Stage 1 Background Study
Part of Lots 14 and 15, Concession 2, Geographic Township of McClintock, now the Township of Algonquin Highlands, Haliburton County

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Cambium Engineering.
Township of Algonquin Highlands
Ministry of Tourism, Culture and Sport

The Central ARCHAEOLOGY Group Inc.

Bringing the past to the present for the future

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* The Haliburton County Land Registry Office.
* The staff at the Trent University Maps and Geospatial Resources section of the Bata Library, Peterborough.

ACRONYMS

a.s.l.	above sea level
AP	Archaeological Potential
CI	Cambium Inc.
cm	centimeter (s)
CAGI	Central Archaeology Group Inc.
GToM	Geographic Township of McClintock
HC	Haliburton County
Hwy	Highway
km	kilometre (s)
m	metre (s)
MTCS	Ministry of Tourism, Culture and Sport
NAP	No Archaeological Potential
ToAL	Township of Algonquin Highlands

EXECUTIVE SUMMARY

The Central Archaeology Group Inc. (CAGI) was retained by Cambium Inc. (CI) to conduct a Stage 1 background study on the proposed expansion of the McClintock Lagoon in the Township of Algonquin Highlands (ToAH), Haliburton County (HC). The purpose of this study therefore, is to provide a baseline level of data on known and potential cultural heritage resources within the subject property in order to inform future planning decisions regarding the study area.

This study involved the examination of records such as historic settlement maps, land titles and documents, historical land use and ownership records, primary and secondary sources, and the Ministry of Tourism, Culture and Sport's archaeological sites database. This report also outlines the First Nations pre-contact and historic archaeological sequence, the Euro-Canadian historic settlement record for the area, physiography of the project area and determines archaeological potential based on the analysis of this information.

Permission to access the area and to carry out the activities necessary for the completion of the Stage 1 background study was granted by Stephanie Reeder, CI. Based on the results of the archaeological assessment, the following recommendations are provided for consideration to the MTCS and the Proponent, and are subject to approval by the MTCS:

1) As no features of archaeological potential have been identified within the project area, no further archaeological assessment is recommended (as illustrated by the areas marked in yellow and blue on Map 10);

2) Should construction activities associated with this project extend beyond those areas assessed during this project, further archaeological investigation will be required prior to ground-disturbing activities.

3) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.

The MTCS is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

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1.0 PROJECT CONTEXT

1.1 Objectives

The objectives of a Stage 1 background study, as outlined by the *Standards and Guidelines for Consultant Archaeologists* (2011:13), are as follows:

- Provide information on the subject property's geography, history, previous archaeological fieldwork and current land condition;
- Evaluate the archaeological potential for the property and support recommendations for a Stage 2 survey; and,
- Recommend appropriate strategies for future assessments within the property.

1.2. Development Context

The Central Archaeology Group Inc. (CAGI) was retained by Cambium Inc. (CI) to conduct a Stage 1 background study for the proposed expansion of the McClintock Lagoon on part of Lots 14 and 15 (L14/15), Concession 2 (C2), Geographic Township of McClintock (GToM), now the Township of Algonquin Highlands (ToAH), Haliburton County (HC). The McClintock Lagoon is operated and maintained by the Township of Algonquin Highlands who offers a hauled sewage program at this location.

This archaeological assessment was triggered by the Environmental Assessment Act. This project is in the pre-approval stage and the information presented within this report is intended to identify archaeological potential and, in turn, inform future planning decisions regarding the project area.

Permission for access to conduct the archaeological assessment was granted by Stephanie Reeder (CI). Private property was not accessed for this project. Photographs were taken from along within the project area and along the road right-of-way with public property access.

The archaeological assessment was undertaken in accordance with the requirements of the Ontario Heritage Act (R.S.O. 1990), the Standards and Guidelines for Consultant Archaeologists (2011) and the Environmental Assessment Act (R.S.O. 1990). All archaeological consulting activities were performed under the Professional Archaeological License of Laura McRae (P248). The Ontario Ministry of Tourism, Culture and Sport has designated this assessment as PIF P248-0318-2018. This project is further identified as CAGI-2018-LM7 under CAGI records.

