed on the collection of secondary source information (from maps and textual documents) that could be used to identify features of archaeological potential. The results of this study are summarized in the following paragraphs, with analysis and conclusions presented in Section 2.4. Section 3.0 describes the methodology and results of a preliminary field reconnaissance (property inspection) for the affected portion of the Highway 17 route and portions of the study area. Following the property inspection a generalized map of archaeological potential within the study area was prepared using Arc GIS. An in-depth discussion of the mapping process and content appears in report Section 3.3.

2.2 Project Context: Archaeological Context

2.2.1 Study Area: Overview and Physical Setting

The focus of this study is a 23.5 km section Highway 17 that extends from 2.2 km east of Highway 531 easterly to 6.0 km east of Highway 630 between the communities of Bonfield and Mattawa (Maps 1 to 4). The existing Highway 17 runs in an east to west direction between the Mattawa River system to the north and a meandering railway to the immediate south. A study area measuring roughly 23.5 km long (max. length) and 6.3 km wide (max. width) has been defined for the project (Map 1) and falls within the Township of Bonfield and the Municipality of Calvin (former Calvin Township) in Nipissing District, Ontario. The northern boundary for the study area is roughly 0.5 to 1 km north of



the highway and south of the Mattawa River, with the southernmost study area boundary situated at a maximum distance of roughly 5.25 km from the highway. The study area crosses or is in proximity to three Provincial parks: Mattawa River Provincial Park (waterway class), Samuel de Champlain Provincial Park and Amable Du Fond River Provincial Park (waterway class) (Map 1). It includes the communities of Rutherglen (northwest portion of the study area), Eau Clair, and Eau Clair Station (both in the east portion of the study area).

Maps 2 and 3 illustrate the study area on relevant topographic mapping and aerial photography. In general, the natural environment of the study area is diverse. The southern portion of the study area is relatively flat with long gradual slopes containing land suitable for agricultural cultivation and pasture. The northern portion is hilly with sharp bedrock outcrops alongside high flat plateaus of bald Canadian Shield, interspersed with deep thick forests and open agricultural lands. The area is abundantly supplied by springs, small creeks, wetlands, and principal watercourses.

The study area falls within two major physiographic regions: the Algonquin Highlands and the Number 11 Strip, as defined by Chapman and Putnam (1984) (Map 5). The Algonquin Highlands cover some 15, 500 square miles (40,145 square kilometres) and are comprised of a roughly dome shaped base of Precambrian rock (Canadian Shield) overlain by sandy glacial till. The relief is uneven, consisting of rounded bedrock knobs and ridges. The soils are generally shallow but thickness may vary and are typically not good for agriculture as they are stony, sandy and acidic (Chapman and Putnam 1984:211). The region contains valleys floored with outwash sand and gravel as well as frequently occurring swamps and bogs. In the forested areas of the Algonquin Highlands, the typical soil profiles include a dark surface layer under the leaf litter, up to 6 inches thick, underlain by a brownish horizon 20 to 25cm thick over the unweathered material. The vast majority of soil is forested, being non-agricultural mainly because of the rock outcrop and associated shallow soil, rough topography, stones and swamp (Chapman and Putnam 1984:212).

The Canadian Shield forms the core of the continent and occupies almost half of Canada's surface. The surface of the stable Precambrian rocks is undulating and marked by valleys. Over most of the Shield, average elevation is approximately 300 metres above sea level. The Shield is comprised of seven geological provinces: Bear, Churchill, Grenville, Nain, Slave, Southern, and Superior (www.nrcan.gc.ca). Mattawa and surrounding area are located within the Grenville province (Clayton et al. 1995). Each is distinguished by its unique internal structural trends and style of folding. The Grenville Province has deposits of magnetite, pegmatites containing mica, feldspar, apatite, uranium, titanium, as well as zinc and lead sulphides. A mica mine (Purdy's Mica Mine) is present near Lake Bouillon within Samuel de Champlain Provincial Park at the north end of the study area (Clayton et al. 1995:39).



The Number 11 strip is a region of better developed soils allowing for agricultural production. It follows Highway 11 (after which the region is named) from Gravenhurst to North Bay and consists of a linear deposit of sand, silt and clay that occupy hollows in the bedrock. The strip rests just below the former shoreline of glacial Lake Algonquin and was created through the deposition of sediments released by streams entering glacial Lake Algonquin from upland areas. A notable esker runs adjacent to the strip between Bonfield and Gravenhurst and has been heavily worn down by water action with similar deposition of sediments in glacial Lake Algonquin (Chapman and Putnam 1984:215).

The divide between the Algonquin Highlands and the Number 11 strip essentially runs from the northwest corner of the study area to the southeast, with the two regions characterized by generally distinct surface features. While shallow tick and bedrock ridges are typical landscape in the study area, as is characteristic of the Canadian Shield, the majority of the western and southern portion also includes clay plains developed on bedrock and cut in the west by eskers and kame moraines. In the northeastern portion of the study area the bedrock is covered by lacustrine deposits associated with extensive spillways in the vicinity of existing lakes and rivers.

The soils within the study area vary in depth, moisture content and origin (Map 6). In the west, there are notable deposits of imperfectly and well-draining soils, namely Dokise sandy loam, Noelville loam, Wausing sandy loam and Muskosung sandy loam, associated with the eskers and kame moraines. Beyond these are deposits of lacustrine and outwash/deltaic derived soils with predominantly good or imperfect drainage (e.g. Thistle very fine sandy loam, Stitson loam, Wendigo sandy loam) and small pockets of poorer draining soils (e.g., Playfair silt loam, Wolf loam). In the central portion of the study area, associated with numerous small lakes and watercourses, there are organic soils. Within the eastern portion of the study area, Monteagle sandy loam and Muskosung gravelly loam (outwash soils with good drainage), as well as Boulter silt loam (lacustrine derived soil with imperfect drainage) are predominant, with smaller deposits of poorly and imperfectly draining outwash and lacustrine soils in the southernmost portion. The 1881 land surveyor notes for Calvin Township state that its soils range from clay, clay loam and sandy loam, and are suitable for growing hay and oats. They also indicate that fire had consumed the richness of the soil, however, but what remained of the woods were great for cattle raising (Tallon 1881:2-3). In 1881, the north portion of Calvin Township was described as “almost sterile soils” in a rugged mountainous terrain (Tallon 1881:2-3).

Rutherglen Moraine, which runs north-south through the study area, is a sandy, gravelly moraine that marks the former advance of a lobe of glacial ice in the Mattawa Valley (Chapman and Putnam 1984:150) during the existence of glacial Lake Algonquin. The presence of clays within much of the area surrounding Bonfield and in the Amable du Fond River valley indicates that much of the vicinity of the study area was once submerged by the glacial lake, the maximum northern extent of which once reached some seven miles north of North Bay. Chapman and Putnam (1984:25) suggest that the initial



ice front had an easterly alignment but eventually aligned north-south as the Mattawa ice lobe pushed westward and continued to block the Mattawa Valley. With a discharge outlet effectively blocked to the east, the Lake Algonquin levels remained high and continued to be until an outlet emerged in the French River area. With the release of glacial meltwater eastward, Lake Algonquin receded forming Lake Stanley. Eventually the Mattawa ice lobe moved away from the area, opening up the Mattawa Valley and allowing a massive discharge of Lake Algonquin waters down into the Ottawa Valley. Unfortunately, due to poorly developed soils and the presence of bedrock, former glacial shorelines are poorly documented in the region, except in selected locales, like around Lake Nipissing, where several early studies (Taylor 1896; Goldthwait 1910) recorded shoreline remnants before the area witnessed substantial development and aggregate extraction (Karrow 2004).

Within the upland areas of the Algonquin Highlands, the forests typically consist of sugar maple and yellow birch with lesser amounts of white pine, hemlock and balsam fir. *Pinus* species are more concentrated in the sandy and gravelly soils of the outwash deposits developed in the hollows and along the kame moraine and eskers. Black spruce and white cedar are found in swamplands and bogs and areas with sandy soils also support white spruce (Chapman and Putnam 1984:212). The 1881 *Calvin Township Field Notes* document that fire consumed most of the township. It reports that there were few portions of original timber. The secondary growth consisted of birch, poplar and cherry trees (Tallon 1881:1-2).

Existing Highway 17 has five major watercourse crossings: Blueseal Creek (a tributary of Sparks Creek), Sparks (Sharpes) Creek, Pimisi Bay, Amable du Fond River, and Pautois Creek, all of which are tributaries of the Mattawa River to the north of the study area (Map 7). These watercourses have a number of tributaries, and the sub-watersheds of some of them within the study area include small lakes. The western portion of the study area is drained by a series of related watercourses that converge and empty into Sheedy Lake at Blanchard's Landing. Of the latter, Blueseal Creek drains the westernmost portion of the study area, with Sharpes Creek (a.k.a. Sparks Creek) situated west of the Rutherglen Moraine. The east-central portion of the study area is drained by the Amable du Fond River and its tributaries. The main branches of the river, as well as associated lakes like Upper Johnston, Crooked Chute, and Smith Lake, are associated with significant wetland complexes. The Amable du Fond River drains the high lands of Algonquin Park north in Smith Lake, Crooked Chute Lake, Pacaud Lake, Moore Lake and eventually drains into the Mattawa River at a point within Samuel de Champlain Provincial Park. The easternmost portion of the study area is drained by Pautois Creek which also flows north and empties into Moore Lake with the Provincial Park. The creek and its main tributaries, including Little Pautois Creek and Bronson Creek also have extensive wetlands associated within them. A number of lakes lie within the study area, specifically in Calvin Township, as a part of the Amable du Fond watershed— Pimisi Bay, Upper Johnston Lake, Smith Lake, Crooked Chute Lake, and Burbot Lake. The largest lake, directly 0.5 km north of the study area, is Lake Talon. Fish spawning areas have been identified in the study area and these major waterways are identified as important



fish habitats (AECOM 2012).

2.2.2 Summary of Registered or Known Archaeological Sites

According to the Ministry of Tourism, Culture and Sport's database, there are 13 registered archaeological sites within one kilometre of the study area (Table 1) (Map 8). Ten of the sites were identified by David Slattery during archaeological activities within Samuel de Champlain Provincial Park; none of these have been assigned a precise cultural or temporal affiliation or are given various functional designations (camp, village, lithic, scatter, portage, pit, mining station). Of the registered sites in Samuel de Champlain Provincial Park, seven fall within or along the northern edge of the study area, with the remainder falling outside of the study area.

The three others sites were registered by Provincial archaeologists during a 1974 survey along the Mattawa River and are more than 300 metres from the study area. One is a long-use fishing station, another is a Middle Woodland camp and the third has no assigned cultural or temporal affiliation. All of the registered sites identified to date are adjacent to watercourses or water bodies. None of the sites have undergone a full-scale excavation.

Table 1: Registered Archaeological Sites within 1 km of the Study Area

Borden	Name	Type	Cultural/Temporal Affiliation	Researcher
CbGr-3	La Grandemere	camp, fishing station	"Prehistoric and Historic"	Wright and Wright (1974)
CbGr-4	Gilligan's Island	camp	Middle Woodland	Wright and Wright (1974)
CbGs-10	Marshall	unknown	unknown	Wright and Wright (1974)
CbGs-15	Samuel de Champlain P.P. 2	lithic scatter/portage	undetermined precontact First Peoples	Slattery (2003)
CbGs-16	Samuel de Champlain P.P. 3	camp/village	undetermined precontact First Peoples	Slattery (2003)
CbGs-20	Samuel de Champlain P.P. 7	camp/village	undetermined precontact First Peoples	Slattery (2003)
CbGs-21	Samuel de Champlain P.P. 8	scatter	undetermined precontact First Peoples	Slattery (2003)
CbGs-22	Samuel de Champlain 9	scatter/camp/village	undetermined precontact First Peoples	Slattery (2003)
CbGs-23	Long Lake Bluff	scatter	undetermined precontact First Peoples	Slattery (2005)
CbGs-24	Samuel de Champlain P.P. Main R	pit	undetermined precontact First Peoples	Slattery (2005)
CbGs-25	Gap # 3	camp	undetermined precontact First Peoples	Slattery (2005)
CbGs-26	Gap # 4	camp	undetermined precontact First Peoples	Slattery (2005)
CbGs-27	Samuel de Champlain P.P. Staff H	mining station	undetermined precontact First Peoples	Slattery (2005)



In addition, a search of archival material for the study area at the Ontario Archives indicates that there was an archaeological survey of the Amable du Fond River conducted in 1979. Unfortunately, the related documents are not available to the public, although permission to access could be obtained once the recommended plan is finalized.

Other archaeological assessments have been carried out for different segments of the “Voyageur Route”, an historic trail and portage route focussed on the Mattawa River. The first site excavated was the LaVase North Bank Site (CbGu-1) near the historical plaque in Samuel de Champlain Provincial Park (west of the study area) and registered by J.V. Wright in 1961. The site underwent excavation by Archaeological Services Inc. in 1995 and in 1996 R. Defonzo returned to the site to conduct a public excavation. The archaeological material from the site indicates a Woodland Period habitation (ca. AD 1400-1650). While the major component is thought to be pre-contact (based on the retrieval of flakes, pottery sherds, etc.), the site may also have been used during the fur trade era, as suggested by the presence of clay “voyageur” pipe fragments (Pollock 2012).

Another “Voyageur Route” site is the LaVase Island site (CBGu-5), located on a privately-owned island at the mouth of the LaVase River. The island once formed part of the mainland before a water-control dam constructed on the French River in 1910 raised the level of Lake Nipissing by about 1.5 metres. The island is a particularly rich archaeological site, yielding a wealth of pre-contact, historic and fur trade era artifacts. The recovered fur trade objects date to the early 19th century, when Fort Laronde (Northwest Fur Trading Company) was in existence.

In 2004 Timmins Martelle Heritage Consultants also carried out Stage 1 to 3 archaeological assessments on a portion of the Voyageur Trail on the French River in the Parry Sound District (TMHC 2004). This work was carried out in partnership with Dokis First Nation and Public Works and Government Services Canada. Two sites were subject to Stage 3 testing: the Portage Dam Site (CaHa-3) and CaHa-19. In addition to the two archaeological deposits, two *chaudieres* (“kettles”) were identified, represented by natural depressions in the bedrock that have spiritual significance to the Dokis people.

2.2.3 Summary of Past Archaeological Investigations Within 50 Metres

During the course of this study, it was established that at least four archaeological investigations have been undertaken within 50 m of the Highway 17 study area. However, it should be noted that the Ministry of Tourism, Culture and Sport currently does not maintain an accessible database of archaeological assessment areas in Ontario. Therefore, it is not known if ours is a complete listing of archaeological investigations within 50 metres. Further, much of the archaeological research undertaken within the larger area was completed over twenty years ago; hence, its related documentation is difficult to find or access.



In 1974, provincial archaeologists Phil and Mary Wright undertook an archaeological survey of various areas along the Mattawa River. This was conducted as part of a general planning study by the Ontario Ministry of Culture and Recreation in an effort to inventory sites in the area. Three of the sites within 1 km of the study area were identified during this study, including CbGr-3 (La Grandmere) - a multi-component camp and fishing station, CbGr-4 (Gilligan's Island) – a possible Middle Woodland camp, and CbGs-10 (Marshall) a site that was partially disturbed by the construction of a weeping tile bed for a local cottage. The results of the 1974 survey appear in a provincial publication entitled *Archaeological Inventory of the Mattawa River*.

In 1995, a number of researchers compiled information on rock features and habitation sites within the Mattawa Valley Corridor. A related report submitted to the Ministry of Culture, Tourism and Recreation detailed 27 archaeological sites located in the general Mattawa area, twenty-one of which were described as habitation sites, four as rock shelters and one was deemed to be a “pit” (Clayton et al. 1995:16). The report identifies habitation sites located along the portages and trails that date as far back as 2,000 B.C. (Clayton et al. 1995:17). The described rock sites included mounds, cairns, pits or patterns of rocks laid out either on ground or other rock surfaces. These features are interpreted by some to be part of a “Techno Tradition” of rock building that is evidenced across the Canadian Shield. Some of the standing rock features are interpreted as directional sign posts (Clayton et al. 1995:17). While precise locational data for each of the 27 sites are not provided in the report, the closest documented rock feature described is associated with Lake Talon, which may be within 50 m of the study area. Avocational archaeologists in the area, specifically William Allen, have also established a research interest in the documentation of rock features and spiritual places within the general area.

More recently, Dr. David Slattery has undertaken public excavations and cultural research management investigations of archaeological sites within Samuel de Champlain Provincial Park. This work has involved the identification of numerous archaeological find spots, including nine sites that warranted registration in the provincial database. A 2003 study focussed on CbGs-15 (Samuel de Champlain Provincial Park Site 2; a pre-contact lithic scatter on the portage route), CbGs-16 (Samuel de Champlain Provincial Park Site 3; a pre-contact camp or village), CbGs-20 (Samuel de Champlain Provincial Park Site 7; a pre-contact camp or village), CbGs-21 (Samuel de Champlain Provincial Park Site 8; a scatter), CbGs-22 (Samuel de Champlain Site 9; a pre-contact camp/lithic scatter/village), CbGs-23 (Long Lake Bluff; a pre-contact lithic scatter), CbGs-24 (Samuel de Champlain Provincial Park Main R; consisting of three large pre-contact pits), CbGs-25 (Gap #3; a pre-contact pit sectioned during excavation), CbGs-26 (Gap #4; a pre-contact hunting camp), and CbGs-27 (Samuel de Champlain Provincial Park Staff H; a pre-contact mining station). These sites are summarized in a 2003 report entitled *Stage 1 and 2 Archaeological and Heritage Impact Assessment, Samuel de Champlain Provincial Park, Calvin Township, Ontario*, and *Stage 2 and 3 Archaeological and Heritage Impact Assessment, Samuel de Champlain Provincial Park*,



Calvin Township, Ontario, both of which are on file with the Ministry of Tourism, Culture and Sport and at the offices in the Samuel de Champlain Provincial Park. While Dr. Slattery agreed to have his reports released to TMHC during this study and made an inquiry with park staff to do so, the reports were not released within the time frame required to complete this report. It is recommended that further effort be made in the future to obtain these documents prior to the commencement of an additional archaeological investigation related to this project. Continued effort to obtain some of the early archaeological assessment reports for which access is difficult should also be made.

2.2.4 Dates of Archaeological Fieldwork

The Stage 1 background research was carried out between April and November of 2012, with photo-documentation of existing conditions undertaken on November 5th to 7th, 2012, under cold and clear weather conditions.

2.3 Project Context: Historical Context

2.3.1 Pre-19th Century Native Settlement in Northern Ontario

There has been limited archaeological research in this part of Ontario; however, through archaeological evidence it is known that both the Nipissing District in general and the Mattawa River environs specifically witnessed significant First Peoples land use and settlement for a long period beginning at least as early as 10, 000 to 12, 000 years ago. The general study area was travelled, settled and used by Algonquin populations and their ancestors up to modern times. This section describes what is known about First Peoples settlement prior to the arrival of Europeans to the area, based primarily on existing archaeological site information and comparison with regional trends. A similar summary is provided in the following section for the period following the arrival of European explorers and traders to the area. This summary is derived solely from textual, secondary sources.

The archaeological record of the general area typically reflects patterns that are characteristic for both Southern and Northern Ontario, as one might expect of an area that is somewhat intermediary between these two geographically and environmentally distinctive zones. Some of the earlier periods of First Peoples settlement in the immediate area are more poorly known, largely due to lack of archaeological study and development-driven archaeological assessments, but also due to the fact that some of the more typical landscape features on which sites of these periods are found (e.g., glacial shorelines) are absent, not yet well-documented or now destroyed by aggregate extraction and other ground altering activities. More recent periods, such as the fur trade era (see Section 2.3.2.), are slightly better known due to historical documentation and modern interest in and use of portage routes which were a major focus of settlement and land use at this time.



Regardless of these challenges, a general cultural chronology for native settlement within the Nipissing District is provided here, extrapolated from similar areas in Northern Ontario. Only a very brief and general summary is provided and it should be noted that new archaeological research continues to contribute to the revision and refinement of this traditional cultural framework. The summary provided herein draws on several previously published general syntheses for Ontario (Storck 2004; Wright 1972), Northern Ontario (ASI 2011; Clayton et al. 1995; Dawson 1983), Northeastern Ontario (Conway 1981), North Bay (Pollock 2012) and the Southern Canadian Shield (ASI 2012). The purpose of this summary is to identify the major themes and time periods in past First Peoples settlement and to identify landscape and land use characteristics that might signal potential for sites of each type within the study area.

The Paleoindian Period

The first documented occupation of Northern Ontario followed the retreat of the glaciers. The first wave of human migration took place approximately 10,000 years ago, but was followed by a short period of glacial re-advance that effectively erased most obvious signatures of the earliest human occupation sites. Map 9 shows the approximate location of the Highway 17 study area in relation to glacial Lake Algonquin. Approximately 12,000 years ago glacial Lake Algonquin started to form and for the next 2,000 years the lake expanded steadily as the ice front retreated north, thus coinciding with the first documented human migration in Ontario. We know that the late phase of the melt waters of glacial Lake Algonquin flowed to North Bay. The latter area and its environs were covered by glacial lake waters until approximately 8,000 years ago although habitation would have been possible on the shorelines (Karrow 2004). From the outlets in North Bay, glacial Lake Algonquin drained east down the Mattawa River Valley and into several tributaries of the Ottawa River.

In general, when the glacial ice retreated, mobile hunting populations were moving northward into the region, presumably in pursuit of game. These people are identified archaeologically by large, bifacial fluted points and are referred to as “Paleoindians.” Local climate and environmental conditions gradually changed following the glacial retreat, opening up new niches for exploitation. These mobile groups began to exploit a greater variety of food sources. These highly mobile bands were dependent on caribou herds and followed their seasonal movements. Based on archaeological evidence, they adapted their tool kit accordingly. In Northern Ontario, Paleoindian tool forms include Plano points of various varieties. These were finely made, unfluted Lanceolate points with parallel ripple flaking, often made from silicified sandstone or taconite. Some of the best documented Paleoindian sites in Northern Ontario occur along the shore of Lake Superior just east of Thunder Bay, the best known of which are the George Lake, Cummins and Brohm Sites (on the Sibley Peninsula). At this time, the closest registered Paleoindian site is south of Sudbury in Killarney Provincial Park situated on Georgian Bay. It occupies the eastern end of the Precambrian mountains at



Sheguiandah. The site encompasses quartz ridges which were mined for toolstone by the Lake Paleoindian people.

There have been no Paleoindian sites registered within the Lake Nipissing-Mattawa study area. This absence of sites may be due primarily to the fact that the vicinity of North Bay and within the study area proper has not been archaeologically investigated for signs of early settlement. On the other hand, in Northern Ontario, the reason for the lack of Paleoindian and the subsequent Early Archaic period may be due to climate conditions. During the Paleoindian period, a remnant ice mass from the last glacial advance lay across the eastern outlet of Lake Superior, at the present city of Sault Ste. Marie. This maintained artificially high lake levels, producing the now inland beach ridges. Unfortunately, the glacial shorelines in the North Bay and surrounding area are poorly documented or obliterated (Karrow 2004). Toward the end of the glaciation period, the ice mass wasted away allowing the lake level to drop over 100 metres. The lowest levels were reached between 6,300 and 6,000 years ago. Since early populations would have had most of their camps on lakeshores, sites dating between the end of the Paleoindian period and in the subsequent early Archaic period may be largely underwater today.

Archaic

Beginning about 7,000 years ago, the archaeological record in Northern Ontario changed to incorporate new and diverse tool types representative of Shield Archaic cultures. Very few confirmed Early or Middle Archaic sites are recorded in the Canadian Shield and none thus far in the Mattawa area. However Archaic sites have been well documented around Lake Nipissing – Frank Bay Site (Ridley 1954), the Campbell Bay Site, and one on Garden Island (Dibb and Sweetman 1995). The Garden Island site contains an Early Archaic component and is one of the earliest sites documented in the general area.