1.3 Historical Context

1.3.1 Historic Documentation

There are many historic literary documents regarding the settlement and development of Haliburton County, from its use by the pre-contact First Nations peoples through to Euro-Canadian settlement. Some of the more useful documents include: *Trent Waterway Archaeological Survey* (Hakas 1967), *A Respectable Ditch: A History of the Trent Severn Waterway* (Angus 1998), *The Essential Haliburton: Discover Highland Ontario* (Barnes 2002) and *Peterborough and the Kawarthas* (Brunger 1975).

There are also a significant number of consultant reports (archaeological and built heritage) available for consultation from the Municipal Office and the Ministry of Tourism, Culture and Sport and archaeological sites database information should a site be present within one kilometre of the project area. In addition to historical literature and consultant reports, historical maps and plans, orthographic images and photographs may be acquired.

As part of the Stage 1 background research of the project site, a number of resources were consulted. Research was undertaken at the land registry for Haliburton County in Minden for the lots upon which the McClintock Lagoon sits. A number of archives were consulted to compile a history of the region and the site.

Both the Haliburton County Historical Society and Haliburton Highlands Museum were contacted for access to potential material, however no response was received.

The study area is situated within the GToM, HC, now the ToAH.

1.3.2 Pre-Contact Period

Palaeoamerican Period. (ca. 11,000 to 6000 BCE). South central Ontario was first inhabited by humans after the final retreat of the Laurentide ice sheet and formation of glacial Lake Algonquin. Although Palaeoamerican sites in the region are rare, humans may have occupied Peterborough and Haliburton counties after the lowering Lake Algonquin water levels. The climate would have been vastly different than it is today. The landscape would have been more akin to the tundra of the north with little vegetation by scrub. The temperature would have been colder, and owing to the lack of vegetation, significantly windier.

Generally, Palaeoamerican sites in Ontario have been found along abandoned glacial lake beaches (Ellis and Deller 1990:50). These sites tend to be small campsites associated with transhumance across the landscape. The Palaeoamerican Period is defined by the movement of small family groups across the landscape. Palaeoamerican groups followed migratory

animals across vast territory. These groups would band together periodically during favourable periods or to exploit particular resources, such as caribou (McDonald 1968). These early peoples depended upon hunting game and the gathering of wild resources.

Given isostatic rebound, shoreline destruction, and inundation, little is known about the maritime adaption of Palaeoamerican people. For the most part, it can be posited from other places in North America (Faught 1996; 2004; Faught and Brinnen 1998; Faught and Donoghue 1997; Faught and Gusick 2011; Gusick and Faught 2011; Marks and Faught 2003). Nonetheless, in general, Palaeoamericans are distinguished by the distances they travelled over land and their lithic assemblage. Artifacts have been recovered from archaeological sites in Ontario that were made from high quality cherts found hundreds of kilometres from where they were finally deposited (Storck 2004:33).

Palaeoamericans produced lance-shaped points which lacked the notches and stemming crafted by later peoples for hafting purposes (Ellis and Deller 1990:38). Since Palaeoamerican groups traveled significant distances away from their chert sources, they produced heavily re-sharpened and retouched tools (Dickson 2011:52; Ellis and Deller 1990:45), such as end-scrapers, side-scrapers, knives, gravers, and drills (Ellis and Deller 1990:49, 59). Assemblages found on sites vary depending on the proximity to the chert source used for lithic manufacture (Dickson 2011:52). Archaeological sites that are a fair distance away from a chert source will have no evidence of core reduction or early stage preform reduction. This activity was usually undertaken at or near quarry sites (Dickson 2011:52; Ellis and Deller 1990:45).

Ultimately these tools assisted Palaeoamericans in day-to-day activities, in particular, food and resource extraction. A variety of subsistence options were available in central Ontario at the time. The land would have supplied large game like caribou (Watson 1999a:33). There is evidence from other Palaeoamerican sites in southern Ontario that fish was processed (Storck 1997:278). The Palaeoamerican groups that inhabited central Ontario practiced a seasonal transhumance, relying on maritime resources along Lake Algonquin or perhaps the Champlain Sea during certain parts of the year and traveling inland, perhaps during the winter, to hunt migratory and herd-based species. This subsistence pattern is more inline with maritime-based Palaeoamerican groups found along the east coast of North American, rather than the traditional inland based subsistence economy subscribed to by many archaeologists for southwest Ontario.