It was during this period that the present day plant and animal communities were becoming established. Seasonal cycles and settlement patterns focussed on the migration patterns of the caribou, the primary source of food for these early hunters. The growth and exploitation of mature forests are indicated by the prevalence of woodworking tools (e.g., axes, adzes, chisels) in later Shield Archaic tool kits. Given the abundance of fresh water creeks, rivers and streams in the north, they no doubt provided important transportation routes for these mobile peoples, in addition to offering an ample supply of fish, waterfowl and other aquatic resources. Fishing became a more important subsistence base, and we could therefore assume many of the lakes and tributaries were travelled in the Mattawa area. Many of the archaeological sites of this period are adjacent to waterways.

In Northern Ontario, changes in climate and vegetation are evidenced around 6,000 years ago, followed by the expansion of a pine-dominated forest. There was a



cooling period at about 4,000 BC afforded by the rising of the Nipissing Great Lakes. A warming trend began shortly after and there were likely local habitat changes such as the immigration of new tree species and the emergence of the hardwood forest. At about 3,000 BC Lake Nipissing emerged and occupied the former beach of glacial Lake Algonquin. An isostatic rebound event at approximately 2,000 BC contributed to the development of water levels that are experienced today. These changes coincide with the emergence of copper woodworking tools, including adzes, axes, gouges and chisels. The tools were manufactured by hammering, grinding and polishing raw native copper into a useable tool form. Copper was a plentiful raw material in the Shield and was heavily utilized and traded by Shield populations. Copper fishing implements (hooks, harpoons, gorges) are also common.

In Southern Ontario, the archaeological evidence of the Archaic Period is quite different and traditional cultural chronologies document the emergence of the Laurentian Archaic by at least 6,000 years ago. Archaeological sites have documented the dietary reliance of southern Archaic populations on larger game, such as deer, elk, bear and beaver, in addition to fish, shellfish and wild plant foods, with targeted species exploitation fixed to a well-defined seasonal round. Archaic sites are identified through the occurrence of distinct flaked stone projectiles and ground stone tools. Presumed ceremonial items appear in the archaeological record for the first time as do spear thrower weights. It is postulated that the appearance of tiny projectile points during the later part of this period corresponds to the invention of the bow and arrow and there is archaeological evidence of substantial semi-subterranean houses also by the end of the period. During the Archaic period in both Northern and Southern Ontario, there is also evidence of significant long distance trade, as indicated by the local occurrence of conch shells from the Gulf of Mexico, shell beads from the Atlantic coast and exotic raw materials from various places across North America. Single occurrences of Shield Archaic copper tools, as well as unprocessed native copper, are also reported across Northeastern North America.

Documented Archaic sites in this “transitional” zone between more northerly and southerly archaeological traditions have generated diagnostic projectile points relating to technological traditions with presumed origins in the south, east and west. The archaeological documentation of Archaic components on the Shield is made difficult by poor soil development which does not always allow for the vertical segregation of material remains that are deposited in various time intervals and over long spans of time.

Better archaeological evidence exists for land use in the later part of the Archaic period, due to a higher prevalence of sites. Two distinct archaeological cultures are well-documented in the Mattawa Valley Corridor, the Shield Archaic characteristic of the boreal forest (2000 BC – 200 BC) and the Lake Forest Archaic (3500 BC – 200 BC), where sites are common along shorelines and a marine focus is evident. The Late Archaic Period witnessed the retreat of the Nipissing waters and the introduction of new tree taxa which transformed the white pine-dominated forest into a mixed northern hardwood



forest. People were adapting to the warmer environment which involved more diverse animal and plant resources. Exploitation of these resources required them being in specific places at specific times of the year, resulting in a set pattern of repetitive seasonal movements through a territory. The annual subsistence pattern involved interior fall and winter microband hunting camps in areas where there was large game, and larger spring and summer macroband settlements located near river mouths and lakeshores in order to exploit rich aquatic resources.

Woodland Period

The Woodland period is traditionally marked by the introduction of pottery about 3,000 to 2,500 years ago. The archaeological record of the period has been interpreted as the blending of old and new traditions, perhaps reflecting the entry of new populations into the area. In Ontario, the archaeological record of the Woodland period also documents some of the first substantial above-ground dwellings, elaborate burial ceremonialism and, by the end of the period, the first large semi-permanent villages on record. In Southern Ontario, the Woodland Period is divided into three time divisions: Early, Middle and Late. In Northern Ontario, specifically the Canadian Shield, the earlier segment of the Woodland period is poorly represented and until recently was assumed under the catch-all phrase “Initial Woodland,” which captures the time period typically assigned to the Early and Middle Woodland periods elsewhere in Ontario. Locally, there is evidence that the land use and material culture pattern established by Late Archaic cultures is essentially repeated, with the addition of pottery to the artifact inventory. Moose and beaver are documented in the archaeological record of this time as is wild rice. In some parts of Northern Ontario, large burial mounds were also constructed which were also common in the Ohio and Mississippi River valleys. Burial traditions show evidence of the use of red ochre and the collection of exotic raw materials and trade items.

Lake Nipissing and the Nipissing District fall at juncture of the Canadian Shield and Southern Ontario and therefore, the archaeological record of earliest Woodland occupations in the area incorporates characteristic Early Woodland material culture (i.e., Meadowood) more commonly found south of the Shield and artifacts assigned to the Initial Woodland Period of the Shield and Boreal Forest. However, no sites dating to the earliest part of the Woodland period have been identified in the Mattawa area to date and the Initial Woodland period is largely represented by sites associated with the Laurel Culture (1,500 to 1,000 years before present), often deemed a Middle Woodland manifestation. Laurel sites have been documented across the Canadian Shield, in northern Minnesota and Quebec. These share common characteristics, although regional and local traditions exist. Past research within the Mattawa Valley Corridor has defined two such local traditions, one described as Eastern Laurel (200 BC – 400 AD) and Trent River (300 BC – 400 AD). The archaeological record suggests that Laurel populations lived in riverine and lake environs, with large, seasonal aggregation sites found at prime fishing locations. Copper tools, net sinkers, bone harpoons, and side-notched projectile points are



common in the archaeological record of this period, which also shows influence from Middle Woodland Hopewell populations from the Ohio River Valley (e.g., burial mounds, platform pipes). Large burial mounds are known in several places including Killarney, northeast of Georgian Bay. The ceramics were finely made, thin wares with numerous rows of stamped patterns. Other sites dating to the Initial or Middle Woodland in the general area are known at the Frank Bay Site (Ridley 1954), Garden Island (Dibb and Sweetman 1995), on the Manitou Islands and at Camp Island on the Mattawa River.

The Late Woodland Period in Southern Ontario documents the establishment of larger settlements, some of which are semi-permanent villages, and the continuation if not expansion, of long distance trading networks. In southern Ontario, the best archaeologically documented Terminal or Late Woodland populations are the Wendat (Huron), Tionontati (Petun or Tobacco Nation), and Attawandaron (Neutral), Iroquoian nations who were described in chronicles written by various European explorers and missionaries who arrived in the late-16th and early 17th centuries and documented a well-established lifestyle based on hunting and the cultivation of corn, beans and squash. Archaeological evidence of cultigens appears circa A.D. 500 - 900. These groups are depicted as living in large palisaded villages comprised of extended family dwellings called longhouses. However, these Iroquoian groups were not local to the Mattawa area, although they regularly travelled up and down the river on trading, hunting and other expeditions, as evidenced by the presence of small camps and portage sites bearing distinctive Iroquoian artifacts, like thin walled pottery with geometric designs. The study area rests to the northeast of the 17th century homeland of the Wendat confederacy of nations. The French River - Lake Nipissing – Mattawa River environs were known to have been travelled by Wendat traders, many of whom were venturing to visit and trade with various Anishnabek populations with whom they were allied and exchanged corn for furs and other local items. In the later post-contact period, furs provided a staple of the French trade at Quebec. Wendat (or otherwise Iroquoian inspired) pottery has been found along the Voyageur Route, in the Nipissing District, and along the shores of Lake Superior, Lake Nipissing and other small water bodies. By the time that Europeans first ventured into Ontario's heartland, an extensive system of exchange had already been developed between the Nipissing, Odawa (Ottawa), Ojibwa and Cree groups in northcentral and northeastern Ontario and the Wendat (Huron) and other Iroquoian groups to the south. The Nipissing were important allies and trading partners to several of the Wendat nations and are regularly described in the letters and diaries that were written by Samuel de Champlain and various Jesuit missionaries.

Late Woodland artifacts vary regionally across Northern Ontario and in the Nipissing District. Three general ceramic traditions (Blackduck, Selkirk, and Iroquoian) are known in Northern Ontario, although more variety is shown in northwestern Ontario where traditions were influenced by pre-Assiniboine Siouian populations further to the west and south. Blackduck is a prominently Middle to Late Woodland Boreal Forest manifestation (circa A.D. 600 to A.D. 1600) extending from Lake Superior to the western boundary of Manitoba (Hamilton 1981:22). Blackduck material culture is characterized



by globular pottery vessels decorated with punctates and cord-wrapped dowel impressions. Selkirk pottery is characterized by vessels with differing textile impressions on the body and neck, with decorative punctates and cord-wrapped dowel impressions on the lip (Hamilton 1981:23); this archaeological manifestation extends as far west as the north shore of Lake Superior and overlaps the geographic range and time period of Blackduck (~ 900 A.D. to the proto-contact period) (Hamilton 1981:23). Iroquoian ceramics are found throughout Southern Ontario, Quebec and in portions of Northern Ontario. Although there are temporal, regional, tribal and confederacy distinctions, Iroquoian vessels are usually smooth surfaced, globular vessels with simple to complex incised, trailed or stamped geometric motif on the shoulder and collar. An archaeological investigation in the Mattawa River Corridor indicates that approximately AD 800 the Mattawa River was used by Nipissing hunters and fishers. Sites registered as “villages” are also in proximity to the study area. It is also thought that there is an Iroquoian village/settlement along the shore of Pimisi Bay (Personal communication: John Whalen, November 6, 2012) (Image 121).

2.3.2 European Arrival and the Fur Trade

The Nipissing District was populated by the Nipissing at the time that the first Europeans arrived in the area and recorded details of First Peoples settlement in the early 1600s. Étienne Brûlé in 1610 and Samuel de Champlain in 1615 were the first Europeans (French) to travel into Nipissing District, through a long-established trade and travel route along the Mattawa River. This “Voyageur Route” crossed the very south end of Nipissing District, up the Ottawa River to the Mattawa River and Trout Lake. From Trout Lake, the explorers traveled down LaVase Creek to Lake Nipissing and the French River which flows from the Nipissing District and into Georgian Bay. The latter provided passage to Lake Huron. This “Voyageur Route” was the main route of travel from Quebec to the western portion of Upper Canada and was central to the fur trade.

Samuel de Champlain recorded in his journal that his voyage through the Mattawa River Corridor was very treacherous and dangerous (Clayton et al. 1995:7). He also stated:

“....it is quite a wilderness being inhabited by Algonquin Indians who dwell in the surrounding area and live by the fish they catch in the ponds and lakes with which they country is well provided” (Clayton et al. 1995:8).

Champlain describes the area between the Mattawa River (which he called the river of the “Algonkins”) and his journey to Lake Nipissing as pleasant to look at, and refers to it as the “land of which canoes are carried” (Champlain 1567-1635, Vol. VI: 244). He referred to the Ottawa-Mattawa route as a canoe route where the Algonquin and Huron are anxious to develop more direct contact with the French (Jaenen, ed. 1996:90). Champlain also remarks that the soil was cultivated very little (Champlain 1567-1635, Vol. IV:232). His journals imply that unlike the Iroquoians of Southern Ontario, the local



populations in the Mattawa area were subsisting on hunting, fishing, and gathering and had not supplemented their diet through crop cultivation. Champlain's exploration led to the first European mapping of the region in 1632. While local Algonquin speakers lived permanently here, the Mattawa area was a meeting place where the Huron (Wendat), Nipissing, and other groups all stopped to hunt, rest and repair canoes (Clayton et al. 1995:9). Canoe traffic along the river was regular as it was said that, during the early years of the fur trade, it was not uncommon to see Wendat fur laden flotillas ranging from a few canoes to as many as 150.

The Jesuits reached Mattawa in 1640. In 1649 and 1650 the Iroquois attacked the Nipissing and the Huron-Wendat (Clayton 1995:12) causing a major exodus out of the area; the Huron fled north and west. In 1671 Nipissing populations returned to the area to hunt around the Mattawa River (Clayton et al. 1995:12). From this point forward, local Algonquin groups continued their use of the Mattawa River and Voyageur Route and live off the land. The current study area falls within the traditional territory of the Algonquins of Ontario.

The development and continuation of the 17th century fur trade in Mattawa witnessed the arrival of small numbers of European settlers, many of whom also focussed their lives and duties on the river. Clusters of shanties were erected, adjacent to the river, some of which were referred to as "forts" which were built to facilitate the fur trading business of the Nipissing District area (Barnes 1982:12). In the 18th and 19th centuries, the Mattawa River formed a part of a 4,000 kilometre trade route that stretched from Montreal to Fort Chipewyan on Lake Athabasca; a complete trip along the fur trade route could easily take some four to five months (Harting 1996). The amount of fur traded each year was enormous. For example, in 1806 a fur warehouse in Fort Kaministiquia (Fort William in Thunder Bay) recorded 77,500 beaver furs in storage for that year alone, a number roughly equalling 50 tonnes (Harting 1996). The kinds of goods that flowed through the route during the May to October canoe season ranged from standard items such as pots, pails, kettles, knives, axes, guns, lead shot and musket balls, canisters of gunpowder, pieces of iron and other metals, traps, hats, blankets, jewellery, tobacco, hams, grease, sweets, brandy, rum, wine, flour to specialized items like cutlery, dishes, housing goods, and religious paraphernalia (Harting 1996:55, 66). By the 1840s, silk began to replace fur as the preferred fabric, leading to the decline in the fur trade, although trade in furs on a much smaller scale did continue for some time. Despite the regular use of watercourses, the nature of the fur trade meant that traders only established temporary camp sites, usually for only one night, so little labour was invested. It is most likely that these campsites were located along the banks of waterways, especially along the portages made to avoid the rapids.

In 1926, the Mattawa "Voyageur Route" was designated as a site of national historic significance for its role in opening up western exploration. In 1930, the Historic Sites and Monuments Board of Canada erected a bronze plaque commemorating the voyageurs' route in the Town of Mattawa, Ontario. The text of the plaque reads: "*Le*



Portage Mattawa, Main route to the Great Lakes, Plains, Rockies and beyond, used by the Indians, Explorers, Traders and Missionaries, French and English. Upon its traffic was founded the early commercial prosperity of Montreal.”

2.3.3 Mattawa/North Bay Algonquin First Nation

*(*Summary from the Electronic Resource: Mattawa/North Bay Algonquin First Nation, Mattawa, ON)*

The word Algonquin comes from the Malecite word meaning “they are our relatives.” Champlain realized that this group, which he referred to as “Anishinabeg,” were the key to his success if he were to make his way inland to the Mattawa area. It became important for every fur trader to learn the Algonquin language, since it formed the root of many other Aboriginal languages.

The Mattawa area is included in the Algonquin traditional territory. Ancestors of the Mattawa-North Bay Algonquin used Mattawa, which means the “meeting of the waters”, as a staging point to rest and repair their birch bark canoes prior to navigating the Mattawa River for hunting and delivering furs. Doug Mackey states that “two groups of Algonquin’s under Antoine Kiwiwisens and Amable du Fond settled in Mattawa more permanently in the 1800s. Their hunting territory was to the northwest and southwest of the Mattawa River respectively. However, a formal reserve was never established under land treaty or sale. The Algonquins of Ontario (AOO) asserts that its people have not surrendered their lands (First Nation website:

<http://www.mattawanorthbayalgonquinfirstnation.com>)

2.3.4 Historic Euro-Canadian Settlement and Land Use

Townships of Bonfield, Calvin and Papineau in Nipissing District

By the mid-19th century concerted efforts were being made by the Crown to open up settlement in North, through the negotiation of land deals with northern First Nations. New industries emerged at this time. Following the wane of the fur trade in the mid-19th century the Euro-Canadian population in the Nipissing District and in Northern Ontario began to increase slowly as new industries were established. Settlement was still focussed on the river and major waterways, which provided ease of transport and water power as needed. Lumbering emerged as a major post-fur trade industry; its origins were modest and throughout the first half of the 19th century there were a number of logging operations established, although these were small and independent businesses, with many consisting of not more than small shanties that were used to house lumberjacks and equipment (Clayton et al. 1995:19). The early lumber industry made use of existing native trails and transportation routes; this is made clear in an 1869 painting by Frances Anne Hopkins (Image 133) who regularly travelled the canoe routes with her husband, Hudson’s Bay Company official Edward Hopkins.



Commencing in the mid-19th century, significant watercourses were used to drive and transport logs for sale. The 1881 land surveyor's notes for Calvin Township report on the use of the continuous route formed between Pautois Creek, the Amable du Fond River and the Mattawa River. After trees were cut in winter, they would be sent downstream to Ottawa once the ice melted in May or June, through the chutes in the Amable and the Mattawa Rivers (Personal communication: John Whalen, November 6, 2012). A 1910 postcard (Image 134) depicts a typical log chute used to manoeuvre logs down the rapids near Mattawa. One of the challenges of the shipping lumber by watercourse was the presence of rapids. While in the winter the frozen route of the winter might be travelled by horse and sleigh, during the warmer months the same portage routes used by fur traders were utilized by the loggers who would have had to establish resting points along the way. It is said that loggers could traverse about 26 km per day (the distance a horse could travel in that time frame) (Personal communication: John Whalen, November 6, 2012) and therefore one might expect small camps and stopping points, separated by this set distance, at regular intervals along the shipment route.

Despite it being the focus of some early industry in the early- to mid-19th century, the Nipissing District was not overseen by the provincial government until 1872 (Bullock et al. 1979). By the 1870s lumberman William W. Mackey had acquired 21 properties in the Township of Calvin, most of which were around Crooked Chute Lake and Smith Lake. Mackey flowed large quantities of timber to the Mattawa River and in order to do this he constructed numerous slides and dams on the Pautois and Amable. Agricultural land grants were made following formal surveys, as farmers cleared the more productive portions of the District where adequate soils were present and well-developed. Although established in the 1880s, the Townships of Bonfield, Calvin and Papineau were not formally incorporated until 1887 (ARA 2012:24), after which time the population grew and a more rural/agricultural lifestyle emerged as settlers arrived and cleared more available land for agricultural production (ARA 2012:24). Settlement was encouraged by the freeing up of 100 acre lots under the *Free Grants and Homesteads Act* (ARA 2012:24). Just as the Township of Calvin was well known for its logging, the Township of Bonfield heralded praise for its agricultural production. One of the early staple crops was wheat, while the 1881 land surveyors notes for Calvin Township reported there were a “few large farms...that continue[d] to give crops of hay, oats” (Tallon 1881:2).

By the late-19th century small farming communities began to emerge on the Bonfield Township landscape and corduroy roads were constructed to connect major logging and agricultural centres to portage routes (Personal communication: John Whalen, November 6, 2012). Passage through the District was further enhanced in 1881-1882, when the Canadian Pacific Railway began extending their rail line northward through the Nipissing District and along the eastern and northern edges of Lake Nipissing (Barnes 1982:20). Settlement was further assisted by the extension of the Canada Central Railway to Mackey in 1880 and Mattawa in 1881; the latter route was initiated in Brockville in 1859 and connected the latter settlement to Smiths Falls, Arnprior, Renfrew and Pembroke, with small feeder lines to Ottawa and Perth. The town of Rutherglen



developed in conjunction with the opening of the Canadian Pacific Railway in 1881 and further growth in the area came with the construction of the Temiskaming and Northern Ontario Railway, between North Bay and James Bay, by 1902. The latter railway winds its way along the south side of the affected portion of Highway 17, following the north edge of Johnston Lake and Smith Lake at Amable du Fond.

The earliest roadways in the area were constructed prior to municipal survey and their building was funded primarily by lumber tycoons, such as Mackey and Booth, who required access between their major logging centres. The latter named gentlemen were responsible for the building of the “Pembroke and Mattawan” colonization road built in 1856 and 1857 (ARA 2012:21), a section of which forms part of the current route of Highway 17 (although not that portion within the study area established for this project. Highway 17, itself, was constructed beginning in 1929, with full pavement between North Bay and Mattawa by 1949 (Clayton et al. 1995:30). Some of the early lumber roads are illustrated on Maps 10 to 13. Modern day Pautois Road, west of Boundary Road in Lot 6 of the Geographic Township of Calvin, follows the path of the historic “River Road” (Image 97) that ran between Moore Lake and Mattawa Road following the east bank of Pautois Creek. A portion of the current Highway 630 route also follows was a former logging trail along the Amable du Fond (Mackey 2007:11). The 1881 survey of the Township of Calvin (Map 13) shows the plan for regular concession roads to be cut through, although it is clear from modern maps that many of these roads were never constructed as major obstacles stood in their way.

Mattawa

Meaning “Meeting of the Waters” in Ojibwa, Mattawa is a community just east of the study area at the confluence of the Mattawa and Ottawa Rivers. It was a prominent trading and resting point both prior to and during the fur trade. In 1784 the Northwest Company established *Mattawa House* at a low point between the two rivers, in order to facilitate trade between the *Coureur de Bois* and local native groups; however, there was no permanent post on the Mattawa River until the Northwest Company merged with the Hudson Bay Company in the 1830s (Morel, ed. 1980:31). Euro-Canadian settlement did not grow in Mattawa until the 1860s, when farmers began to clear the more productive areas where adequate soils were present. Settlement grew in Mattawa with the construction of the railway (CCR, CPR) in 1881. By 1883 Mattawa was incorporated as a village (Morel, ed. 1980:31) and by 1884 its population comprised 165 families (Bullock et al. 1979). In 1971 roads were built from Mattawa to facilitate access to interior lumber stands.

Eau Claire and Eau Claire Station

The Mattawa and Ottawa Rivers were important transportation and trading routes for several Algonkian and Ojibwa speaking groups (Montagnais-Antoine and du Fond clans) (Steer 1953:8). In the early 1800s the Amable du Fond family, from near



Montreal, moved to Mattawa in search of hunting and trapping grounds. Amable du Fond established an early residence in Mattawa but had hunting and trapping operations throughout the area. du Fond and loggers established a trail along the east side of the Amable du Fond River (a portion of the historic “River Road”), which later would form part of the route of Highway 630. A section of du Fond’s road is within the study area (Images 51, 61, 68, 74 and 75) and crosses the railway at Eau Claire Station, a small station site. The community of Eau Claire proper is further south, at the crossroads of Peddlers Drive and Highway 630 (Images 51 to 54).

Amable du Fond owned Manitou Farm in Eau Claire, presumably along Suzannes Road (formally Old Susanne Road) (Images 57, 60 and 63) on Manitou Lake (Image 135). Five years after its formal purchase in 1888, the area was designated a provincial park and the du Fond family was compensated for having to leave their farm. The du Fond family played an important role in the development of the area and their descendants continue to do so (Mackey 2007:13). The river, the Amable du Fond, bears their name as a tribute to the family.

The Amable du Fond is the most significant watercourse that intersects the study area. The river’s availability for moving logs from Algonquin Park and surrounding area was crucial to the development of the logging industry in the Mattawa area (Mackey 2007:13). Many dams and log chutes were constructed on the river to control water flow and to bypass the rapids. Today visitors can view the log chute as well as a squatter’s log cabin from Gorge Park in Eau Claire. Images 50a and 50b depict the location of the Gorge Park Conservation Area.

A prominent lumberman, W. William Mackey worked the Amable du Fond out of Eau Claire (now Eau Claire Station) in the 1870s (ARA 2012:25), although he had established operations here by 1859 (Image 136) (Mackey 2007); Eau Claire Station was initially named Mackey’s Mill (Mackey 2007:13). Mackey occupied a significant acreage of land along the Amable du Fond River before Calvin Township was surveyed and constructed a saw mill at the twin bridges (Images 70 to 72; Image 69). It is reported that some of the mill structures can still be seen (Mackey 2007:15) (Image 71). Map 13 illustrates the location of Mackey’s mill in 1881 (Sawmill Structure), and Image 137 is a photograph of the Mill. Mackey built a dam and dug a channel under the south bridge where he installed two turbines to drive the saws; he also constructed lumber roads on the east side of the Amable du Fond River (Image 71). According to historical records, W. William Mackey also built a boarding house for employees, a home for himself, a post office (Image 69) and other buildings in Eau Claire [Station] (Mackey 2007:15). In 1881 it was proposed that the Canada Central Railway would build a spur line to Mackey’s saw mill at the head of Crooked Chute Lake (Image 75). It was completed in 1894 and the stop was named Eau Claire Station (ARA 2012:25). In 1902 Mackey disposed of much of his property here; the store was sold to Andrew Ryan (Mackey’s manager), the mill was purchased by J.R. Booth and the remaining land was auctioned off (ARA 2012; http://www.pastforward.ca/perspectives/june_132003.htm). Booth was another prominent



lumberman in the area; he owned a farm on Kiosk Road (now Booth Road) in Eau Claire (Image 136). While Eau Claire Station was once extensively cleared land (Image 138), it is now primarily used as a trailer park (Image 73). The community still contains an early school house (Image 68) built in 1929 (ARA 2012). Despite the growth of EuroCanadian industries and settlement, local native groups continued to use the Amable du Fond lands into the 20th century (Image 139) for hunting, trapping and settlement.

Historical Features Illustrated within the Study Area

The current study area is located within the historical Township of Bonfield (Lots 20-29, Concession 11; Lots 19-35, Concession 10; Lots 29-35, Concession 9; Lots 18-35, Concession 8; Lots 18-35, Concession 7; Lots 21-35, Concession 6; Lots 24-35, Concession 5; Lots 29-35, Concession 4; Lots 23-35, Concession 3) and the historical Township of Calvin (Lots 34-36, Concession 11; Lots 16-36, Concession 10; Lots 10-36, Concession 9; Lots 1-36, Concession 8; Lots 1-36, Concession 7; Lots 1-36, Concession 6; Lots 1-36, Concession 5; Lots 1-33, Concession 4; Lots 1-17, Concession 3; Lots 1-10, Concession 2).

The 1881 *Plan of the Township of Bonfield* (Map 12) does not illustrate any structures or built features on individual lots, but does show the railway route. More details are provided on the 1881 *Plan of the Township of Calvin* (Map 13). Table 2 lists the historical features (by lot and concession) on the latter named plan.

Table 2: Historical Features Shown on the 1881 Map of Calvin Township

Concession	Lot	Owner/Resident(s)	Illustrated Feature(s)
8	8	Unknown	<ul style="list-style-type: none"> Along “River Road” the follows Moore’s Lake Two structures illustrated within a cleared area
8	18	Mackey’s Mill	<ul style="list-style-type: none"> Sawmill illustrated on the “1st Chute” between Crooked Chute Lake and Smiths Lake
6	18	Unknown	<ul style="list-style-type: none"> Area labelled as “Landing Place” - refers to the Eau Claire Conservation Area (Log Chute and rapids)
6	20	Unknown	<ul style="list-style-type: none"> “2nd Chute”- along the Amable du Fond River
4	17 & 18	Unknown	<ul style="list-style-type: none"> Area marked as “Clearing”- trail and four structures within clearing but outside study area (note the area could not be seen in the property inspection)



Summary of Previously Identified Built Heritage Features in the Study

A review of the heritage resources documented by Archaeological Research Associates Inc. (ARA 2012) identifies structural features associated with Euro-Canadian (largely post-fur trade) developments, although many of the cultural heritage landscapes have strong associations with First Nations communities (ARA 2012:12). Table 3 identifies 26 heritage resources within the study area; the majority of these structures were constructed prior to 1900 which establish them as features marking archaeological potential.

Table 3: Built Heritage Inventory for the Study Area (ARA 2012:33-34)
(italics indicate pre-1900 structures that affect archaeological potential)

Property No.	Address and Date of Construction	Name and Heritage Attribute(s)
1	<i>1376 Highway 17; established 1883</i>	<i>St. Margaret of Scotland Anglican Church; church and cemetery have a long standing association with the local community; local landmark.</i>
2	1350 Trunk Road; established 1930	Mount Pleasant United Church; church has a long standing association with the local community; local landmark.
3	40 Park Street; established 1882 with railway	Not named; eclectic house associated with a rail stop
4	497 Rutherglen Line; established ca. 1920-1950	No name; Box Bungalow house.
5	<i>411 Fichault Road; established ca.1865-1900 with barn ca. 1880- 1920</i>	<i>No name; Gothic Revival house with barns that are fairly early for this area; structures serve as touchstones to the agricultural past of the area</i>
6	<i>1196 Development Road; established ca. 1865-1900 with barn ca.1860-1880</i>	<i>No name; Gothic Revival house and Gabled Roofed Barn; structures serve as touchstones to the agricultural past of the area</i>
7	<i>1245 Development Road; established ca. 1860-1900</i>	<i>No name; Vernacular houses are older residences for the area</i>
8	<i>1047 LaPlante Road; established ca. 1865-1900 with barn ca. 1880- 1920</i>	<i>Walkers Tree Farm; Gothic Revival house and Gambrel Roofed Barn; structures serve as touchstones to the agricultural past of the area</i>
9	<i>747 Mount Pleasant Road; established ca. 1865-1900</i>	<i>No name; Gothic Revival house, older structure for the area</i>
10	<i>905 LaPlante Road; established ca. 1865-1900 with barn ca. 1880- 1920</i>	<i>No name; Gothic Revival house and Gambrel Roofed Barn, both fairly old structures for the area and touchstones to the agricultural past</i>



Table 3: Built Heritage Inventory (ARA 2012:33-34) (continued)
(italics indicate pre-1900 structures that affect archaeological potential)

Property No.	Address and Date of Construction	Name and Heritage Attribute(s)
11	307 Highway 630 North; established ca. 1865-1902	<i>No name; local example of an early mercantile structure; formerly 'Ryan's Store' – built by W. Mackey and given to A. Ryan in 1902, it was one of the first general stores in the area (Gould 1987:93)</i>
12	321 Highway 630 North; established ca. 1929	No name; late example of a log structure; former SS#4B (Eau Claire School) built in 1929 and in operation until 1946 (Gould 1987:86)
13	991 Highway 630 North; established 1955	Eau Claire Missionary Church; significant local landmark.
14	998 and 1002 Highway 630; established ca.1865-1900 with barn ca. 1860-1880	<i>No name; log house and gambrel roofed barn are early structures that serve as touchstones to the agricultural past of the area</i>
15	1682 Peddlers Drive; established 1900-1945	No name; a fair local example of a Colonial Dutch Revival period house
16	1331 Peddlers Drive; date unknown	Calvin Community Centre; possible former schoolhouse site; plaque has been removed from commemorative cairn out front
17	1282 Peddlers Drive; established ca. 1865-1900	<i>No name; Vernacular – Gothic Revival building is early in the area; a prominent landmark during the First World War (Simon Stein's Cheese Factory); closed in 1919; the cheese factory became the local post office from 1930–1950 when Mr. Stein became the postmaster (Gould 1987:154).</i>
18	1277 and 1285 Peddlers Drive; established 1947	No name; Arts and Crafts structure; Original SS#4 (last building used) has now been converted into a duplex; the building was built in 1947 in order to accommodate the growing number of students (Gould 1987:86)
19	1007 Peddlers Drive; established ca. 1865-1900	<i>No name; Gothic revival style house in log construction; contributes to the heritage character of the area.</i>
20	367 Peddlers Road; established ca. 1865-1900 with barn ca. 1860- 1880	<i>No name; Gothic revival style house done in log; contributes to the heritage character of the area.</i>
21	221 Peddlers Drive; established ca. 1865-1900	<i>No name; Vernacular – Gothic Revival house is fairly old structure for area</i>



Table 3: Built Heritage Inventory (ARA 2012:33-34) (continued)
(italics indicate pre-1900 structures that affect archaeological potential)

Property No.	Address and Date of Construction	Name and Heritage Attribute(s)
22	<i>470 Daventry Road; established ca. 1865-1900 with barn ca. 1880-1920</i>	<i>No name; Vernacular – Gothic Revival house and Gambrel Roofed Barn are early structures for the area and serve as touchstones to the agricultural past</i>
23	521 Homestead Road; established ca. 1900-1945 with barn ca. 1880-1920	No name; Craftsman period house - fairly uncommon in the area; Gambrel Roofed Barn may be quite early; structures serve as touchstones to the agricultural past of the area
24	255 Homestead Road; established ca. 1900-1945 with barn ca. 1880-1920	No name; fairly early structures for the area; Arts and Crafts period houses are uncommon here; structures serve as touchstones to the agricultural past of the area
25	<i>39 Homestead Road; barn established ca. 1887 with another ca. 1880-1920</i>	<i>No name; barns only; Gambrel Roofed Barns are early structures for the area that serve as touchstones to the agricultural past of the area</i>
26	<i>No address found (±100m NW of 308 Talon Crescent); established ca. 1880-1920</i>	<i>No name; Vernacular structure may be associated with the construction of the railway.</i>

In addition to these identified structures, there has been a corner of a stone church identified in Lot 6, Concession 5, Calvin Township, according to the *East Nipissing Heritage Inventory* (Bullock et al. 1979) (Image 92). The 1881 the *Plan of the Township of Calvin* does not depict such a structure here, but Pautois Creek and River Road trail do intersect the lot (Map 12) (Images 95, 96, and 97). Perhaps there was a structure in the northwest corner of the crossroads of Peddlers Drive and Pautois Road; Pautois Road in Lot 6 follows the path of historic River Road (Image 97).

2.4 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, archaeological potential can be evaluated for lands within the study area.

According to the map-based review, the study area contains or is in proximity to features signalling archaeological potential. These features include: 1) pre-1900 historic transportation routes (i.e., all significant watercourses, related portage routes, early fur trade/logging roads, railway); 2) long-used native trails and portage routes (Map 14); 3) documented pre-20th century logging centres, mill sites and related water features; 4) registered archaeological sites. Current aerial photography suggests that much of the land within the study area has not undergone significant development since 1900.



2.5 Recommendations

The map-based background study established numerous features of archaeological potential within the general study area but also indicated the presence of some features (like slopes and wetlands) that also signify low potential for the discovery of intact archaeological deposits. Further, while a review of aerial photography denotes fairly undeveloped land within the majority of the study area, lands with prior significant disturbance are also present. As such, a preliminary field inspection was recommended in order to better document existing conditions and more accurately prepare a preliminary map of archaeological potential so as to assist in planning for route selection.

3.0 STAGE 1 PROPERTY INSPECTION

A preliminary property inspection was also undertaken for the study area, specifically along the affected portion of Highway 17. This was done in an effort to get a better sense of existing conditions along the highway and to further identify features of archaeological potential that might otherwise not be obvious on the mapping consulted for the project. In a general sense, it was also important to establish notable areas where land development and prior disturbance have negated potential for the recovery of intact archaeological deposits. Subsection 1.3.2 of the 2011 *Standards and Guidelines for Consultant Archaeologists* (MTC 2011) 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.

Nonetheless, 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.

Our roadside survey was precursory in so far as it was only meant to collect baseline data for use at this stage of the project. More detailed field review is required once the preferred highway improvements plan has been prepared.

3.1 Field Methods

According to Province of Ontario's 2011 *Standards and Guidelines for Consultant Archaeologists* (MTC 2011), a Stage 1 property inspection must include:



- sufficient inspection coverage to identify the presence or absence of any feature of archaeological potential;
- confirmation that previously identified features are present within the study area (e.g., determining if watercourses and land formations are still extant and have not been impacted by urban development or that they are not artificial);
- documentation of any additional features of archaeological potential not visible on mapping;
- documentation of features that will affect recommendations for further assessment strategies (e.g., woodlots and overgrown vegetation that does not allow ploughing); and,
- documentation of structures and built features that will affect assessment strategies (e.g., heritage structures or landscapes, cairns, monuments or plaques, cemeteries).

The Stage 1 property inspection was conducted on November 5 to 7, 2012 in cold and sunny to overcast weather and therefore under appropriate lighting and weather conditions. Features of archaeological potential identified during the Stage 1 background study were identified and photo-documented in the field. In addition, the study area was examined for unmapped features of archaeological potential (e.g., minor watercourses, historical structures, building foundations, etc.).

Since the Highway 17 study area was large, the field assessment was conducted by spot-checking for archaeological potential features, paying particular attention to watercourses. The highway corridor was examined from the roadside (publically accessible lands). This limited our ability to investigate all areas for features of archaeological potential but further review can be undertaken prior to or during subsequent stages of investigation. The results of our documentation of existing conditions and subsequent evaluation of archaeological potential are described below, in Section 3.2, and presented on Map 15 (west portion of study area), Map 16 (central portion of study area), and Map 17 (east portion of study area) with Images 1 to 131 documenting existing conditions.

3.2 Mapping of Archaeological Potential

The practise of evaluating archaeological potential is a useful tool in a Class EA study as it allows for the identification of areas with negligible potential (in which route construction is more desirable from an archaeological perspective) and the recognition of areas that retain potential for the discovery of archaeological resources and require further investigation prior to construction. As previously discussed (see Section 2.1, above), the Province of Ontario has established criteria for determining archaeological potential in Northern Ontario and within the Canadian Shield. These criteria can be divided into four major categories: 1) known archaeological sites, 2) physiographic features, 3) cultural historic features, and 4) application or region specific information. When done in conjunction with a property inspection, a Stage 1 archaeological



assessment establishes archaeological site potential by identifying features of archaeological potential derived from background research and assessing these in conjunction with a visual documentation of existing conditions. For this study, features of archaeological potential were mapped with ArcMap 10.1 Geographic Information System (GIS) software and appropriate distance buffers were established to generate maps of zones with archaeological potential.

Known Archaeological Resources

Based on 2011 *Standards and Guidelines for Consultant Archaeologists*, lands in Northern Ontario within 150 m of a known archaeological site are considered to have archaeological potential. This potential criteria affects small areas along the north boundary and in the northeast portion of the study area. For the most part these lands are in their natural state, save where infrastructure exists.

Physiographic Features

Based on known archaeological site locations and background research, certain physiographic features were particularly attractive for past occupation. Watercourses are a key determinant of archaeological potential, especially with regard to Northern Ontario and this particular study area. Even though it is difficult to determine the precise nature of local paleo-environments, for early native and European settlers, large watercourses served a variety of functions by providing vegetation-free navigable transportation corridors, fish and game habitats, sources of potable water and plants for food, medicine and raw materials and a source of power for early industry. Smaller streams may have served only one or a few of such functions. An archaeological potential buffer of 150 metres was established around each source of water (e.g., lake, river, creek, wetland, intermittent streams, swales). This is a larger distance than the required 50 metres under provincial survey standards (MTC 2011:35) but is meant to act only as a general guide at this point, as more refined mapping is required to precisely map the limits of watercourse edges and valley lands. The banks of the Amable du Fond River (Images 71, 72, 123, and 127), Sharpes Creek, Bluseal Creek (Images 6, 7, and 19) and Pautois Creek (Images 95, 96, 108, 124, and 125) were routinely used by native and European settlers as stop-overs during portages and canoe travel.

Other physiographic features of importance for identifying archaeological potential include elevated topography (e.g., terraces, plateaus), soil and drainage, as well as unusual land formations (e.g., waterfalls, rock outcrops, caverns, mounds) and former shorelines (i.e., sources of water). The general study area contains numerous areas of elevated topography, as well as the north-south trending Rutherglen kame moraine in the central-eastern portion of the study area and associated with the shoreline of former glacial Lake Nipissing (Image 32) (AECOM 2012). These features were mapped as features of archaeological potential and buffered by 150 metres. Glacial shorelines were a focus for human occupation and subsistence because they may have offered a diversity of



micro-habitats along exposed strands, favoring persistence of arctic plants as well as herbivores, and perhaps offering respite from the general closing of forest cover in the Paleoindian period. Other landscape features may have offered natural resources, these including shoreline areas where plants could be harvested and mine and raw material sites, such as the mica mine and bedrock formations within the study area. When identified (our list is not yet comprehensive without more detailed field review), these features were also mapped and buffered by 150 metres.

Cultural-Historic Features

Cultural and historical features built or present on the landscape also affect the likelihood of lands to house archaeological resources. Within the current study area, these include buildings of pre-1900 construction, roadways and former trails, portage routes, mill sites but could also include bedrock formations that were significant to local Algonquin populations.

The early transportation routes considered in this study include the major water sources (perennial) and their rapids (e.g., Images 6,7, 9, 19, 30, 42, 43, 44, 47, 48, 62, 71, 72, 94, 95, 123, 124, and 127), native trails (e.g., Images 51, 61, 68, 74 and 75 [Highway 630]), early roads used for fur trade and/or logging (Image 97), early concession roads (e.g., Image 30 and 31), and the Canada Pacific Railway (e.g., Images 3, 15, 75, 88, 104, and 127). These routes were buffered by 150 metre to establish their effected zones of archaeological potential.

The standing heritage buildings identified previously (ARA 2012) were also mapped and a 150 metre buffer was established from them to signify areas of archaeological potential. It is not uncommon for extant buildings to be associated with buried archaeological deposits like refuse pits, privies, and demolished outbuildings. Built heritage features also included documented cemeteries and family burial grounds (e.g., Images 23, 28, 29, 65, and 66) which pose major planning concerns for route selection as these must generally be avoided by all construction. Churches also form part of the built heritage inventory considered here; these include the extant historic churches, Mt. Pleasant United Church (Images 11 and 14) and St. Margaret Anglican Church (Images 13 and 15) in Rutherglen, as well as two locations in the historic Township of Calvin that were identified as being the possible locations of former church buildings (i.e., property 370 Highway 630, now Maxwell Pottery and represented by a cairn [Image 67]) and Lot 6, Concession 7 (Image 92). Our preliminary visual inspection of the study area documented additional possible built heritage features: 1) a probable remnant of a log shanty (Image 7); 2) a possible historic stone foundation (Image 110); and 3) early historic bridges (Image 9 and 30). Areas of early settlement were also mapped and buffered, including clusters of structures marked on the 1881 Township of Calvin map, crossroad and railroad communities of Eau Claire and Eau Claire Station, and the CPR-related community of Rutherglen.



Application or Region Specific Information

The general study area and Mattawa River environs are particularly known as areas prominent in the fur trade and early Nipissing District lumbering. The known significant features relating to early fur trading and lumbering efforts have been mapped and identified under separate categories (e.g., physiographic and cultural-historic features). If others should be identified in the future, these should be taken into consideration during planning for the Stage 2 fieldwork.

Areas Lacking Archaeological Potential

According to Provincial guidelines, several land types can also signal a lack of (or low) potential for archaeological resources. These include the presence of low-lying and permanently wet areas, steeply sloped lands, areas subject to extensive, prior subsurface disturbance, or lands over 150 metres from any known features of archaeological potential. By these considerations, the study area does contain obvious zones without archaeological potential, associated primarily with developed areas and infrastructure, low-lying and wet areas (i.e., wetlands and water bodies) as well as areas where natural bedrock outcrops exist. Only the most obvious areas of low potential were mapped in this exercise as more detailed mapping requires detailed visual inspection of the entirety of the study area. Nonetheless, much of the land within the existing Highway 17 right-of-way has low archaeological potential due to servicing, ditching, blasting of bedrock or presence of wetlands.

3.3 Analysis and Conclusions

The Stage 1 background study and preliminary field review established significant features of archaeological potential and these were mapped to produce a generalized definition of zones of archaeological potential within the study area. Overall, the majority of the study area (roughly 96.5%) is in a naturalized state and has not been impacted by modern development activities. A few visually obvious areas of disturbance exist such as an Esso Gas Station (Image 17), the pipeline, the Highway 17 right-of-way, the railway and other transportation routes. These areas account for roughly 3.5 % of the study area and given the fact that they have been subject to extensive subsurface disturbance they can be eliminated from future Stage 2 assessment.

In addition, GIS mapping established that roughly 60% of land within the study area is not within 150 m of a feature of archaeological potential and is there considered to lack potential based on current provincial standards. The remaining 36.5% of land within the study area consists of areas currently deemed to have archaeological potential and comprised of treed and farm lands, pasture, open areas around watercourses and plateaus of bedrock. Future, more detailed, field inspection may also establish that some of the latter named lands do not retain archaeological potential for various reasons (e.g., sloped, low-lying and wet, disturbed). Unploughable lands represent roughly 60% of the area



deemed to have archaeological potential, with the remaining 40% consisting of cleared agricultural land (active and abandoned).

Maps 15 to 17 map these general zones of archaeological potential on aerial photography. The location and orientation of photographs appearing in this report are also shown on the same map set. As this is a planning study, with no formal project design yet in place, the zones of archaeological potential are not illustrated on a proponent map, as required by Standard 7.5.12. Table 4 provides an inventory of documentary records for this project.

Table 4: Documentary Records

- Field notes and field maps November 5-7, 2012
- Photographs P1010326-P1010480 dated November 5-7, 2012
- All records on file at Timmins Martelle Heritage Consultants Inc., @ the Museum of Ontario Archaeology, 1600 Attawandaron Road, London, Ontario N6G 3M6

4.0 RECOMMENDATIONS

The Stage 1 archaeological assessment established that the study area contained lands with archaeological potential and with low likelihood for the discovery of archaeological resources. With respect to these findings, the following recommendations are made:

- 1) Stage 2 field survey is recommended for all areas identified herein as having archaeological potential that may be impacted by the recommended highway alignment. Once a final highway plan is developed, a more detailed property inspection should be undertaken for all of the lands that will be subject to impact. This will allow for the preparation of more accurate archaeological potential mapping based on existing conditions and more precise delimiting of Stage 2 assessment areas. All lands deemed to have low archaeological potential following the field inspection can then be eliminated from Stage 2 survey.

All lands that consist of formerly cleared agricultural field or pasture will require ploughing and pedestrian survey (5 m interval) when their width is 10 metres or greater. Survey must be undertaken after the ground as significantly weathered under rain and when surface visibility is 80% or greater. For unploughable treed and grassed areas, this should consist of a standard test pit survey at a five metre interval; survey distances should follow those defined in Section 2.1.5 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011), namely 150 metres or less from features of archaeological potential. Field and reporting methodologies must follow the 2011 *Standards and Guidelines for Consultant Archaeologists*.



- 2) If public or First Nations consultation or additional background research documents additional features of archaeological potential (e.g., culturally significant bedrock features) that have not been identified in this study, these must also be taken into consideration during Stage 2 survey. Prior to the initiation of the Stage 2 survey a new inquiry should be made of the Ontario Archaeological Sites Database to establish if new archaeological resources have been registered.
- 3) The Stage 1 background study identified a number of known cemeteries within the study area. These are major planning concerns, should work occur in their immediate vicinity. As per provincial requirements, any work done immediately adjacent to a cemetery must be monitored by a licensed consultant archaeologist or, more preferably, preceded by a boundary investigation undertaken in keeping with protocols established by the Cemeteries Registrar in consultation with the Ministry of Tourism, Culture and Sport. The investigation should involve the mechanical removal of topsoil around the affected peripheries of the cemetery and the investigation of the exposed soil surface for the presence of unmarked graves. The following cemeteries were herein identified as in the current study: St. Margaret Cemetery (opened in 1883), Mt. Pleasant Cemetery (opened in 1884), St. Therese Cemetery (opened in 1905), the “Abandoned Cemetery” (Bonfield Township Cemetery) (unknown date), and the Calvin Township Public Cemetery (unknown date). If additional marked or unmarked cemeteries are identified within the study area, the same recommendation will apply.
- 4) If the limits of the study area change to incorporate new lands not addressed in this study, further background study will be required prior to the initiation of the Stage 2 survey.
- 5) This report addresses land-based archaeological potential only. Should potential for marine features be identified (e.g., associated with mill sites or portage routes), a marine-based archaeological assessment should be undertaken.

The above recommendations are subject to Ministry of Tourism, Culture and Sport’s approval.