To date, there have been three types of Palaeoamerican sites found in Ontario by archaeologists. These are dropped point sites, quarry sites, and short occupation camp sites. There are no known Palaeoamerican sites in Haliburton County, but sites have been found nearby, including in Lake Abitibi, Fort Témiscamingue (Pollock 2005:10), Perth (Pilon 2005:14, Watson 1999a:34), and Lanark County (Branson and Kennett 1999:77). As the

glaciers receded even further north, a mixed boreal forest environment began to emerge. The boreal forest hosted a larger variety of animals and thus alter the technology being used.

Early Archaic (ca. 6000 to 5000 BCE). During the later Palaeoamerican Period, people began to settle and develop a pattern of movement within specific geographic ranges (Stock 2004:125). Eventually, it is believed, movements became seasonal in pursuit of food resources (Storck 2004:126). This seasonal resource economy continued and became commonplace during the Archaic Period. Lakes and river shores formed an important ecotone for human occupation (Ellis et al. 1990:68, 91; Gordon and McAndrews 1992:80; GRAO 2011:16; Wright 1972:33). These locations would have been easy to access by people traveling in watercraft (Wright1972:36). Travel between sites would have been quicker, improving communication and trade between people. In addition, more could be transported in a boat than carrying overland.

The Archaic period is characterized by the exploitation of a wide range of raw materials for tool manufacture (Clermont and Chapdelaine 1998; Ellis et al. 1990:65, 66). Unlike Palaeoamericans, who used high quality cherts for their lithic assemblage, during the Archaic Period localized materials and glacial till were also used for tool construction. Projectile points were being notched and stemmed and the larger flakes produced during the earliest stages of tool production were now being used as expedient tools (Dickson 2011:52; Ellis and Deller 1990:45; Ellis et al. 1990:66). A new technique in tool production, grinding and pecking, produced ground stone implements (Ellis et al. 1990:65).

Like the Palaeoamerican Period, the Early Archaic in Haliburton County and northern reaches of Peterborough County is not well known. It is believed that Early Archaic sites diminish in number north of Lake Ontario as these Early Archaic groups were contemporaneous with Late Palaeoamerican groups in eastern Ontario (Ellis et al. 1990:68). It is not until the Middle Archaic that there is evidence of Archaic people in the region of Algonquin Park.

Middle Archaic (ca. 5000 to 2500 BCE). The Middle Archaic is characterized by a decrease in mobility across the landscape and a greater use of local stone for lithic production. Therefore, overall there is a decrease in the size of the territories being exploited. For example, groups resided for longer periods of time in one place, and multiple interments found on sites, have lead archeologists to believe that people were returning to the same locations for a number of years to exploit a single or multiple resources in one locale.

Haliburton County and the northern townships of Peterborough County were likely inhabited by the Laurentian Archaic groups. The Laurentian Archaic people made a number of distinct ground stone tools. These include: stemmed points, bayonets, and semi-lunar knives (Ellis et al. 1990:84; Wright 1995:224;). They also extensively produced tools made of

bone and thus, little remains in the archaeological record, especially in areas were soil acidity is high. These tools include stemmed, socketed and barbed points, unilaterally barbed harpoons with holes, pointed awls, gouges, fish hooks, bi-pointed gorges, whistles, flutes, beaver incisors used as scrapers or knives, and large and small needles (Clermont 1999:49; Clermont and Chapdelaine 1998; Ellis et al. 1990:87; Mason 1981:166; Wright 1995:219). Due to the environment and the limited availability of plant food resources in the Canadian Biotic Province, Laurentian Archaic sites yield less plant processing tools, and show a heavier reliance on hunting and fishing activities (Ellis et al. 1990:91).

Many of the bone tools listed above, have counterparts made from copper (Ellis et al. 1990:88). The appearance of copper artifacts represents far reaching trade networks. Copper artifacts found on Laurentian Archaic sites indicate trade with Shield Archaic peoples who exploited the copper resources around Lake Superior. The Shield Archaic, as the name implies, represents the cultural remains of a people living in the Canadian Shield. The Shield culture covers a large territory from the southwestern portion of the Northwest Territories, most of Manitoba, northern Ontario, northern Québec and Labrador (Wright 1972:1995). Given the location of Haliburton County, the region likely witnessed influence by both Laurentian and Shield Archaic groups.

Unlike the archaeological assemblages found on the Laurentian Archaic, early Shield Archaic sites have an absence of ground stone tools (Wright 1995:262). Their settlement pattern and distant trade patterns suggest the use of watercraft. The people of the Shield Archaic made side-notched, stemmed and lanceolate projectile points, end-scrapers, side-scrappers and flake scrapers, wedges, bifacial cores, preforms, bifacial and unifacial flakes knives, drills, hammers, awls etc. These tools were commonly made out of quarts, some chert varieties, and copper. Throughout pre- European contact, settlement patterns and subsistence activities remain largely unchanged for the Shield Archaic (Wright 1999:705). Nonetheless, the extent of divergence between the Shield and Laurentian Archaic groups is limited to the tool assemblage. Laurentian Archaic tool artifacts have been found in territories often associated with the Shield Archaic and vice versa. In northeastern Ontario on the Abitibi Narrows, a ground slate point, a projectile point of the Laurentian Archaic, was found with stemmed and lanceolate point forms, which belong to the Shield Archaic. Therefore, clearly interaction between these two technological distinguished groups was taking place. A mixture of both Laurentian and Archaic tools can then be expected in the artifact assemblage in archaeological sites located along the perceived boundary between the two technological traditions.

Both the Middle Archaic and Late Archaic periods are not well represented in Haliburton County. With the exception of a number of small sites in Algonquin Park, what archaeologists know about the Middle and Late Archaic periods is derived from the artifact assemblages recovered from the Allumette and Morrison's Island sites in the Ottawa River

Valley. The sites on Allumette island have been assigned to the Vergennes phase of the Laurentian Archaic (Ellis et al.1990:85) and the sites on Morrison's Island have been assigned to the Brewerton phase (around 4500 B.P.) of the Laurentian Archaic (Clermont and Chapdelaine 1998:152).

Late Archaic (ca. 2500-800 BCE). Late Archaic sites in southern Ontario are larger and more frequent in the archaeological record than the Early and Middle Archaic periods. Around 4500 BP water levels in the Great Lakes began to assume modern day levels and it is at these levels on islands, near the mouths of rivers, rapids, and near marshlands that larger camp sites are found. Populations increased and people began to aggregate in much larger groups along bigger bodies of water. They stayed on these lakes and rivers during spring, summer and early fall, than broke into smaller family groups that moved into the interior for the winter.

In Ontario, three Late Archaic cultural complexes are defined based on the style of projectile points: Narrow Point (ca. 4500-3800 BP), Broad Point (ca. 4500-3500 BP), and Small Point (ca. 3500-3000 BP). However, around Algonquin Park, there are no distinctive projectile points for this time period. Laurentian cultural material begins to appear with different styles of projectile points that have been expediently made and are difficult to assign to any particular time period or cultural group. The reduction in size of projectile points could indicate the beginning of bow and arrow use (Ellis et al. 1990:106).

During the Late Archaic period and carrying on into the Woodland period there is evidence of extensive trade networks operating in the region. Copper tools were exchanged in the Early and Middle Archaic periods but by the Late Archaic there is evidence of non-utilitarian goods made out of material like copper and marine shell still being traded (Spence et al. 1990:166). Since populations are presumably getting larger, some raw materials that use to be exploited by a variety of groups are now found in a single group's territory (Spence et al. 1990:166). Therefore, trade becomes essential to obtain valued resources. With populations increasing, inter-band marriage was also likely and gifts between bands could have been made to establish and secure relationships.

Early Woodland (ca. 1000 to 50 BCE). The Early Woodland Period in most of Ontario is marked by the appearance of fired clay ceramics. Southern Ontario is described as having two complexes, Meadowood (ca. 900-400 BCE) and Middlesex (ca. 450-0 BCE). Ceramic vessels made during the Early Woodland, called Vinette I, are thick, have conoidal bases, and are believed to have been used for cooking and food storage (GRAO 2011:18; Spence et al. 1990:128; Watson 1999b:56). Vinette I pottery has been found on the Upper Ottawa River across from Chalk River (Watson 1999b:59). A Vinette I vessel was also recovered from a Shield Archaic site on Lake Timiskaming (Spence et al. 1990:131).