5.0 SUMMARY

A Stage 1 archaeological assessment was undertaken for a study area associated with a 23.5 km section of Highway 17 from 2.2 km east of Highway 531 easterly to the Boundary Road between the Townships of Calvin and Papineau-Cameron, falling within the Township of Bonfield and Municipality of Calvin in the District of Nipissing. The work involved a map-based review and background study as well as preliminary field inspection. A review of soils, physiography, and drainage, registered and known archaeological sites, previous archaeological assessments, past native and Euro-Canadian land use and existing conditions established that close to 40% of the study area had



archaeological potential, based on provincial criteria for Northern Ontario and the Canadian Shield. As the preliminary roadside property inspection was limited in nature due to the extensive size of the study area, further field review should be undertaken once the preferred route is selected and the impact areas are clearly defined. This will allow for a more precise definition of areas of archaeological potential requiring Stage 2 survey.

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Ministry of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O 1990, c 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 Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological 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 the Registrar of Cemeteries at the Ministry of Small Business and Consumer Services. The Registrar of Cemeteries, Cemeteries Regulation Unit can be reached at (416)326-8404 or (416)326-8393.



7.0 BIBLIOGRAPHY

AECOM

- 2012 *Ontario Ministry of Transportation, Highway 17 Route Planning Study From 2.2 km east of Highway 531 easterly to 8.0 km east, of Highway 630, GWP5670-10-00, Summary of Existing Environmental Conditions and Constraints Report: <http://www.hwy17corridorstudy.ca/downloads/Draft%20Ex%20Conditions%20Aug2012.pdf>. DRAFT.*
- 2012 *Highway 17 Environmental Assessment Natural Environment Constraints Map. Dated March 23, 2012.*

Archaeological Research Associates Ltd. (ARA)

- 2012 *Built Heritage and Cultural Heritage Factors Highway 17 Bonfield Easterly Route Planning Study GWP 5670-10-00 Township of Bonfield, Municipality of Calvin and Township of Papineau-Cameron, Nipissing District, Ontario. DRAFT, May 29, 2012.*

Archaeological Services Inc. (ASI)

- 2011 *Master Plan of Archaeological Resources, City of Sault Ste. Marie: <http://www.cityssm.on.ca/contentadmin/UserFiles/File/CityDepartments/Engineering/Planning/ArchaeologicalReport/09SP-81%20Sault%20Ste.%20Marie%20AMP%20summary.pdf>*
- 2012 *An Overview of the Prehistory and Early History of the Southern Canadian Shield Region. La Vase Archaeology Project: <http://www.city.north-bay.on.ca/living/history/lavase/asi-ch03.htm> (by Martin Cooper).*

Bing Maps

- 2011 *Aerial Photographs for the Province of Ontario.*

Bullock, Peter with Anna Paas, Joanne Labelle

- 1979 *East Nipissing Heritage Inventory. Submitted to the North Bay-Mattawa Conservation Authority. On File at the North Bay Library.*

Byrne, Thomas, P.L.S.

- 1881 *Plan of the Township of Bonfield. Dated October 15, 1881. Original survey map on file with the Ministry of Natural Resources, Peterborough.*

Champlain, Samuel de

- 1597-1635 *The Works of Samuel de Champlain, Vol. IV, VI. Toronto: Champlain Society 1922-1936.*



Chapman, Charles, P.L.S.

1878 *Papineau, Nipissing District*. Dated December 11, 1878. Original survey map on file with the Ministry of Natural Resources, Peterborough.

Chapman L.J. and D.F. Putnam

1984 *The Physiography of Southern Ontario*. Third Edition. Ontario: Ministry of Natural Resources, Ontario.

Clayton, Tim with Gillian Eckler, Sarah Eckler, Tara Hanke, and Richard Leblanc

1995 *Discovery Routes Partnerships: Mattawa Valley Corridor*. Submitted to the Ministry of Culture, Tourism and Recreation. On File at the North Bay Library.

Conway, Thor

1981 *Archaeology in Northeastern Ontario: Searching for Our Past*. Ontario Ministry of Culture and Recreation, Historical Planning and Research Branch.

Dawson, K.C.A.

1983 *Prehistory of Northern Ontario*. Thunder Bay: Thunder Bay Historical Museum Society.

Dibb, Gordon C. and Paul Sweetman

1995 *A Stage 1-2 Archaeological Investigation of Garden Island (S-32), Springer Township, Nipissing District, Ontario (48T-93002)*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

geographynetwork.ca

2011 1:10,000 Base Mapping for the Province of Ontario

Goldthwait, J.W.

1910 *An Instrumental Survey of the Shorelines of the Extinct Lakes Algonquin and Nipissing in Southwestern Ontario*. Geological Survey of Canada, Ottawa, Memoir 10.

Hamilton, Scott

1981 *The Archaeology of the Wenasaga Rapids*. Archaeology Research Report 17. Ministry of Culture and Recreation Archaeology and Heritage Planning Branch, Ontario.

Harting, Toni

1996 *French River: Canoeing the River of the Stick-Wavers*. Erin: The Boston Mills Press.



Jaenen, Cornelius J.

1996 *The French Regime in the Upper Country of Canada During the Seventeenth Century*. Cornelius J. Jaenen, editor. Toronto: The Champlain Society.

Johnson, A.J.

1874 *Ontario of the Dominion of Canada*.

Karrow, Paul F.

2004 Algonquin-Nipissing Shorelines, North Bay, Ontario. *Géographie physique et Quaternaire* 58(2-3):297-304.

Leatherdale, Murray

2008 *Nipissing from Brule to Booth*. Orillia: Trafford Publishing.

Mackey, Doug

2007 *The Kiosk Story: The Saga of Life, Logging, and Lumbering In and Around Northwest Algonquin Park*. Toronto: Past Forward Heritage Limited.

Ministry of Citizenship, Culture and Recreation (MCCR; now Ministry of Tourism, Culture and Sport)

1997 *Conserving a Future for our Past: Archaeology, Land Use Planning & Development in Ontario (Revised Edition)*. Toronto.

Ministry of Tourism and Culture (MTC; now Ministry of Tourism, Culture and Sport)

2011 *Standards and Guidelines for Consultant Archaeologists*. Toronto.

Ministry of Transportation (MTO)

2009 *Environmental Reference for Highway Design*.

Morel, Claude (editor)

1980 *Mattawa: "The Meeting of the Waters"*. Claude Morel, editor. Leo Morel and the Mattawa Historical Society, Mattawa, Ontario.

Natural Resources Canada (NRC)

2010 *Kiosk, Ontario*. 1:50,000 Scale Topographic Map, Tile 31 L/02. Electronic edition.

2010 *Powassan, Ontario*. 1:50,000 Scale Topographic Map, Tile 31 L/06. Electronic edition.

2010 *North Bay, Ontario*. 1:50,000 Scale Topographic Map, Tile 31 L/06. Electronic edition.



2010 *Mattawa, Ontario*. 1:50,000 Scale Topographic Map, Tile 31 L/07. Electronic edition.

Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)

2006 GIS Layers for Soils and Physiography in the Province of Ontario.

Pollock, John

2012 *Introduction to the Prehistory of the North Bay Area*. La Vase Archaeology Project. <http://www.city.north-bay.on.ca/living/history/lavase/97-FRS1.HTM>

Ridley, Frank

1954 The Frank Bay Site, Lake Nipissing, Ontario. *American Antiquity* 20(1):40-50.

Storck, Peter L.

2004 *Journey to the Ice Age: Discovering an Ancient World*. Toronto: UBC Press (in association with the Royal Ontario Museum).

Slattery, David

2003 *Stage 1 and 2 Archaeological and Heritage Impact Assessment, Samuel de Champlain Provincial Park, Calvin Township, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

2005 *Stage Two and Three Archaeological and Heritage Impact Assessment, Samuel de Champlain Provincial Park, Calvin Township, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Steer, Wilson

1953 *Along the Moccasin Line*. Canadian Cataloguing in Publication Data. Reprint Edition 1998.

Stewart, E., P.L.S.

1885 *Plan of the Township of Orlig, District of Nipissing*. Dated December 8, 1885. Original survey on file with the Ministry of Natural Resources, Peterborough.

Tallon, Laurence, P.L.S.

1881 *Report and Field Notes of Calvin, Nipissing District*. Written to the Commissioner of Crown Lands.

1881 *Plan of the Township of Calvin, Nipissing District*. Dated December 10th, 1885. Original survey on file with the Ministry of Natural Resources, Peterborough.

Taylor, F.B.

1896 Notes on the Quaternary Geology of the Mattawa and Ottawa Valleys. *The American Geologist* 18:108.



Timmins Martelle Heritage Consultants Inc. (TMHC)

2004 *Stage 1-3 Archaeological Assessment of the Voyageur Trail, French River, Parry Sound District, Ontario*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.

Wright, J.V.

1972 *Ontario Prehistory: An Eleven-Thousand-Year Archaeological Outline*. Ottawa: Archaeological Survey of Canada - Natural Museum of Man.

Wright, P. and Wright M.

1974 *Archaeological Inventory of the Mattawa River*. Report on file with the Ministry of Tourism, Culture and Sport, Toronto.



7.0 IMAGES



Image 1: Highway 17 at Trout Pond Road (looking west)



Image 2: Highway 17 (looking east)



Image 3: Trout Pond Road and CPR Tracks (looking southwest)



**Image 4: Farmstead Situated Along Bluseal Creek, Adjacent to Highway 17
(looking south)**



**Image 5: Highway 17 with Narrow Gravelled Shoulders and Ditch
(looking northwest)**



**Image 6: Landscape Surrounding Bluseal Creek and Abandoned Log Cabin in
Background (looking north from Highway 17)**



Image 7: Blueseal Creek (looking southwest from Highway 17)

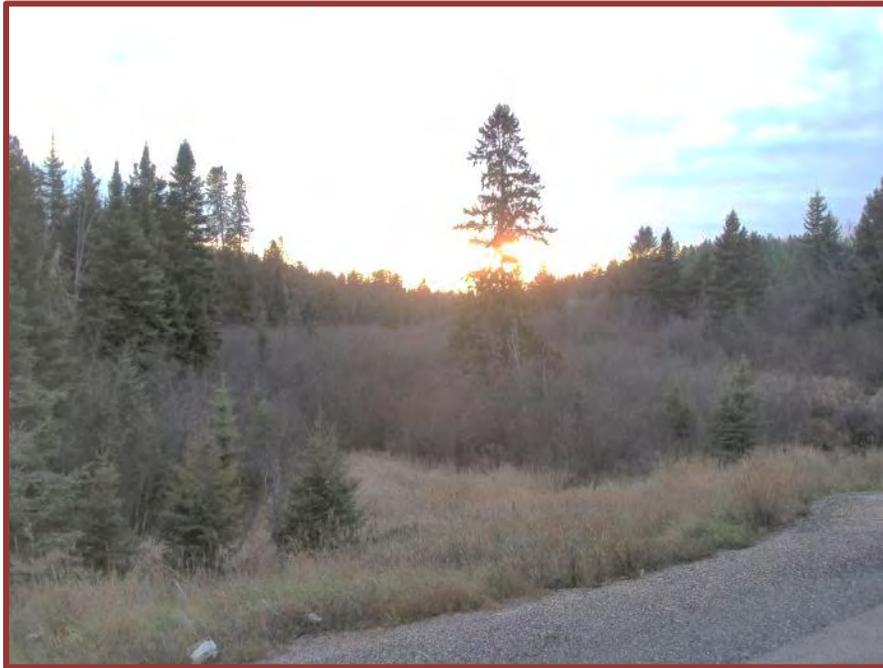
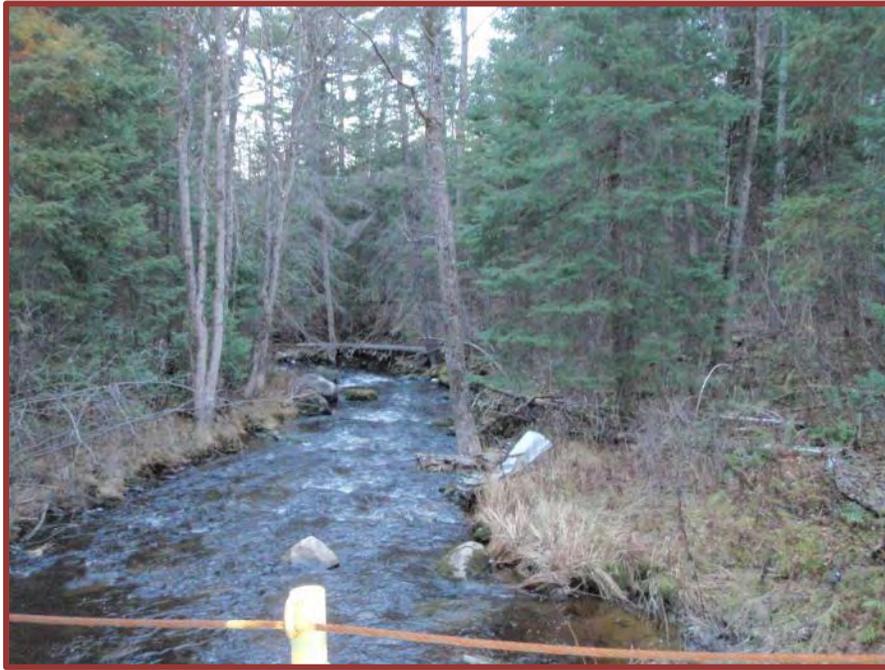


Image 8: Hideaway Lane (looking north)



Image 9: Bluseal Creek (looking northeast from historic bridge)



**Image 10: Highway 17 and Sharpes Creek Overpass (looking west)
(note: narrow sloped and gravelled shoulders with ditch)**



**Image 11: View of Mt. Pleasant United Church (background) from Highway 17
(looking southeast)**



Image 12: Looking East Along Highway 17 Towards Rutherglen



Image 13: St. Margaret Anglican Church off Highway 17 (looking south)



**Image 14: View of Mt. Pleasant United Church from
St. Margaret Anglican Church (looking southeast)**



**Image 15: View of St. Margaret Anglican Church from
Mt. Pleasant United Church (looking southeast)**



Image 16: Looking South Down Rutherglen Line at Trunk Road



**Image 17: Looking Northwest to Commercial Property (Esso Gas Station) on
Highway 17 from Trunk Road**



Image 18: Looking North Down Rutherglen Line from Moreau Road



**Image 19: Lake Along Blueseal Creek on the East Side of
Trout Pond Road (looking northeast)**



Image 20: Development Road (looking east)



Image 21: Trunk Road (looking east)



Image 22: View of Trout Pond Road at Trunk Road (looking south)



**Image 23: Looking Northwest to Abandoned Cemetery from Development Road
(CHL- Township of Bonfield Cemetery- Date of Establishment Unknown)**



Image 24: Looking West Down Development Road at the Abandoned Cemetery



**Image 25: Development Road Along Abandoned Cemetery
(looking east)**

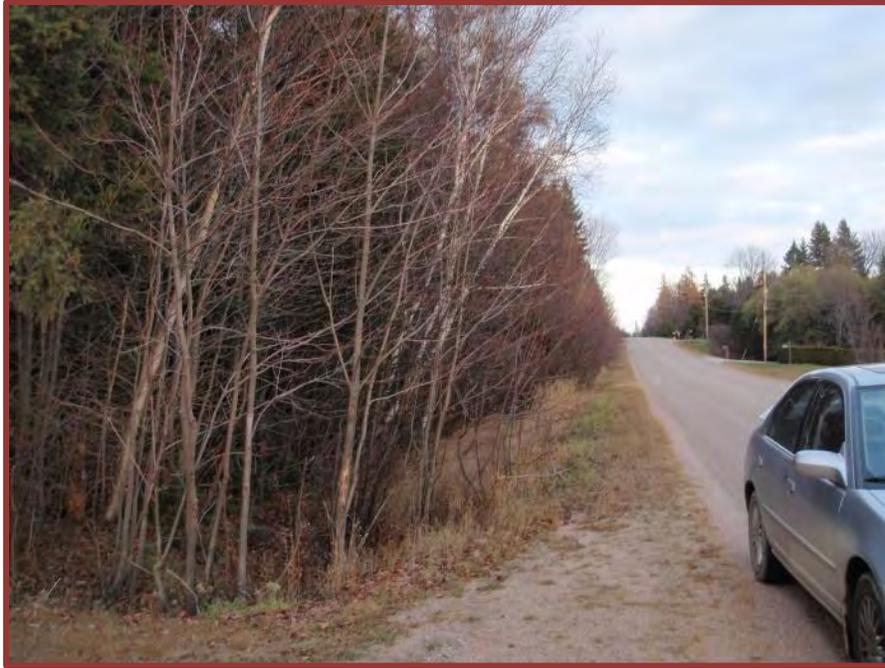


Image 26: Looking East Down Moreau Road from Mount Pleasant Road

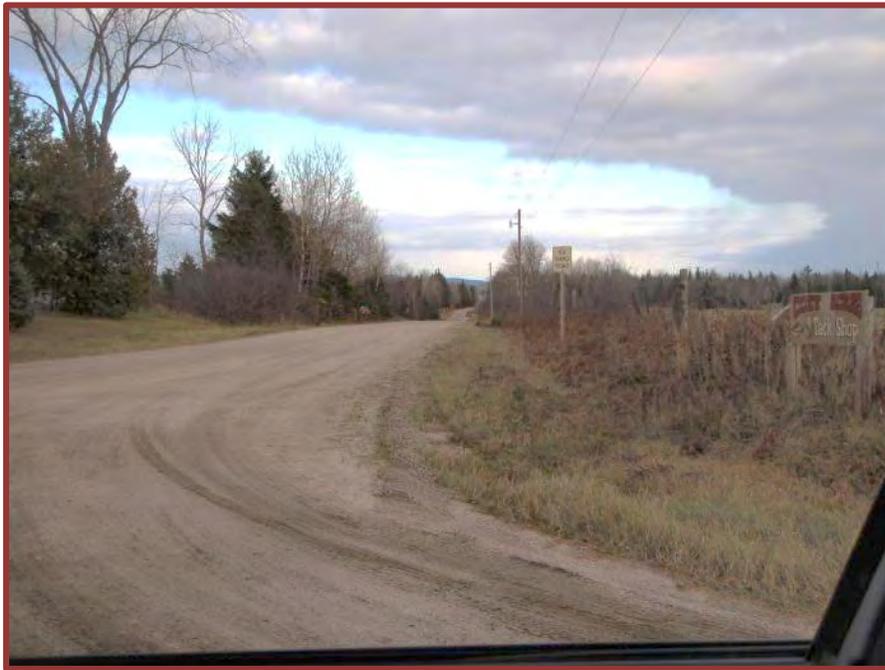


Image 27: Looking South Down Mount Pleasant Road from Moreau Road



**Image 28: Mt. Pleasant Cemetery at Mount Pleasant Road
(CHL- Established 1884) (looking north)**



**Image 29: Mt. Pleasant Cemetery on the East Side of Mount Pleasant Road
(looking south)**



**Image 30: View of Historic Bridge and New Culvert Along a Branch of Sharpes
Creek on the South Side of Moreau Road (looking south)**



Image 31: Looking West Down Moreau Road To Branch of Sharpes Creek



Image 32: Laplante Road and View of Rutherglen Moraine Shoreline and Kame (looking west)



Image 33: Looking East Down Latimer Road from Mount Pleasant Road



Image 34: Heritage Structure at 747 Mount Pleasant Road (looking west)

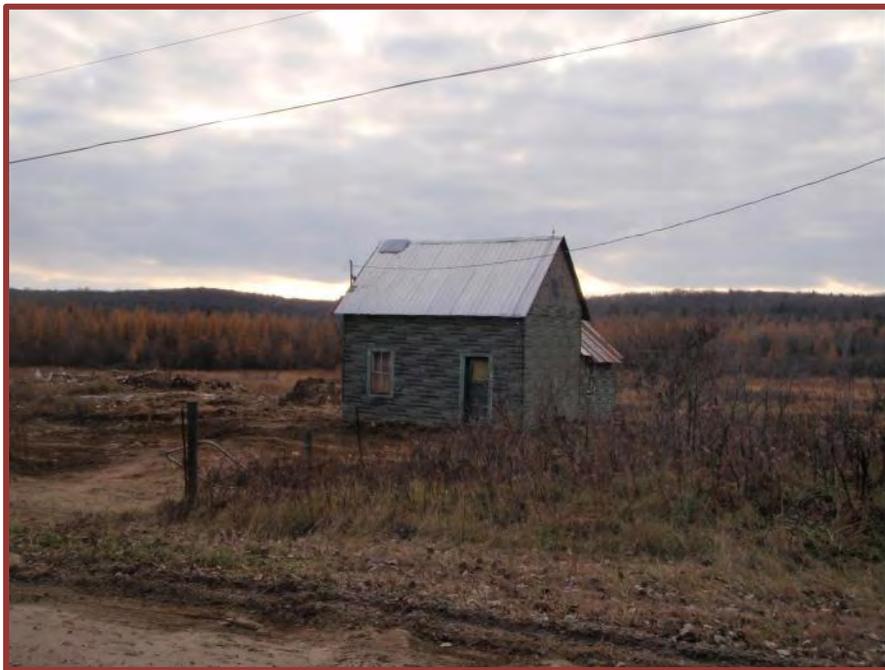


Image 35: Looking South Down Mount Pleasant Road



Image 36: Mount Pleasant Road (looking north)



**Image 37: Farmstead at Mount Pleasant Road and Peddlers Drive
(looking south)**



Image 38: Looking East Down Moreau Road from Farmers Line



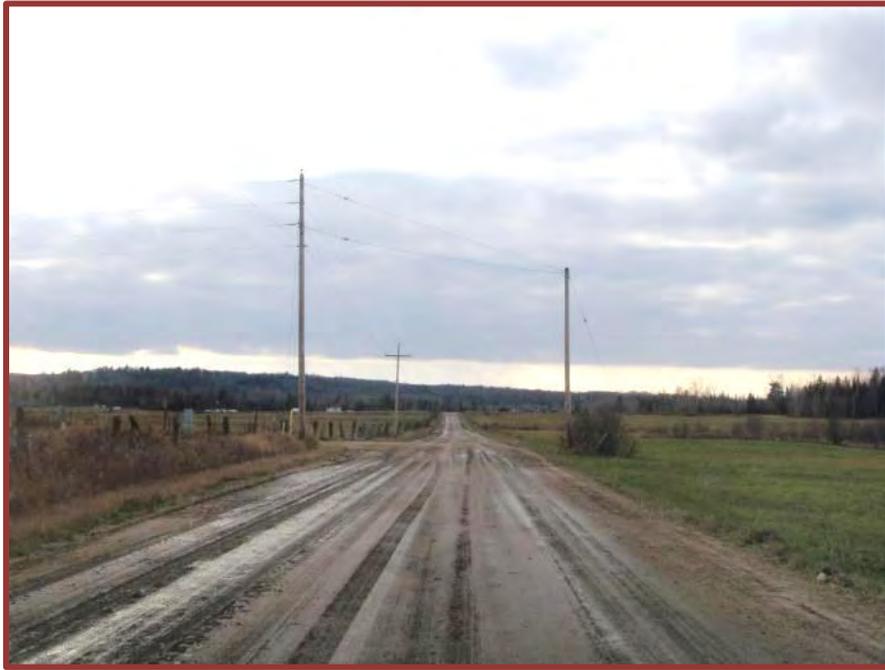
Image 39: Looking South to Farmers Line from Moreau Road



Image 40: Looking North to McNutt Road from Moreau Road



Image 41: Looking West Down Peddlers Drive



**Image 42: Unnamed Watercourse Associated with
Upper Johnston Lake (looking northeast)**



Image 43: Unnamed Watercourse and Wetland Associated with Upper Johnston Lake (looking southwest)



Image 44: Unnamed Watercourse and Historic Bridge Associated with Smith Lake along Peddlers Drive (looking southeast)



**Image 45: Unnamed Watercourse and Historic Bridge Associated with Smith Lake
along Peddlers Drive (looking west)**



Image 46: Peddlers Drive (looking southeast)