The Meadowood tradition, known throughout the St. Lawrence Valley and as far north as Abititbi, has produced a wide range of artifacts that are found in both cemeteries and habitation sites (Spence et al. 1990:128). The northern limits of the Meadowood tradition are believed to extend to Rosebary Lake in Algonquin Park and the Deep River site on the Ottawa River (Spence et al. 1990:131). A common artifact of this tradition is a biface blade, often referred to as a cache blade, which is posited to have been used as a preform for the manufacture of various types of tools (Spence et al. 1990:128; Watson 1999b:57). Early Woodland peoples created side-notched points which were frequently recycled into other tool forms, such as end scrapers and perforators.

During the Early Woodland Period, people began to bury their dead in cemeteries, places exclusively reserved for the disposal of the dead. Burials indicative of this funerary tradition, called Middlesex, have been located in the Ottawa Valley. These burials are characterizes by an absence of cremation, the presence of polished slate gorgets, tubular pipes, adzes and cylindrical copper pearl necklaces as burial goods. Overall, the tradition has its origins in the states of Ohio and Michigan with the Adena complex. The Morrison Island site, found and excavated by Clyde Kennedy in 1958, had burials that dated to this period, and some of the burials contained cooper beads, and copper bracelets (Clermont and Chapdelaine 1998:21, 22, 25).

Middle Woodland (ca. 50 BCE to 950 CE). During the Middle Woodland Period, population sizes increase as does the duration of site occupation. This change is mirrored by a dramatic increase in the exploitation of wetland plants and animals (Lovis et al. 2001:628). Base camp sites, satellite sites, and gathering places are all represented in the archaeological record (Reid and Rajnovich 1991:221).The social patterning of the Middle Woodland Period is also beginning to resemble what is reported on ethnographically in early European documentation. In Ontario, there are four main cultural complexes associated with the Middle Woodland Period: Point Peninsula, Saugeen, Couture, and Laurel. However, only the Point Peninsula and Laurel complexes pertain to the study area.

The Point Peninsula complex extends throughout south central and eastern Ontario, western and northern New York, and northwestern Vermont (Spence et al. 1990:157). Haliburton County is believed to be within the Point Peninsula territory, but there is also evidence to suggest that it is being influence by the Laurel Complex as well (Branson and Kennett 1999:80). Common tools recovered during this period are barbed bone and antler harpoons, decorated antler combs, bone fish hooks, antler-hafted beaver incisors, and a wide variety of projectile points, celts and gorgets. However, none of the aforementioned tools are exclusive to the Point Peninsula complex (Spence et al. 1990:159). The dead are increasingly buried or relocated to burial mounds. Each mound, or addition to a mound, is considered to represent the accumulated dead of one generation. Bodies were thought to be placed in primary burials, than exhumed at a later date, and relocated to the mounds.

In much of northern Ontario, the appearance of distinctive ceramics marks the beginning of the Laurel Complex around 200 BCE (Dawson 1981; Reid and Rajnovich 1991). The Laurel Complex is defined by the introduction of pictographs across the Canadian Shield. (Rajnovich 1994:47). The boundary between the Laurel and Point Peninsula complexes is believed to be Lake Nipissing and the French and Mattawa Rivers (Laliberté 1999:73).

Late Woodland Period (ca. 950 to1500 CE). The beginning of the Late Woodland Period in the St. Lawrence Valley and the Upper Great Lakes is marked by the emergence of sedentary settlements. The cultural manifestations during this time period are believed to have been very similar to the ones witnessed by the first Europeans who visited the region. The earliest evidence of agriculture begins to appear around 700 years ago with year round settlement in small villages (GRAO 2011:19). Since sedentary villages are seen as a Woodland Period transition into the Iroquois Period of history in southern Ontario, and that Haliburton County and the surrounding region has traditionally been Anishinaabe territory, these larger sedentary village sites are not expected in the archaeological record. Instead, it is believed that the Anishinaabe of the Canadian Shield largely maintained a pattern of seasonal transhumance as witnessed in the early periods on Ontario history.

During the Late Woodland period ceramics manufactured in the St. Lawrence River Valley began to show a distinct regional style characterized by more complex decoration. The vessels have globular bodies and have a narrow neck with a flared rim decorated with castellations using the paddle and anvil technique. Pipes, beads and tokens are also made from ceramics. Stone tools are rare, bone and animal teeth (particularly beaver incisors) are more common materials used in the manufacture of tools (GRAO 2011:19). With trade routes extending north of the Great Lakes, this material culture can be expected in archaeological contexts in the northern townships of Peterborough County and Haliburton County.