Image 47: Looking North Along Amable du Fond River from Peddlers Drive

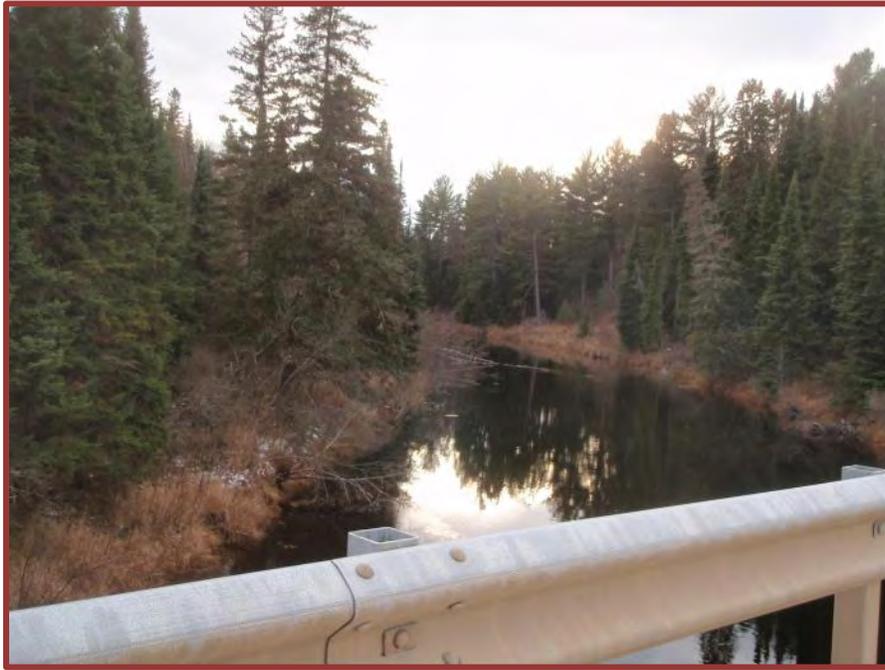


Image 48: Looking South Along Amable du Fond River from Peddlers Drive



Image 50b: Photograph of a Map and Images of Eau Claire Posted at the Mattawa Museum

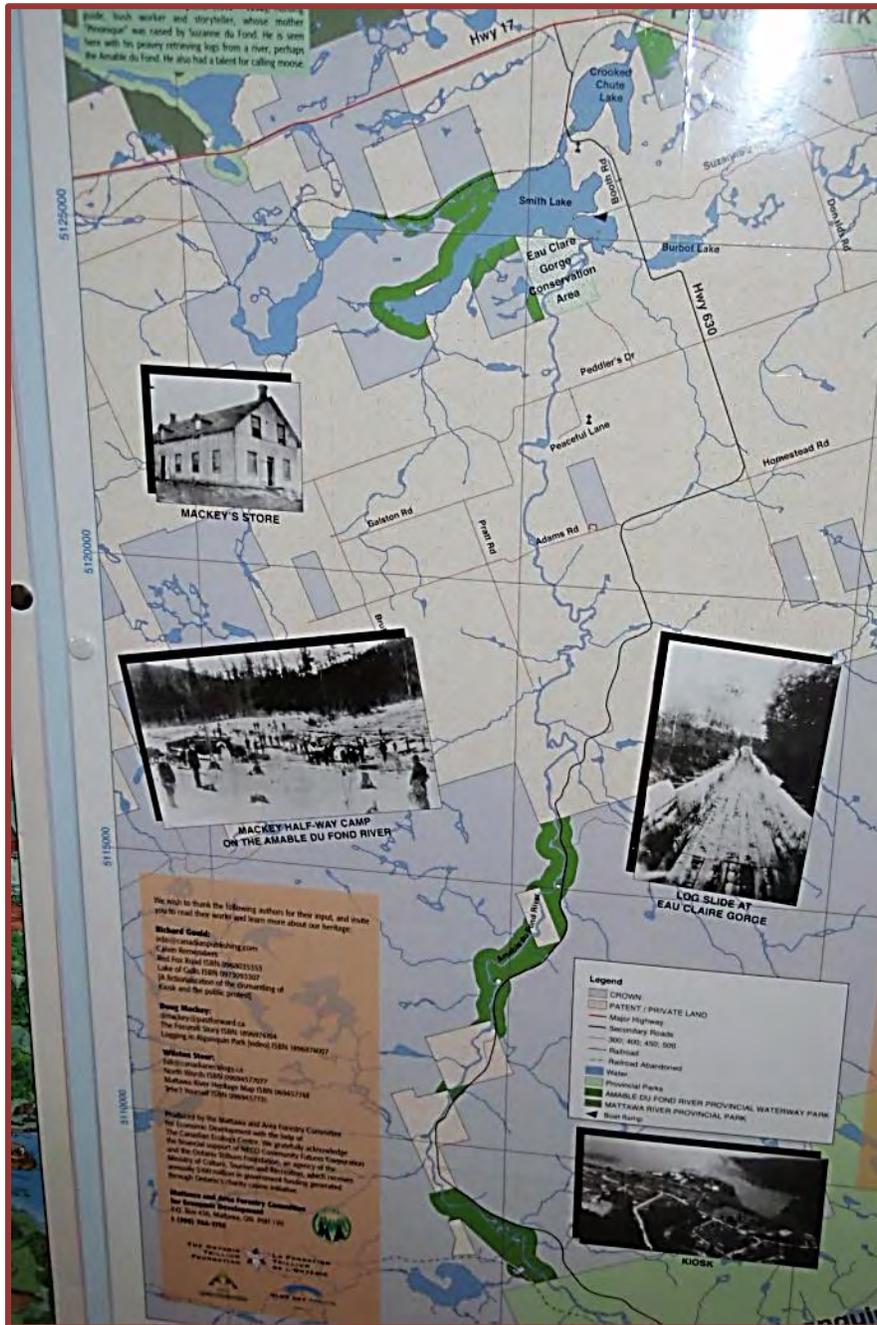


Image 51: Looking North Along Highway 630 North in the Community of Eau Claire



Image 52: Looking East Along Peddlers Drive in the Community of Eau Claire



Image 53: Looking South Down Highway 630 South in the Community of Eau Claire

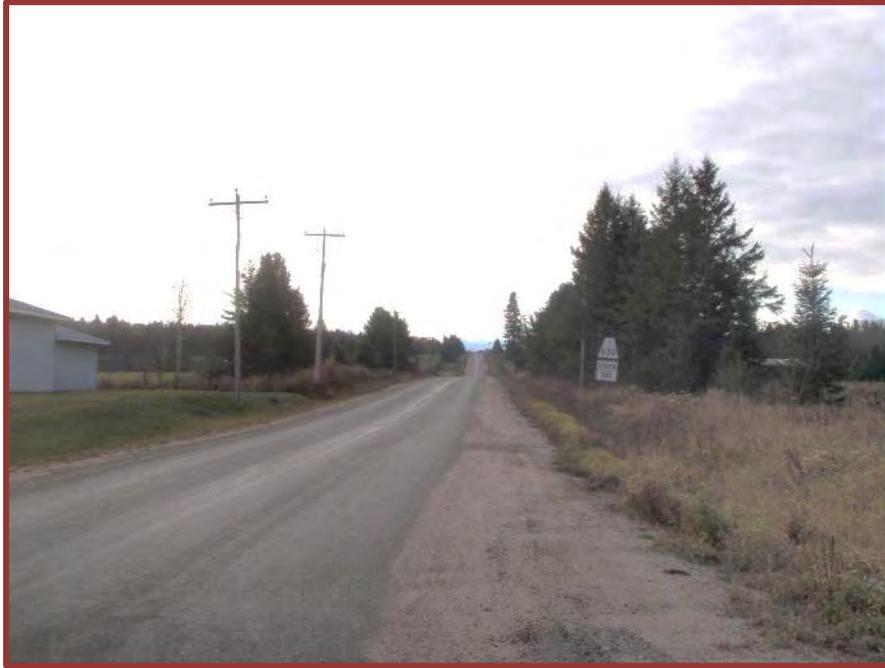


Image 54: Looking West to Peddlers Drive in the Community of Eau Claire



Image 55: Burbot Lake Along Highway 630 North (looking southeast)



**Image 56: Creek and Wetland Leading into Amable du Fond River Provincial Park-
Smith Lake from Burbot Lake (looking northwest)**



Image 57: Looking West Down Suzannes Road from Highway 630 North



**Image 58: Smith Lake in Amable du Fond River Provincial Park
(looking southeast)**



Image 59: Looking Southwest to Smith Lake and the Proposed Location of the Historic "Landing Place" in Amable du Fond River Provincial Park



Image 60: Looking East to Suzannes Drive from Highway 630 North



Image 61: View of Eau Claire Along Highway 630 North (looking south)



**Image 62: Unnamed Watercourse and Wetland Along Suzannes Drive
(looking south)**

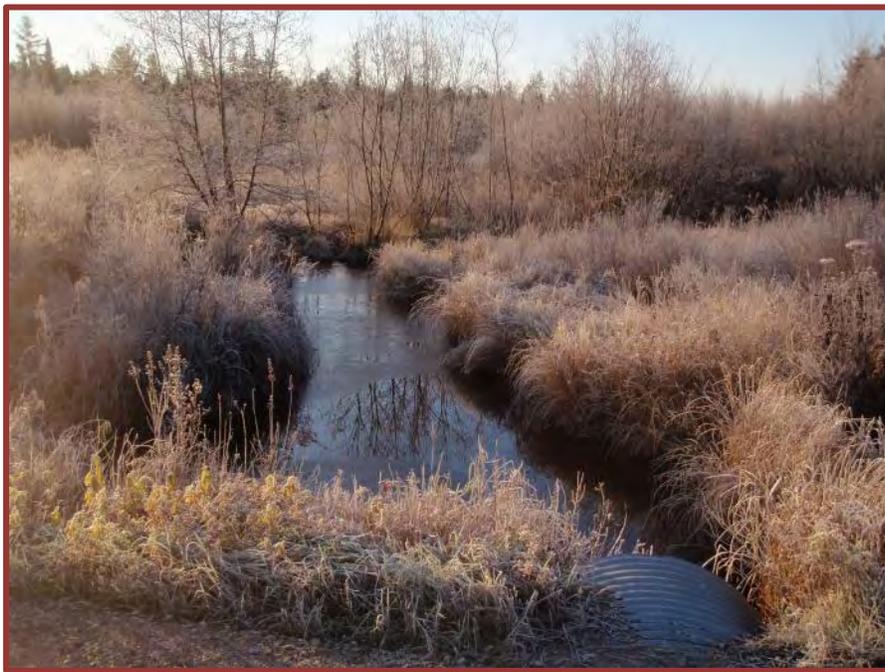


Image 63: Looking East Down Suzannes Drive



Image 64: Private Drive (Beach Road) that Continues Around Crooked Chute Lake in Eau Claire Station Area (looking east)



Image 65: Looking Southwest at St. Therese Cemetery from Highway 630 North in Eau Claire Station (CHL- Established in 1905)

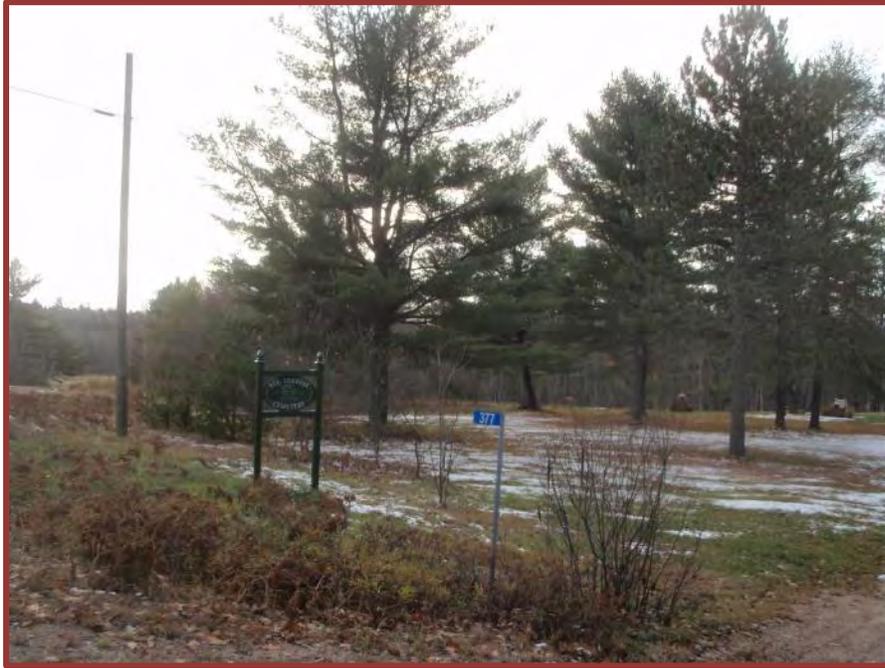


Image 66: Looking Southwest to St. Therese Cemetery from Highway 630 North in Eau Claire Station (CHL- Established in 1905)



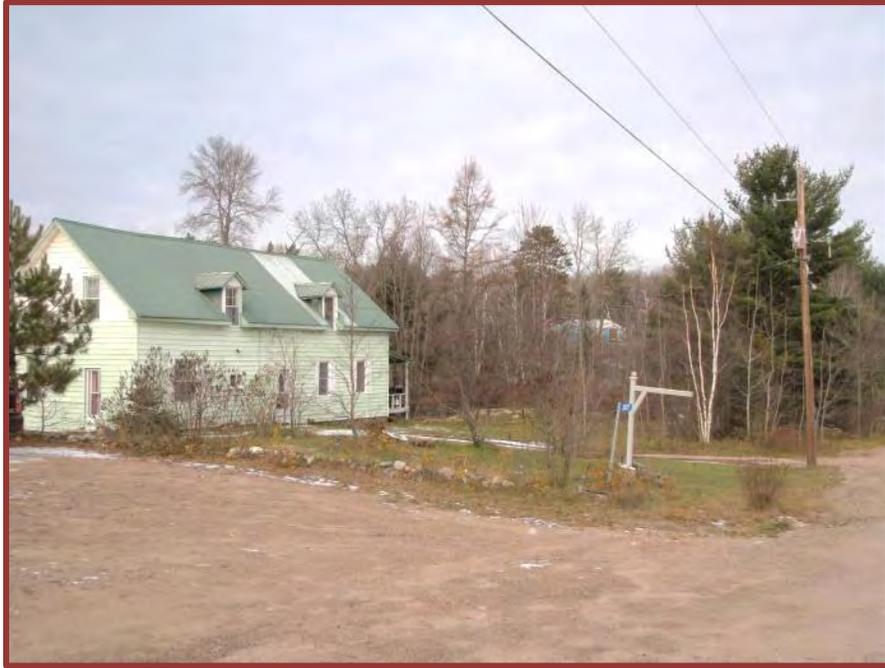
Image 67: View of Cairn- Location of the Church Associated with St. Therese Cemetery (looking north)



Image 68: Highway 630 North and Former Log School House Associated with Eau Claire Station (Built Heritage Property- ca. 1929) (looking southeast)



**Image 69: Mackey's General Store (former Ryan's Store) in Eau Claire Station
(Built Heritage Property, ca. 1870s) (looking northwest)**



**Image 70: Twin Bridges Crossing Rapids Along Highway 630 North in Eau Clair
Station (looking north)**



**Image 71: East Side Rapids and General Vicinity of Mackey's Saw Mill
(looking east)**



Image 72: West Side of Rapids (looking west)



**Image 73: Smith Lake, Portage Exit and Historic Settlement Site in Amable du
Fond Provincial Park (looking southwest)**



Image 74: Twin Bridges Along Highway 630 North (looking south)



Image 75: Eau Claire Rail Station (looking north)



Image 76: Looking East to Crooked Chute Lake from Highway 630 North



Image 77: Looking South Down Highway 630 North Towards Eau Claire Station



**Image 78: Trahan Road (not maintained by Calvin Township)
(looking west)**



**Image 79: Looking East Down Highway 17
(note: deep ditches, sloped, gravelled and paved shoulders)**



**Image 80: Looking West Along Highway 17 Right-of-Way
(note: deep ditch, sloped right-of-way, paved shoulders)**



Image 81: Looking East Down Highway 17 from Highway 630 North



Image 82: Looking South Along Highway 630 North from Highway 17



**Image 83: View of the Mapped Historic "Clearing" and Structures on Highway 630
South (looking northwest)**



Image 84: Looking Northeast to Wetland from Donalds Road



Image 85: Looking East Down Suzannes Road from Donalds Road (looking east)



Image 86: Looking South Down Donalds Road from Suzannes Road (looking south)



Image 87: Looking West Along Suzannes Road from Donalds Road (looking west)



Image 88: Farmstead Adjacent to Suzannes Road and CPR Tracks (looking south)



**Image 89: Field Stone Fence Associated with a Farmstead on Suzannes Road
(looking south)**



**Image 90: Farmstead at the End of Suzannes Road, View of Pautois Road – Private
Drive (looking east)**



Image 91: Looking South to Daventry Road from Peddlers Drive



Image 92: Peddlers Drive at Pautois Road (looking west)

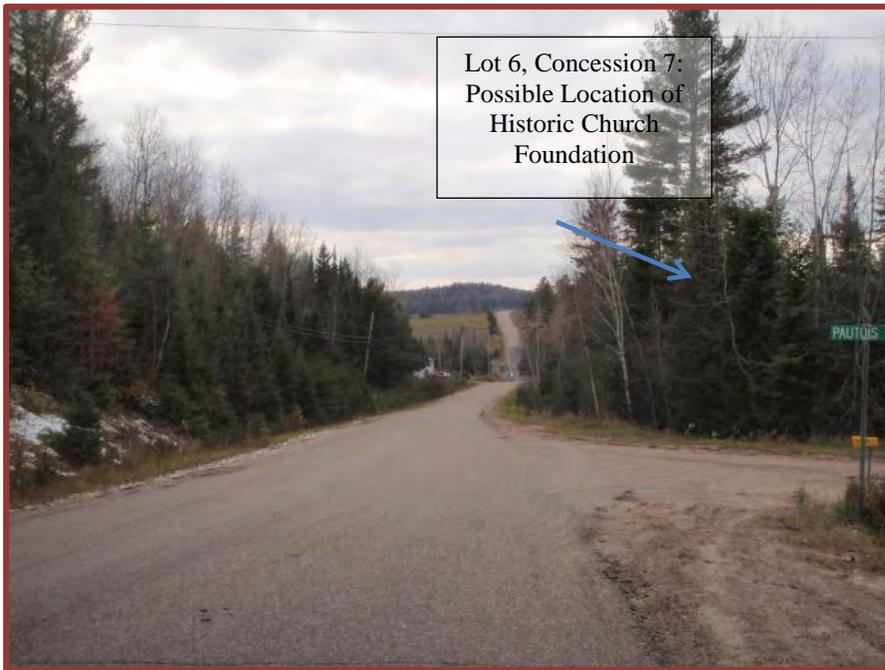


Image 93: Looking East Down Peddlers Drive at Daventry Road



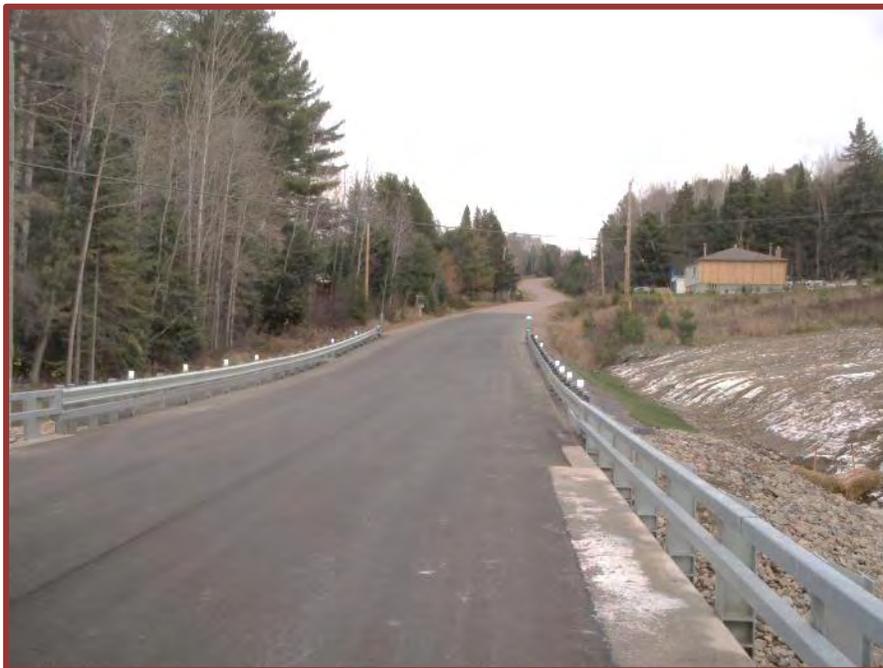
Image 94: Looking North to Branch of Pautois Creek from Peddlers Drive



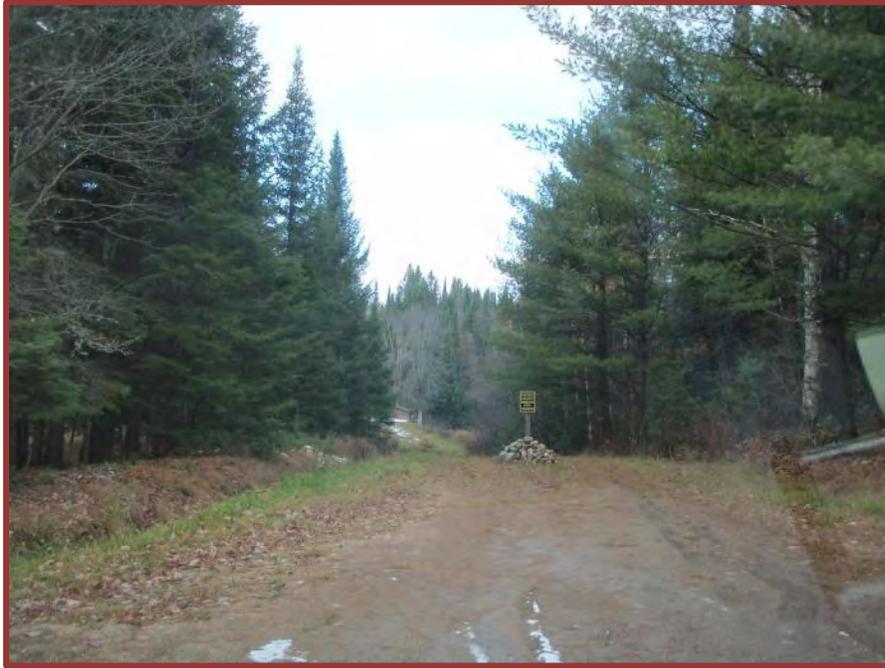
Image 95: Branch of Pautois Creek at Peddlers Drive (looking south)



Image 96: New Bridge Crossing Pautois Creek Along Peddlers Drive (looking east)



**Image 97: Pautois Road- Location of Historic River Road (Road Closed)
(looking north)**



**Image 98: Peddlers Drive Near Calvin Township Public Cemetery
(CHL- Unknown Date) (looking east)**



Image 99: Looking North at Boundary Road from Peddlers Drive

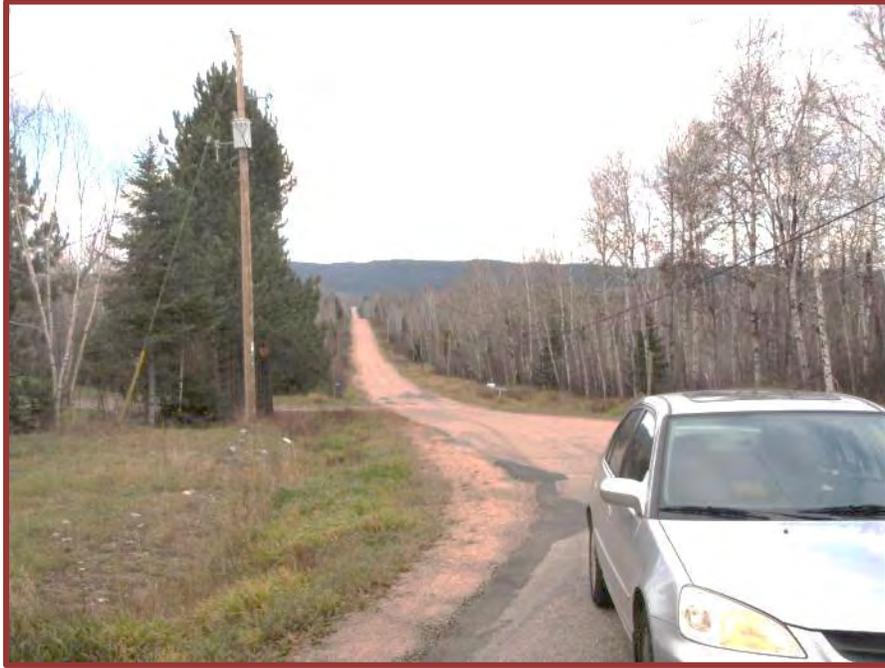


Image 100: Looking West at Peddlers Drive from Boundary Road (looking west)



Image 101: Boundary Road at Peddlers Drive (looking south)



Image 102: View of Farm Along Homestead Road (looking southwest)



Image 103: Homestead Road West of Boundary Road (looking west)



Image 104: CPR Track Crossing on Boundary Road (looking south)



**Image 105: Looking West Along Highway 17 at Boundary Road
(note: steep, gravelled shoulders)**



Image 106: Looking South Down Boundary Road from Highway 17

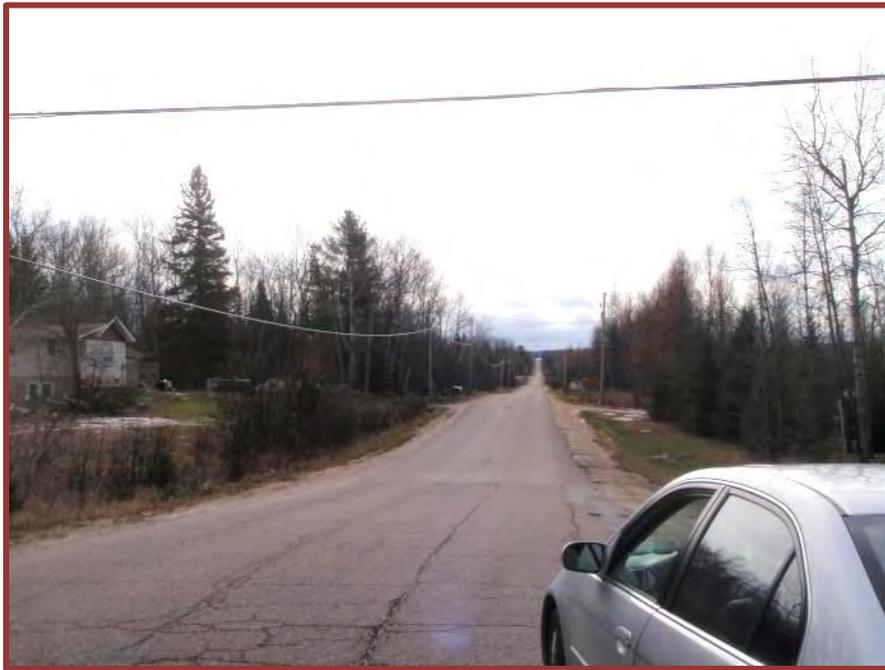


Image 107: Looking North on Donalds Road Near Peddlers Drive



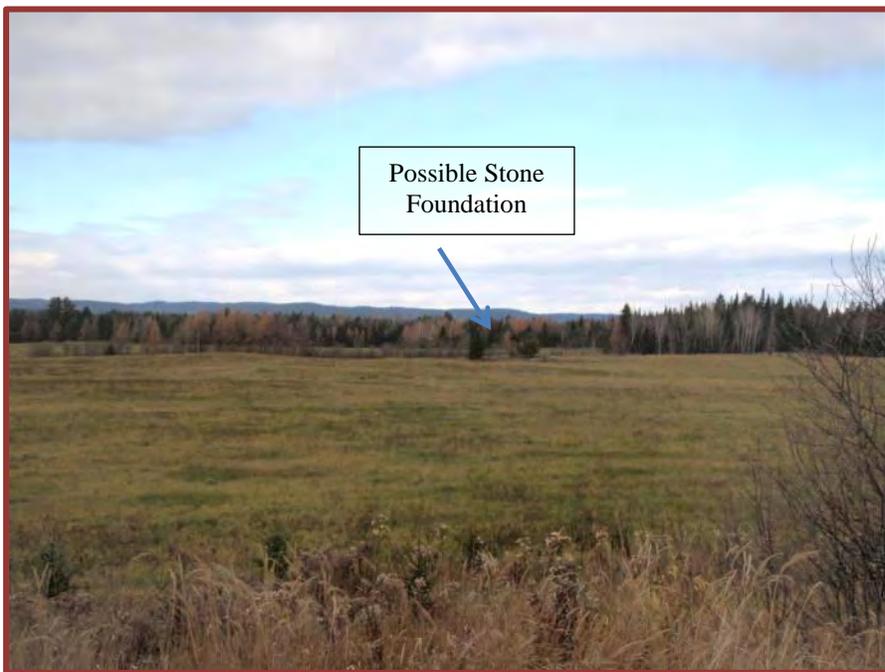
**Image 108: Intermittent Branch of Pautois Creek Along Peddlers Road
(looking north)**



Image 109: Looking East on Peddlers Drive Near Donalds Road



**Image 110: Possible Stone Foundation off Peddlers Drive
(looking north)**



**Image 111: View of Peddlers Drive and Built Heritage Property
(1007 Peddlers Drive) (looking west)**



**Image 112: Looking West Along Highway 17 Towards Rutherglen
(note: steep and ditched gravelled shoulders)**



Image 113: Looking East on Highway 17, East of Rutherglen Line



**Image 114: Wetland and Unnamed Creek Along Trunk Road
(looking south)**



Image 115: Wetland and Creek Along Trunk Road (looking north)



Image 116: Looking North Along Talon Lake Road



Image 117: Looking East Along Trunk Road



Image 118: Looking East on Highway 17 East of Columbia Road



Image 119: Looking West on Highway 17 East of Columbia Road (looking west)



Image 120: Looking South to Pimsi Lake from Highway 17



Image 121: Looking North to Pimsi Lake from Highway 17 (looking north)



**Image 122: Looking West to Highway 17
(note: steep slopes in right-of-way)**



Image 123: Looking North to Amable du Fond River from Highway 17

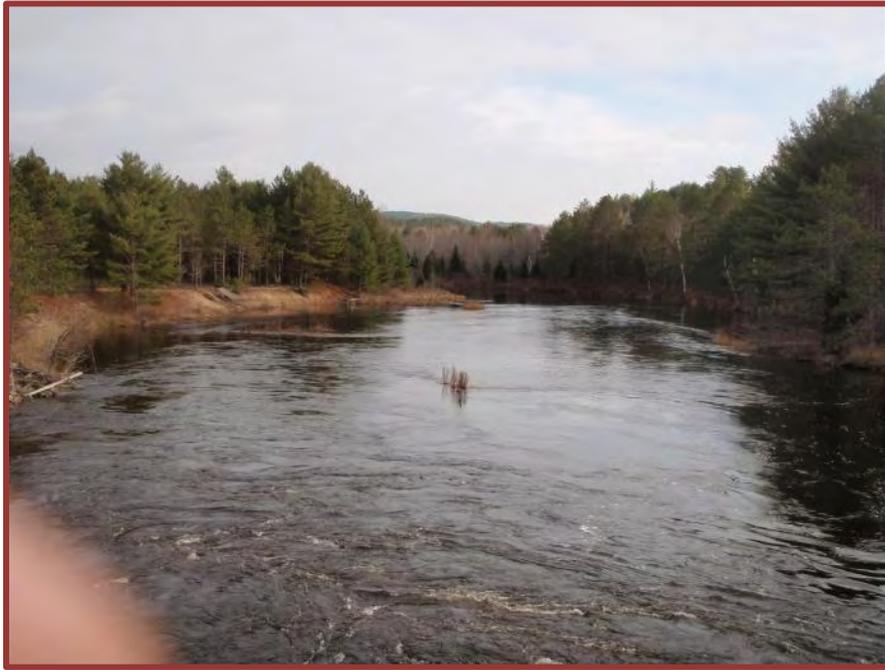


Image 124: Looking North to Pautois Creek from Highway 17



Image 125: Looking South to Pautois Creek from Highway 17



Image 126: Bridge Crossing Pautois Creek Along Highway 17 (looking east)



**Image 127: CPR Tracks Crossing the Amable du Fond River
(looking south)**

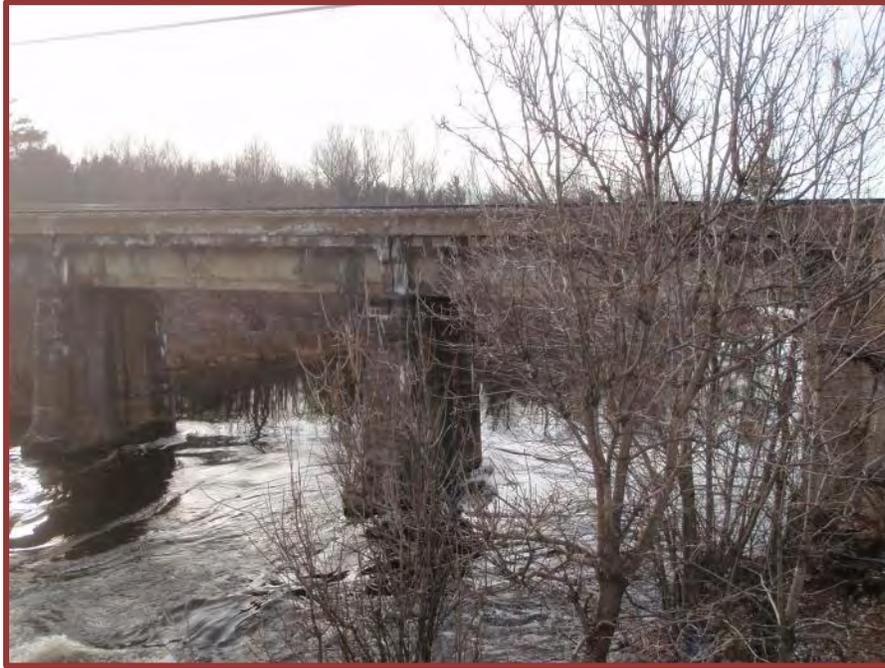


Image 128: Highway 17 Bridge Crossing the Amable du Fond River (looking east)



Image 129: House at Gated Road and Peddlers Drive (looking northeast)



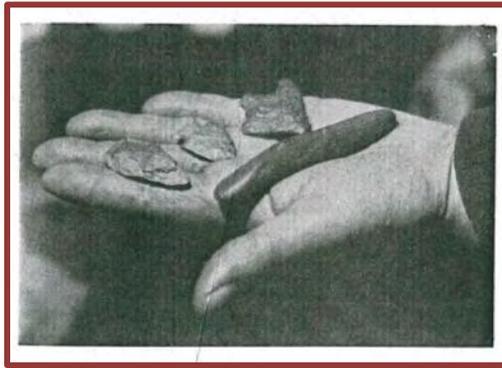
Image 130: Closed Road Entering Samuel de Champlain Provincial Park Along Highway 17 (looking north)



Image 131: Farm off Suzannes Road (looking south)



**Image 132: Private Collection of Native Artifacts from Lands Near the Study Area
(Morel, ed. 1980:43)**



**Image 133: “Canoe Manned by Voyageurs Passing a Waterfall” – 1869 Oil Painting,
by Frances Anne Hopkins (1838-1919) (<http://www.vintagepostcards.org/mattawa.htm>)**



Image 134: Ca. 1910 Postcard Showing Log Chute
(<http://www.vintagepostcards.org/mattawa.htm>)



Image 135: The Amable du Fond Manitou Farm
(Courtesy of the Mattawa Museum) (date unknown)



Image 136: Booth's Lumber Camp in Eau Claire
(Courtesy of the Mattawa Museum- donated to the museum by Mr. Walters- photo likely taken
between 1902-1936, extracted by Mr. Walters from the North Bay Nugget in the 1960s)



Image 137: Mackey's Sawmill in Eau Claire Station
(Courtesy of the Mattawa Museum- date unknown)



**Image 138: Photograph of Eau Claire Station (no date, now a private trailer park)
(Mackey 2007:15)**

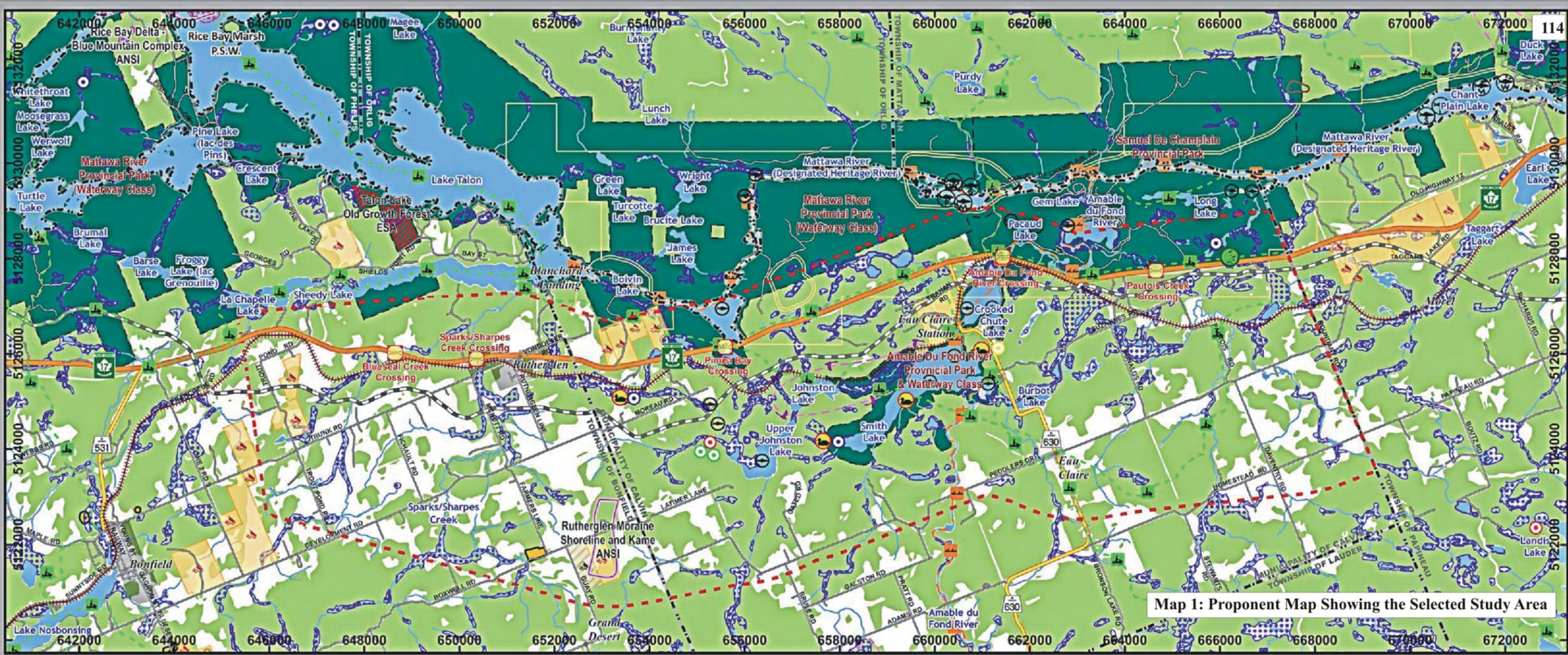


**Image 139: 20th Century Photograph of Local Algonquin Families Camped by a
Lake (Mackey 2007:13)**



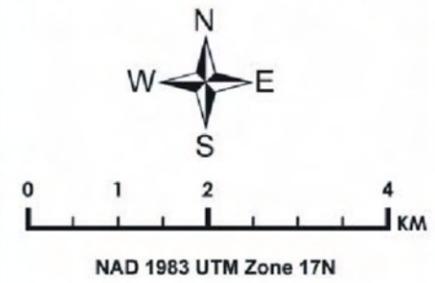
8.0 MAPS





Map 1: Proponent Map Showing the Selected Study Area

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LEGEND

- Municipal Boundary
- Waterbody
- Settlement or Developed Area
- Agricultural Land
- Provincial Parks
- Inactive Aggregate Site
- Active Aggregate Site
- High Avoidance Plant
- Watercourse Crossings
- Bonfield Environmental Protection Areas
- Significant Ecological Area
- Woodlands
- Moose Late Wintering Area
- Deer Yard (Stratum 1)
- Deer Wintering Area (Stratum 2)
- ANSI**
- Provincial
- Wetland**
- Provincial
- Unevaluated

- Municipally Identified Bird Nesting Site
- Municipally Identified Bird Concentration Area
- Municipally Identified Spawning Areas**
- Muskellunge
- Pike
- Small Mouth Bass
- Walleye
- Other

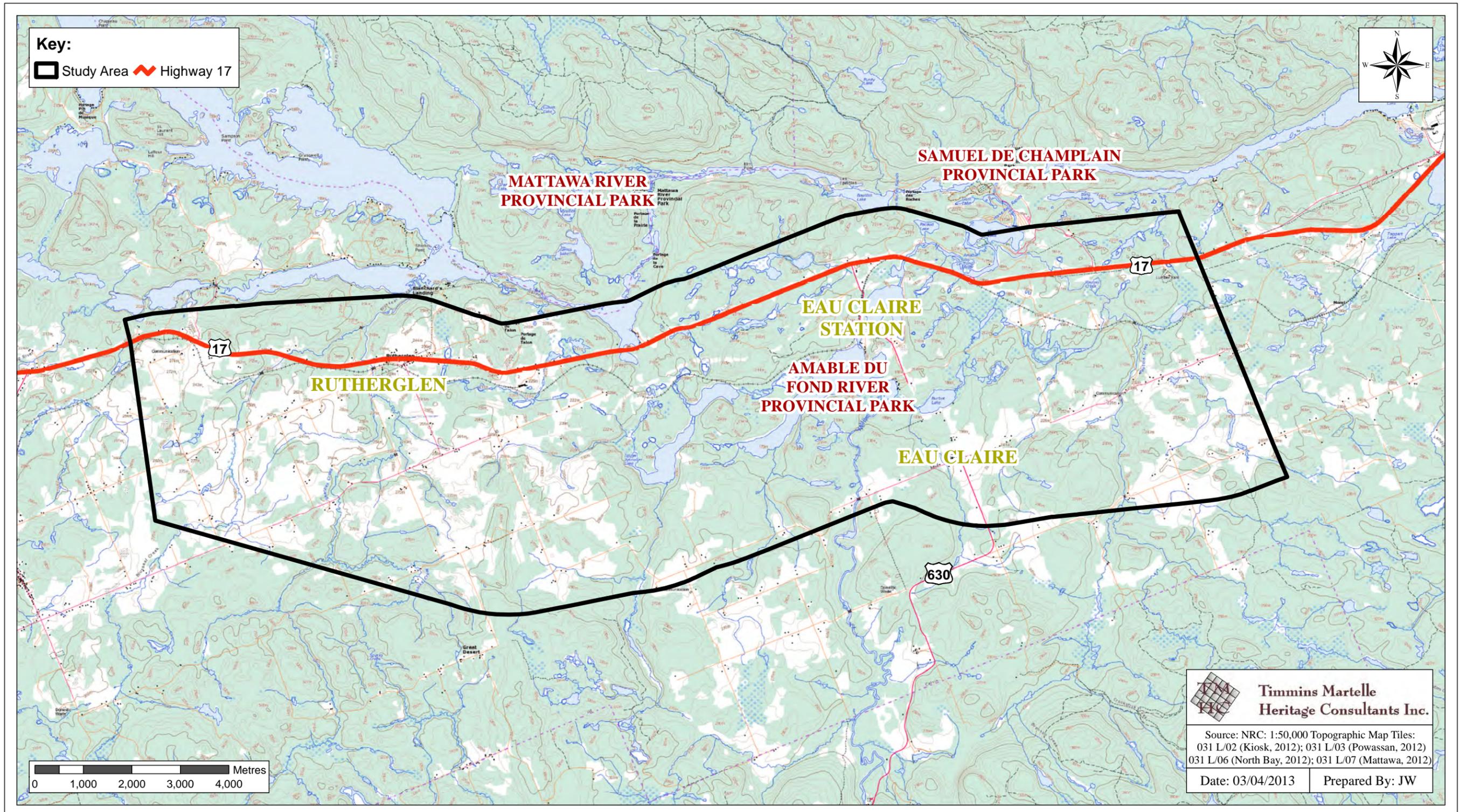
- Highway 17 Study Area**
- Study Area
- Roads**
- Highway
- Arterial
- Collector
- Local
- Railway
- Canoe Path
- Snowmobile Trail
- Trans Canada Pipeline

- Provincially Identified Bird Nesting Sites**
- Barred Owl
- Broadwing Hawk
- Common Raven
- Great Blue Heron
- Merlin
- Northern Goshawk
- Osprey
- Red-Shouldered Hawk
- Red Tailed Hawk
- Unknown Raptor

Highway 17
Environmental Assessment
**Natural Environment
Existing Conditions
and Constraints Map**