By the transition of the Terminal Woodland Period to the Early Iroquois Period (ca. 1500 CE), the Anishinaabe of the Canadian Shield continue to practice a hunting and gathering subsistence economy that has not changed much since the Archaic. However, it is likely that some horticultural activities were undertaken. Although referred to as the Early Iroquois Period in Iroquois-speaking territory to the west, in the Canadian Shield, this period is referred to in the literature as the Pickering Complex. Although most of what is known about the Pickering Complex has comes from south central Ontario, Pickering or Pickering-like complexes have been identified in the Ottawa Valley, along the Muskrat River, and on Lake Nipissing.

The Pickering Complex is defined by a distinct ceramic tradition, which shifts from cord impressions to linear and dentate stamps and exterior bossing along the neck and rim and ribbed paddle or checked stamps on the body of the vessel. Other distinctive technology during this period includes triangular shaped projectile points, bone awls and beads, and

ceramic pipes. In addition, Iroquoian-like ceramic vessels appear in small numbers in northeastern Ontario and northwestern Québec (Guindon 2009:68). The presence of these ceramics suggests a change in the interaction network that had been in place between the residence of the Ottawa Valley and the Canadian Shield since the Archaic period. In Québec archaeologists have defined a period, Mamiwinnik (1350 to 1650 CE), which is characterized by the rapid increase in the number of Iroquoian pots found on Algonquin sites in northwestern Québec (Guindon 2009:85). This is important to note since people would have travelled up and down the Ottawa River and may have stopped at the mouths of any of the major tributaries to camp, trade or perform subsistence activities.

Historic Period (ca. 1500 CE - to the present). With the arrival of Europeans, distinguishing specific cultural groups inhabiting the region becomes less arduous, since it is now possible to draw upon ethnohistoric accounts, which could include the journals of early explorers and visitors to the more in-depth accounts of missionaries, who were charged by the European authorities and the Church with converting the Aboriginal population, often to the detriment of the First Nations, and thus obligated to provide details to their progress. However, piecing together the post contact First Nations history for the project area still remains challenging simply because little effort has been made to date to consolidate the known resources into a logical and comprehensive history.

The predominate First Nations group inhabiting the region at the time of contact, and therefore, likely the descendants of the Laurel groups in the area, are the Algonquins. There is some confusion between the term used to describe Algonquian-speaking groups in the Northeast, including the Maliseet and Mi'kmaq of Atlantic Canada, to name a few, and the group of First Nations people that inhabited the region around the Ottawa River. However, in this section, Algonquin, derived from the Maliseet word for "allies," is used to describe the latter. The Algonquin called themselves the *Anishinabeg*, meaning "people."

The closest First Nations communities to the project area are Mnjikaning and Wahta Mohawk Territory. Both communities are situated between approximately 73 kilometres to the south and southwest (respectively) of the current lagoon.

Table 1. Summary of the First Nations archaeological sequence in southern Ontario.

Date	Periods and Cultural Tradition
11,000 BCE - 6,000 BCE	Palaeoamerican
11,000 BCE - 8,000 BCE	Early Palaeoamerican
8,000 BCE - 6,000 BCE	Late Palaeoamerican
6,000 BCE - 800 BCE	Archaic

6,000 BCE - 5,000 BCE	Early Archaic
5,000 BCE - 2,500 BCE	Middle Archaic
2,500 BCE - 800 BCE	Late Archaic
1,000 BCE - 1,500 CE	Woodland
1,000 BCE - 50 BCE	Early Woodland
50 BCE - 950 CE	Middle Woodland
950 CE - 1,500 CE	Late Woodland
1,500 CE - Present	Historic

1.3.3 Post-Contact Period

Haliburton County (Map 2). In 1818, the land that would become Haliburton County was purchased by the Crown from the Anishinaabe as part of Treaty No. 20 of November 5, 1818. Treaty No. 20 included approximately 1,951,000 acres of land in parts of Peterborough, Victoria, Durham, Ontario, and Haliburton counties, as well as parts of the Muskoka District. In exchange for the land, the Crown paid a yearly sum of goods valued at £740 and $10 (ten Spanish eight-real coins) each year for life to every First Nations person affected by the treaty (Karcich 2013:44). The Anishinaabe who lived in what is today Haliburton County were settled in what would become the Chippewas of Rama Mnjikaning First Nation (Barnes 2002:10).