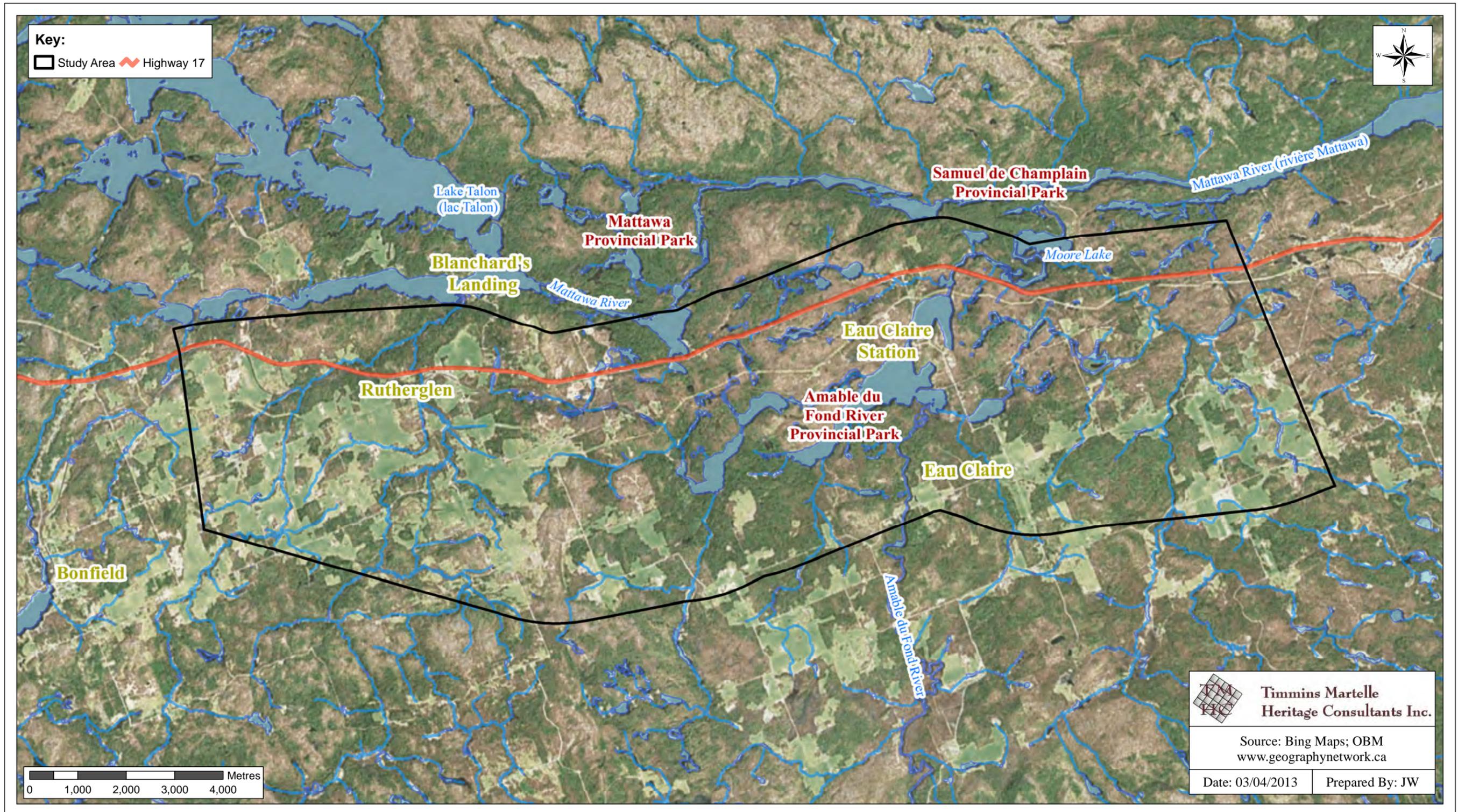
9/2/2012
Project #: 60241599





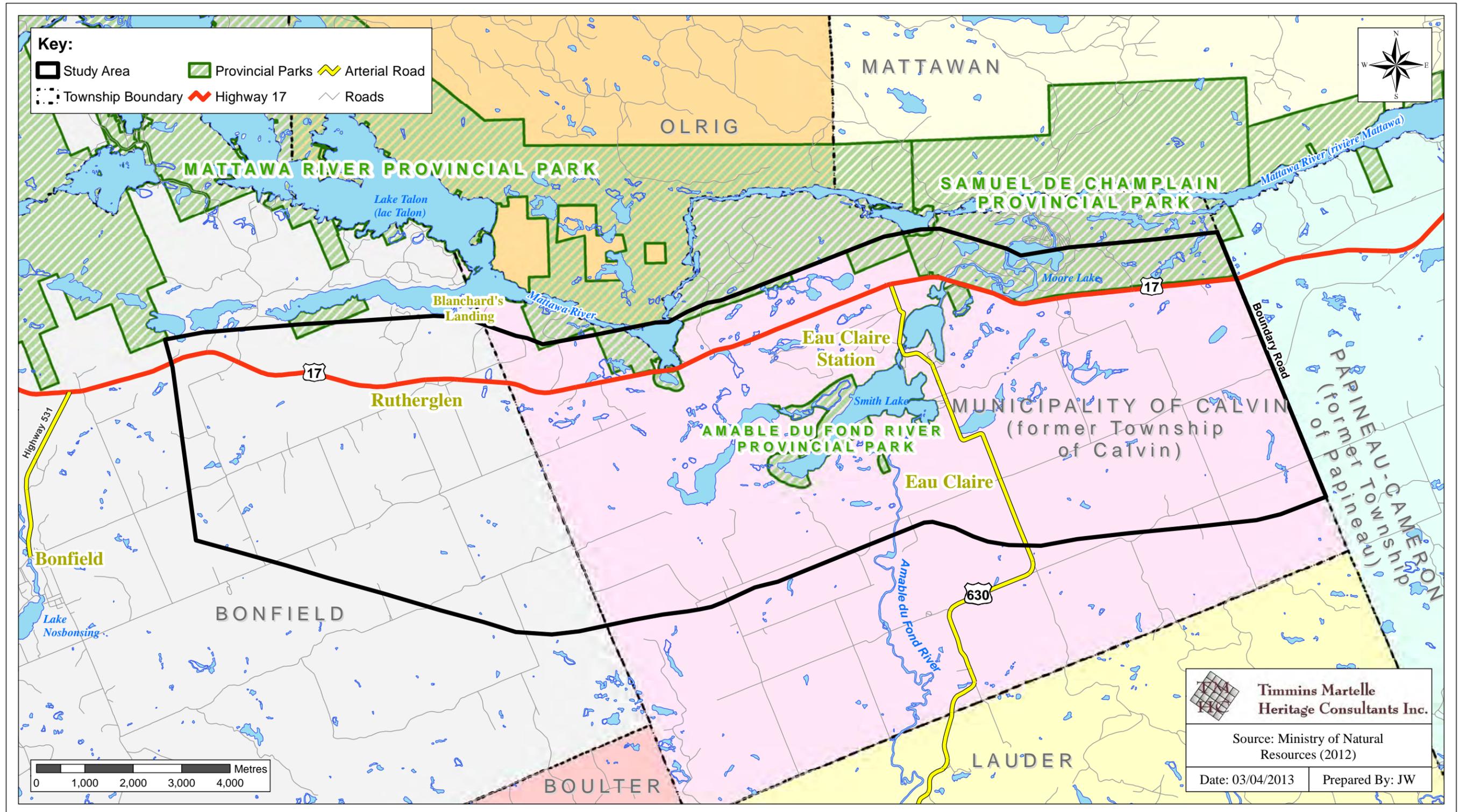
Map 2: Location of the Study Area in the Nipissing District, ON





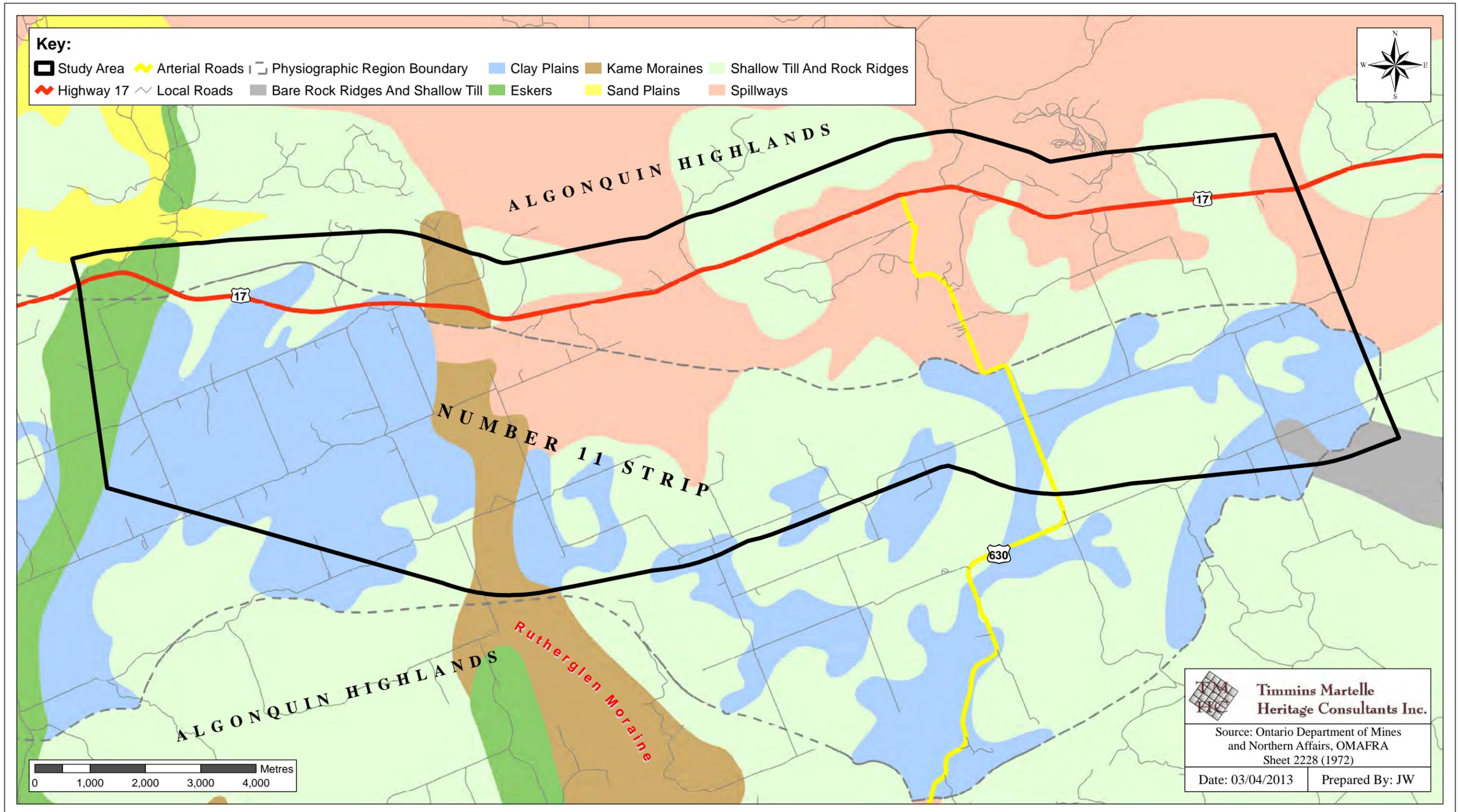
Map 3: Aerial Photograph Showing the Location of the Study Area in Nipissing District, ON





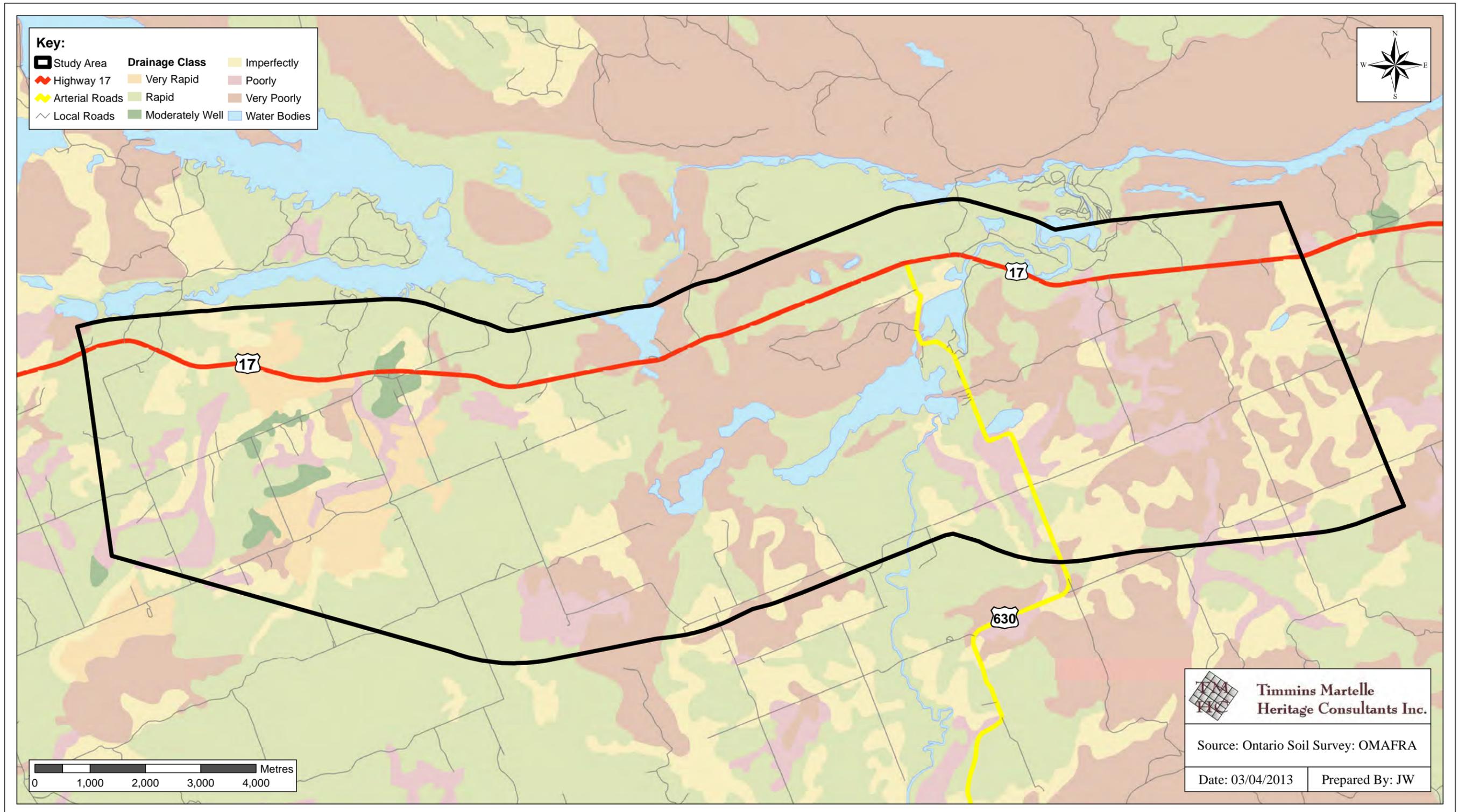
Map 4: Townships and Provincial Parks Within the Study Area (Nipissing District)





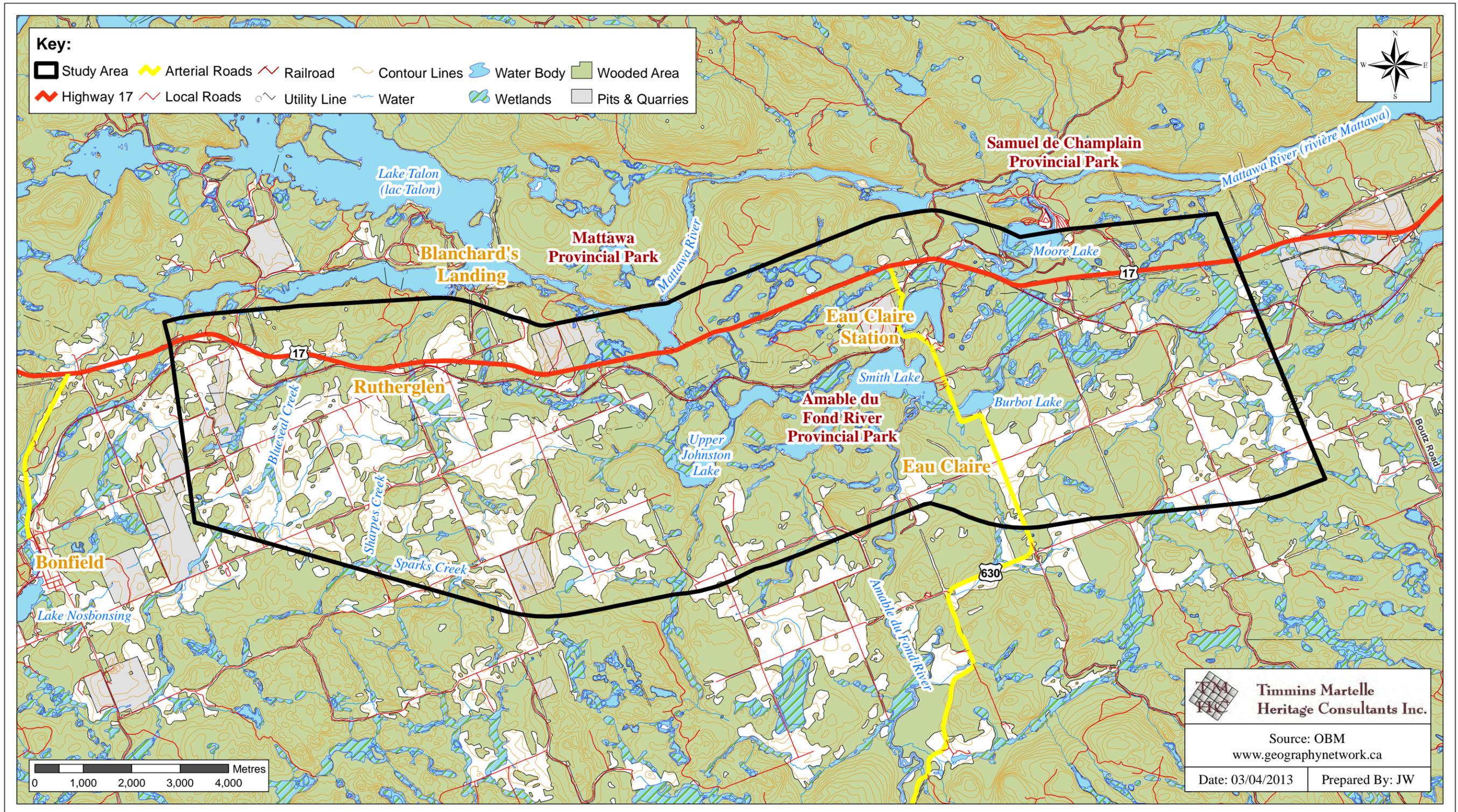
Map 5: Physiographic Features Within the Vicinity of the Study Area



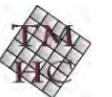


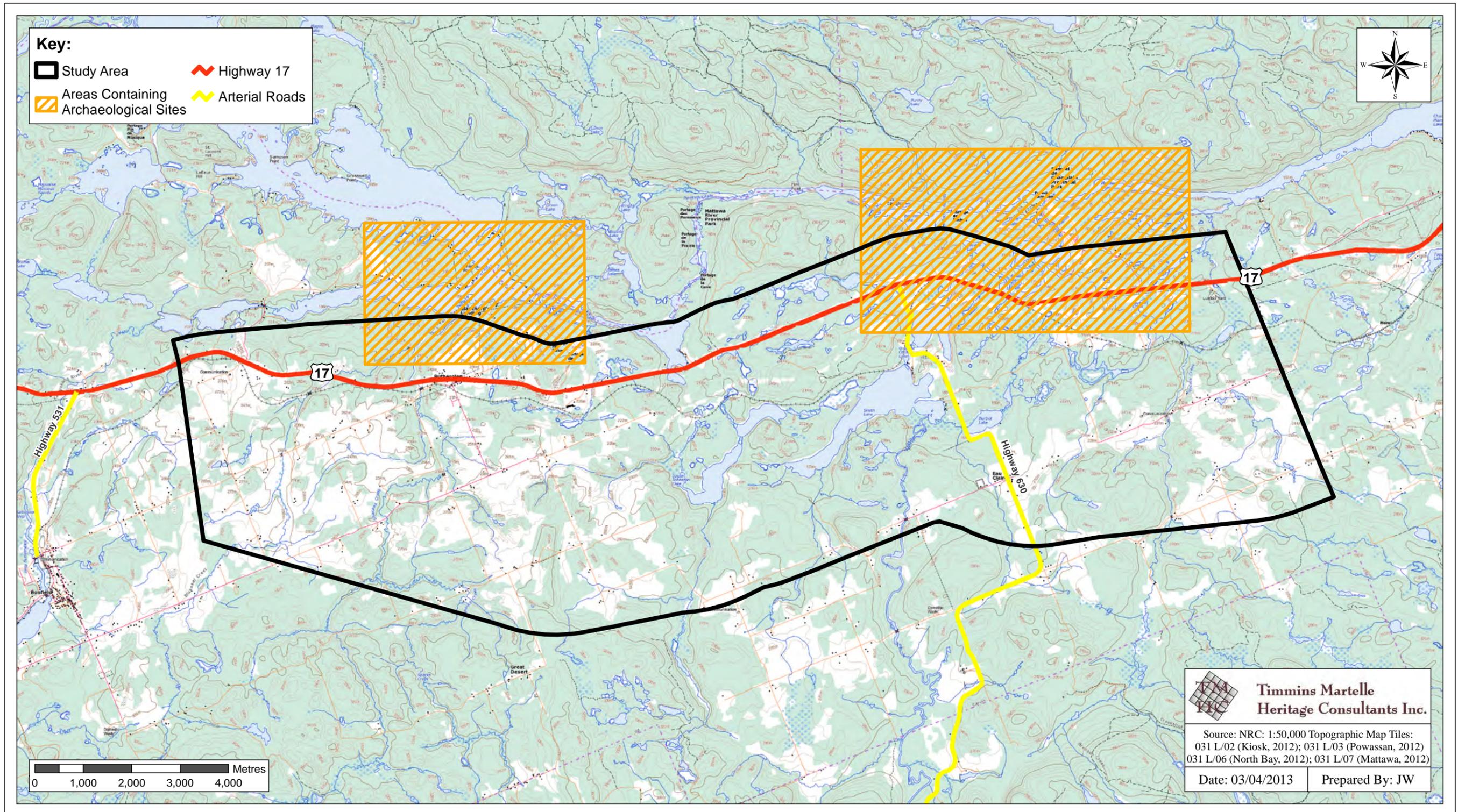
Map 6: Soils Within the Vicinity of the Study Area



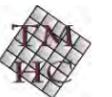


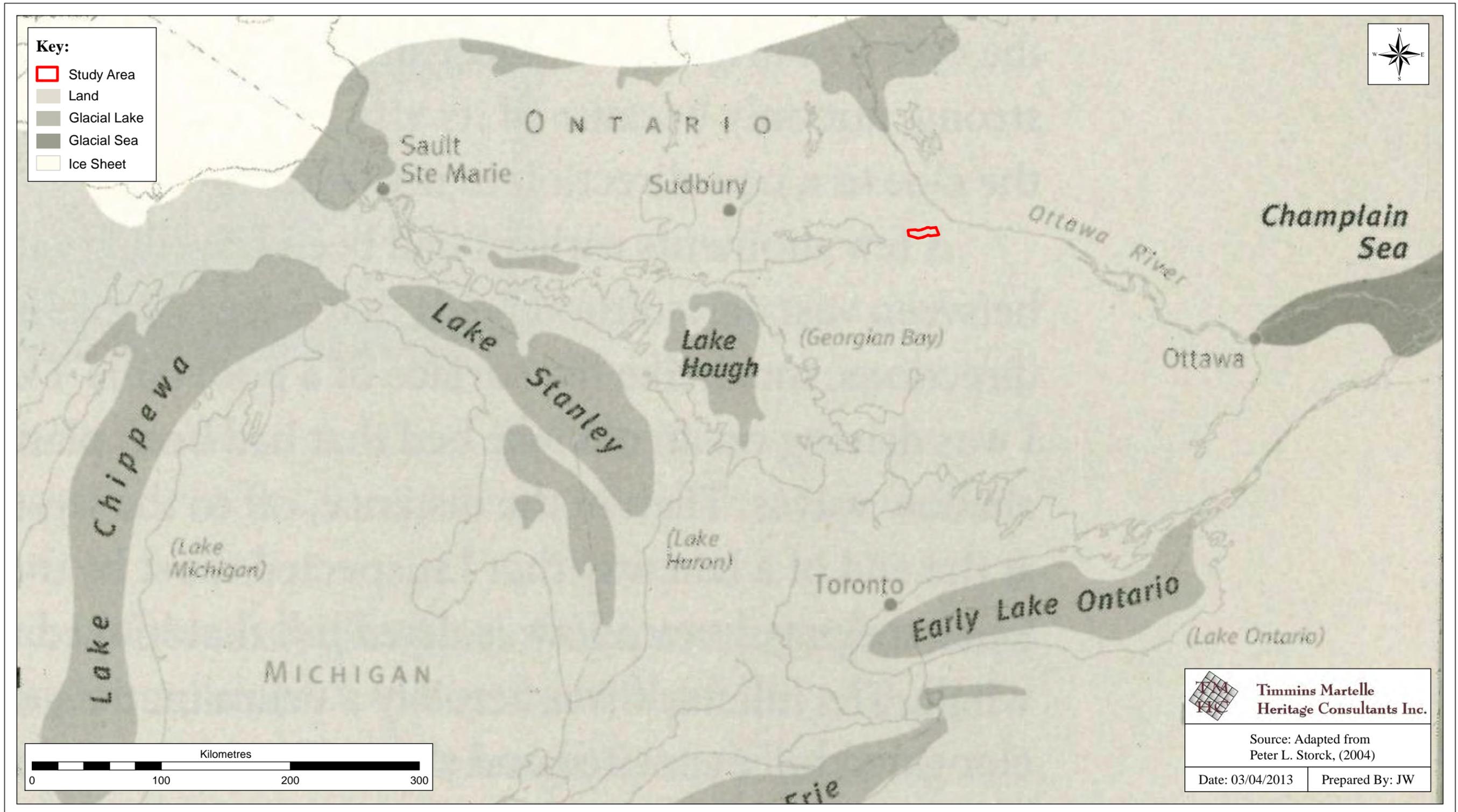
Map 7: Drainage Within the Vicinity of the Study Area



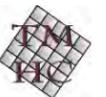


Map 8: General Concentrations of Archaeological Sites Within the Study Area (detailed archaeological site information is confidential)



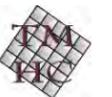


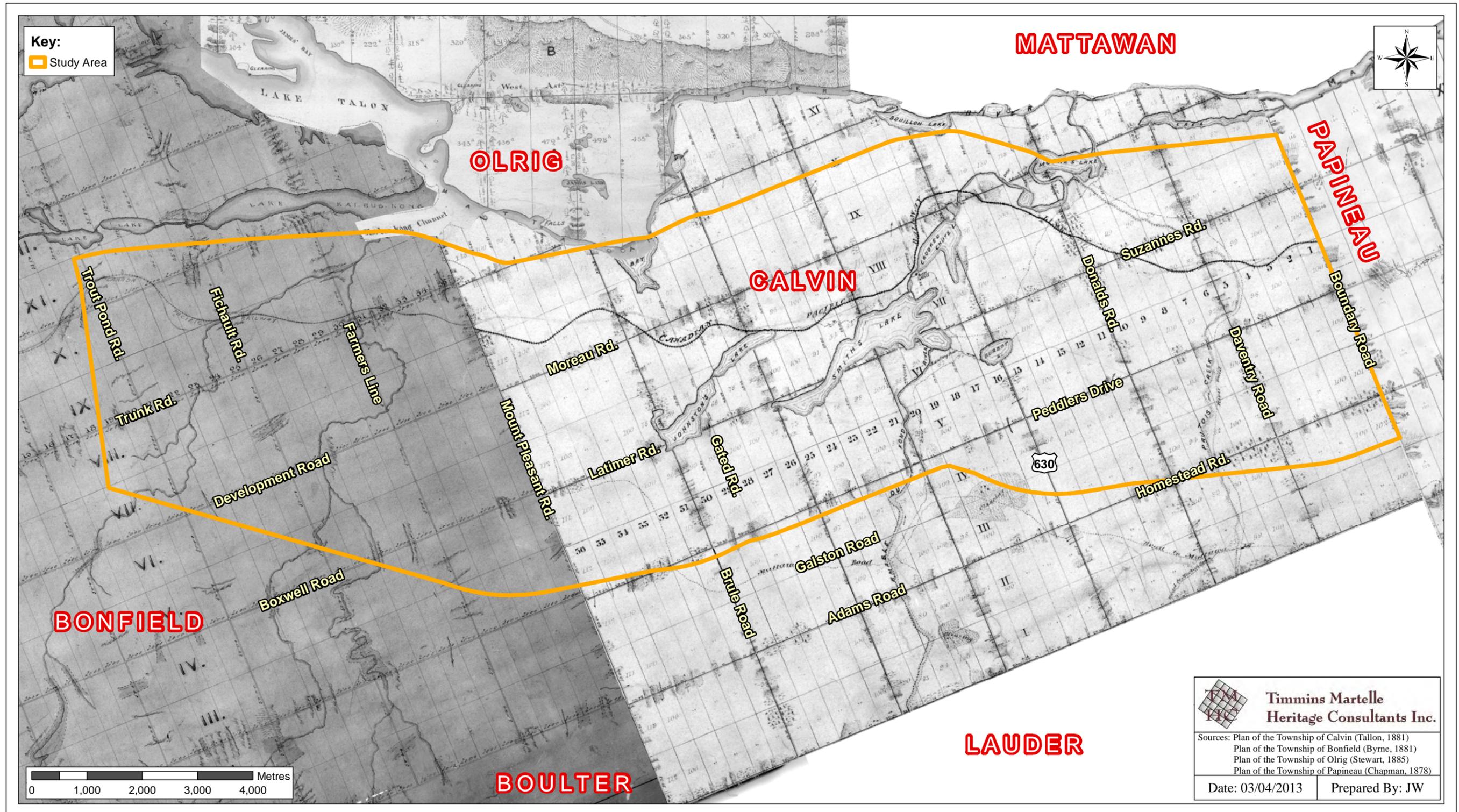
Map 9: Proximity of Study Area to Former Glacial Lakes and Features (adapted from Peter L. Storck's *Journey to the Ice Age (circa 11,300-10,400 Years BP)*, (2004)





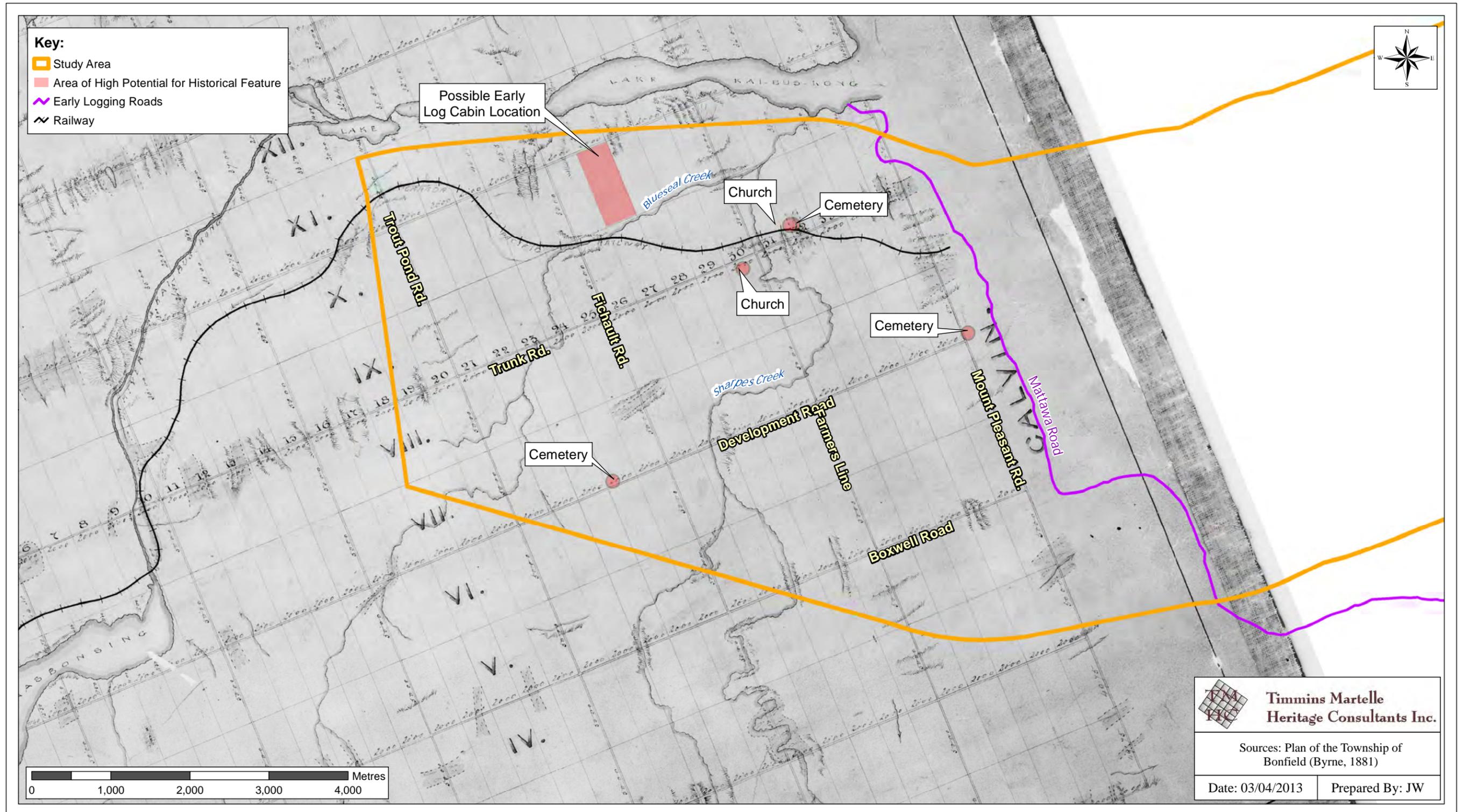
Map 10: Location of the Study Area Shown on a Pre-Crown Survey 1874 Map (note that proposed township names were different at that time)



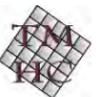


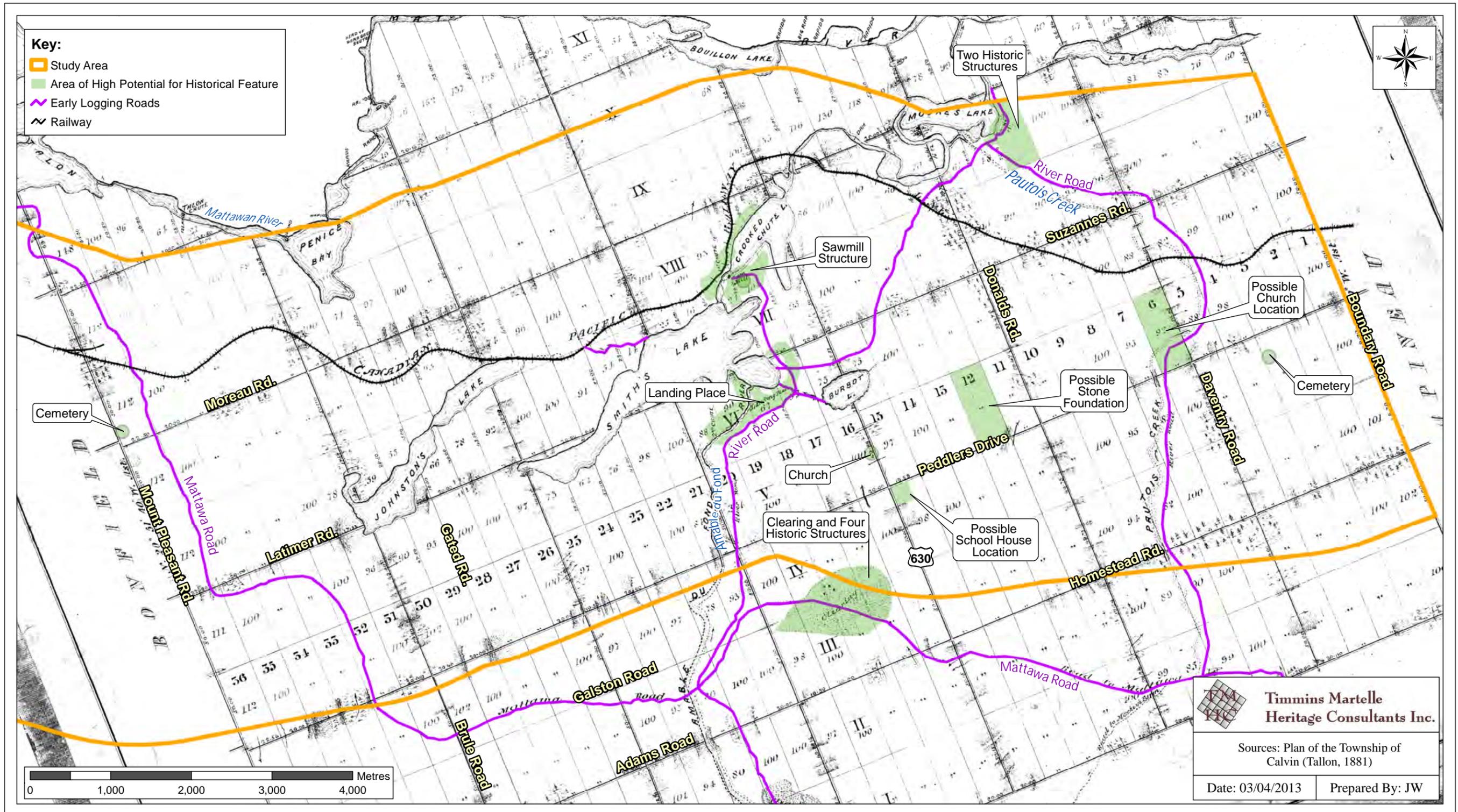
Map 11: Study Area Shown on an Amalgamated Image of Original Township Maps for Calvin (1881), Bonfield (1881), Orlig (1885) and Papineau (1878)



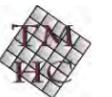


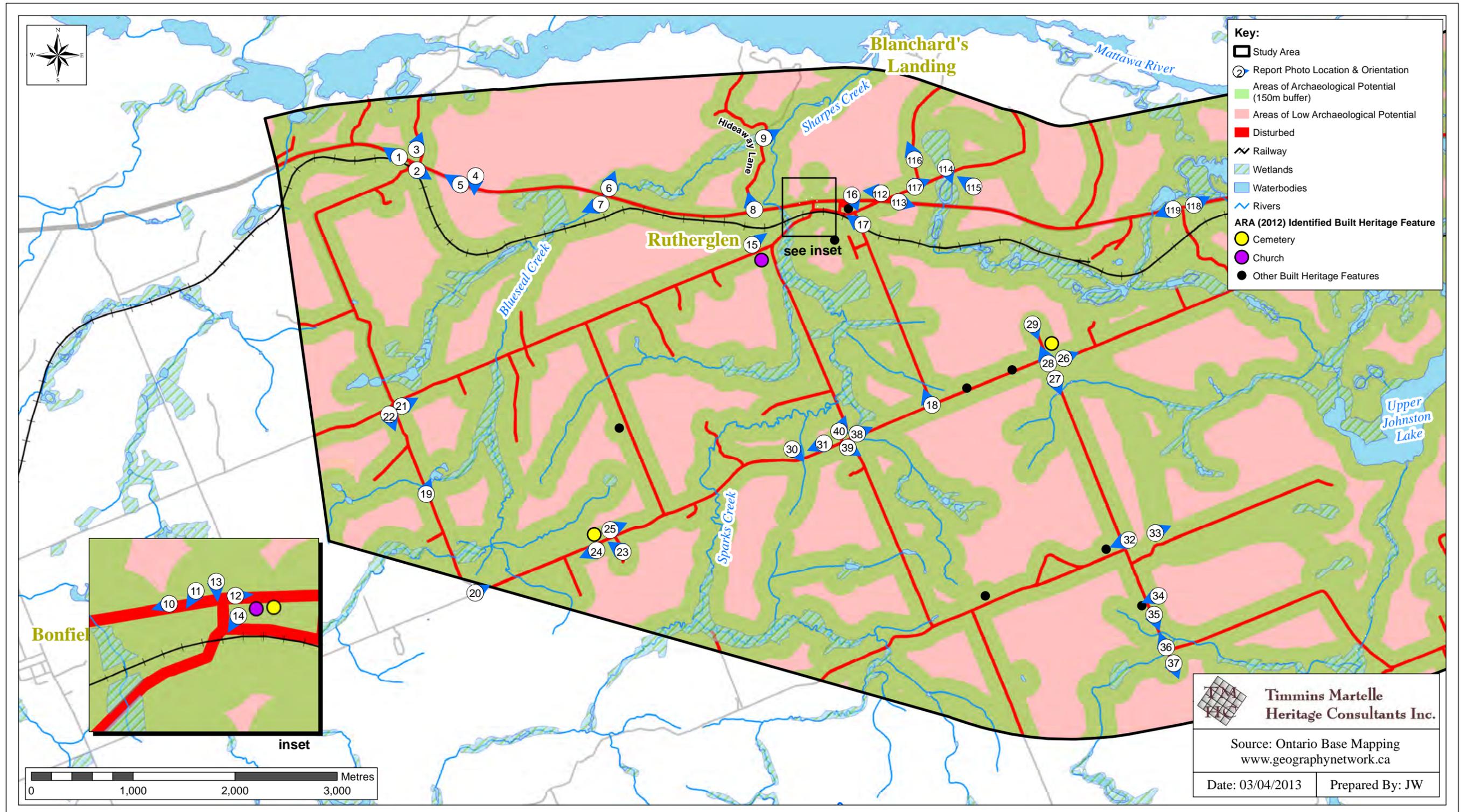
Map 12: Western Portion of the Study Area Shown on the 1881 Survey Plan for Bonfield Township



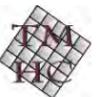


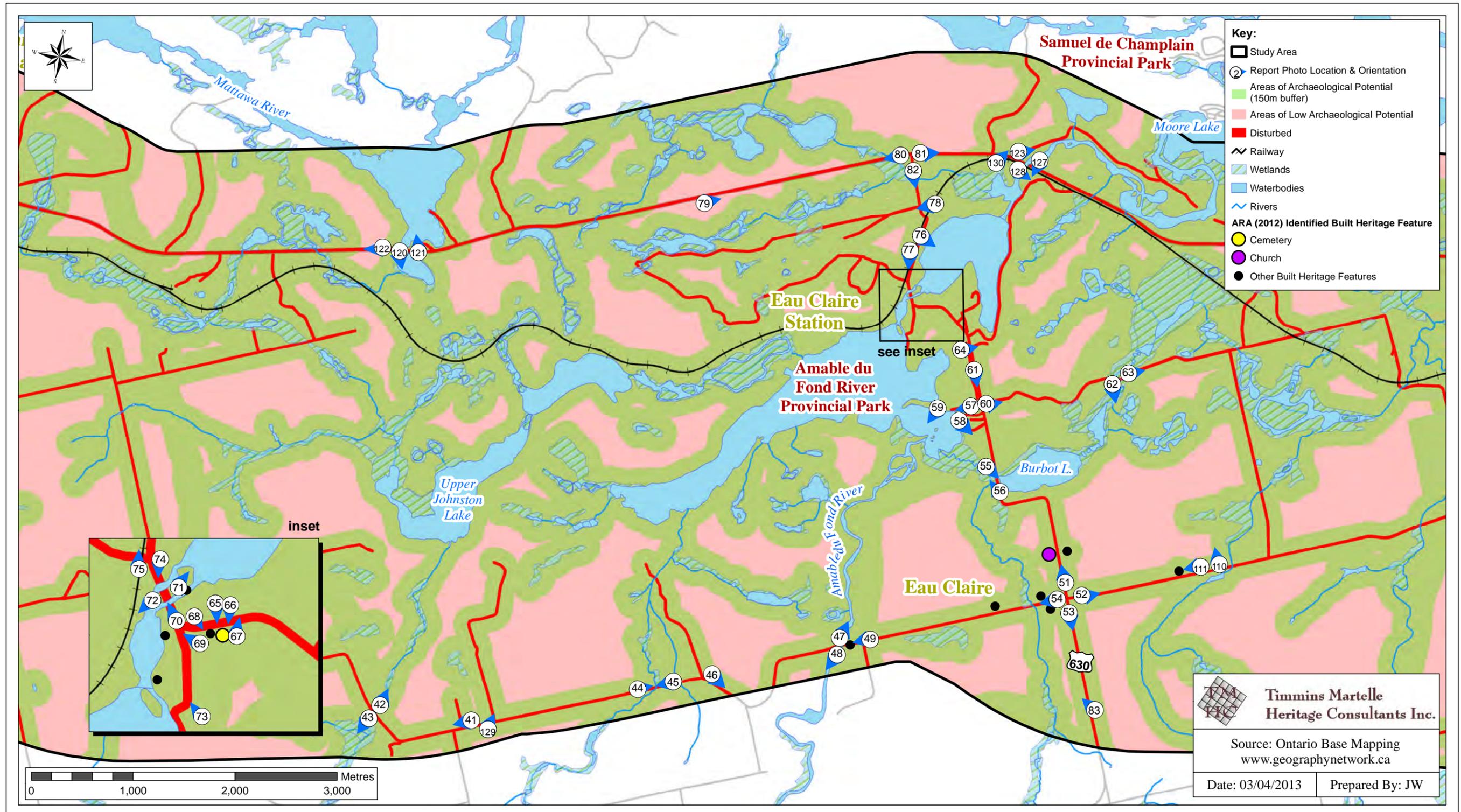
Map 13: Central and Eastern Portions of the Study Area Shown on the 1881 Survey Plan for Calvin Township



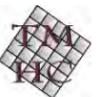


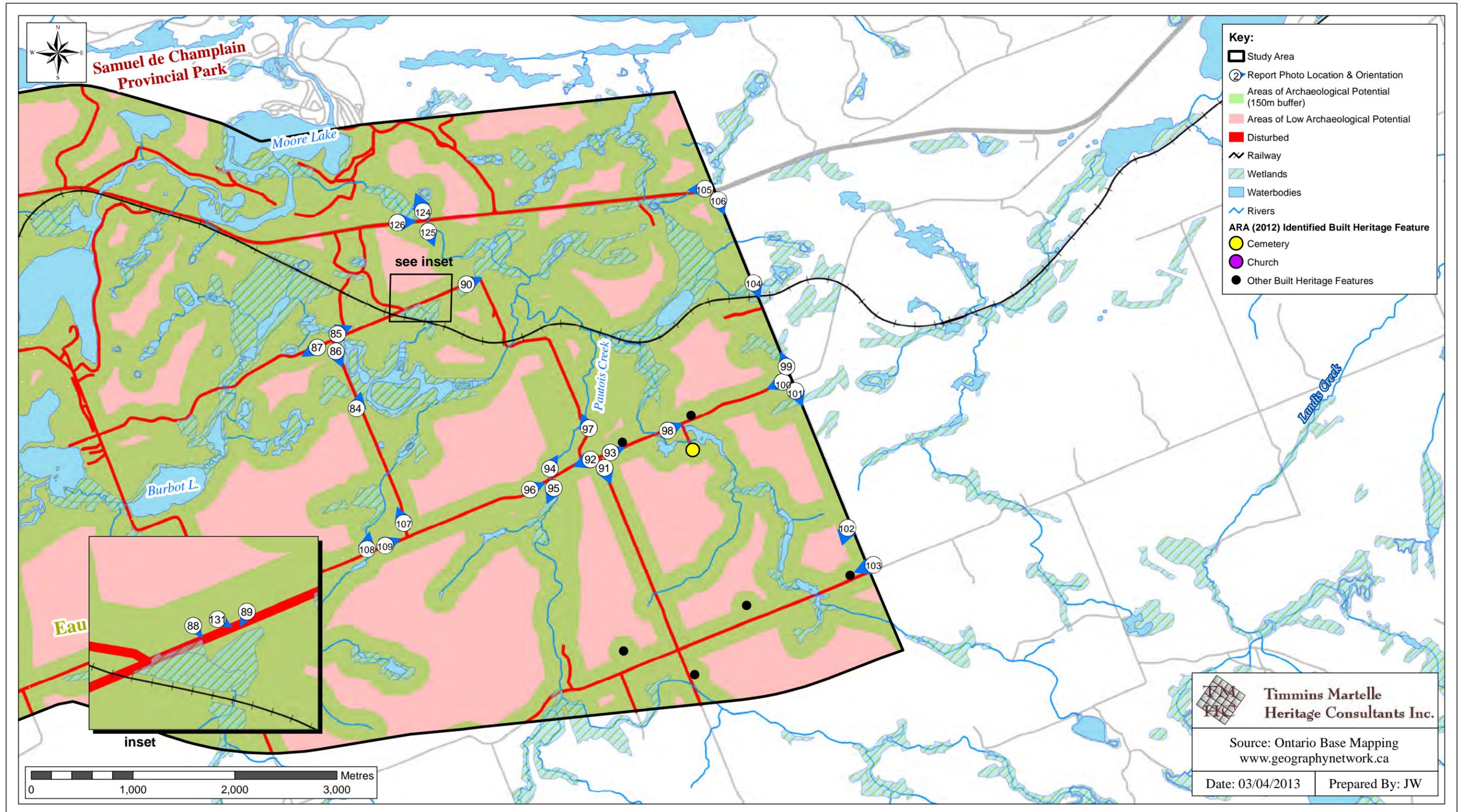
Map 15: Western Portion of Study Area - Areas of Archaeological Potential Based on Secondary Source Information and General Field Review
 (note: more detailed review will be required for preferred route when selected)





Map 16: Central Portion of Study Area - Areas of Archaeological Potential Based on Secondary Source Information and General Field Review
 (note: more detailed review will be required for preferred route when selected)





Map 17: Eastern Portion of Study Area - Areas of Archaeological Potential Based on Secondary Source Information and General Field Review
 (note: more detailed review will be required for preferred route when selected)