In 1819, military personnel were sent by canoe into the region to explore the waterways. Cartographer and explorer, David Thompson, mapped Fork Lake (now called Lake of Bays) and the surrounding area in 1837 (Barnes 2002:11). However, it was not until 1847 that Robert Bell with a crew of 13 men surveyed a line through what would become Haliburton County to explore its suitability for settlement. Bell noted the presence of a few Euro-Canadian squatters and some First Nations hunting parties (Emmerson 2015:3). However, the settlement of Haliburton County was put on hold in favour of settlement along the Peterson and Bobcaygeon colonization roads (Keith 1992; Macdonald 1994).

Euro-Canadian history in what would become Haliburton County primarily begins with the lumber industry. With its dense forests, the region began to be exploited by the lumber industry by 1860. The chief lumbering company working within the woods of Haliburton County was owned by Mossom Boyd, who arrived in Canada in 1834. Boyd began working at a small sawmill at Bobcaygeon in 1844 and purchased it in 1847 when the original proprietor returned to England. Eventually Boyd's business ballooned into agriculture in western Canada, lumber in central and northern Ontario and transportation. Although Boyd continued to cater to the local market, his success was gained by marketing his lumber

throughout Canada, the United States and Great Britain (Barker 2003; Curtis 2013). To satisfy the demand for his products, Boyd expanded operations in Haliburton County in 1869 when he purchased nine townships from The Canadian Land and Emigration Company.

The original timber rights to the project area are unknown. However, Boyd's lumber company controlled the Gull River watershed for transportation of pine downriver to his sawmill at Bobcaygeon (Barker 2003). Boyd initially agreed to pay The Canadian Land and Emigration Company $0.30 per log cut and he could cut up to 40,000 logs per year. By 1874, Boyd had cut 88% of the logs from lands owned by The Canadian Land and Emigration Company (Curtis 2013).

Many of the original splash dams in Haliburton County, which would become the sites of the modern dams used to control water levels on the Trent Severn Waterway, were constructed by Boyd's company. Boyd played an integral part in lobbying the colonial government and later, the Canadian Government, for the construction of the Trent-Severn canal to facilitate transportation of his products, which primarily comprised of square cut timber being shipped to Great Britain (Angus 1998). By 1855, Boyd had taken ownership of the Trent River Slides (Angus 1998: 88; Curtis 2013).

By the 1880s, much of the pine in Haliburton County had been cleared. Pine, a softwood, could be floated downstream to the sawmills further south, a trip that could take a log driver eight to ten weeks. Hardwoods, which do not float, only began to be cut after the construction of the Victoria Railway in 1878 (Mulvany and Ryan 1884:472). By the 1880s, the Boyd Company had moved its operations further to the north and west of Haliburton County in search of virgin pine stands.

In conjunction with the lumber industry, settlement followed shortly thereafter. By the mid 1850s, pressure was being placed on the government to open up more land for settlement and possible agricultural pursuits, where arable land could be found. In 1857 and 1858, James W. Fitzgerald, Michael Deane, and John Lindsay were hired to survey the outlines of new townships in the region. Michael Deane, made the first north-south transit in and stated that there was land suitable for settlement, and the presence of rushing water could provide power for grist mills (Barnes 2002:11). A saw mill was built by William Gainor on Lot 9, Concession A in the Township of Minden in 1861 and a grist mill on the same site a year later (Mulvany and Ryan 1884:482). As a result of Deane's survey and the construction of the Bobcaygeon Road, a number of settlers began to arrive in the Township of Minden and the town of Minden was formed in 1864, where the Bobcaygeon Road crossed the Gull River (Mulvaney 1884). Although farmland is scarce within Haliburton County, good, arable land exists, especially within the vicinity of Horseshoe Lake, northeast of the settlement at Minden.

In 1859, the Crown Land Department opened up nine townships in the Haliburton District (yet unnamed) for settlement at 50 cents per acre (Emmerson 2015:5). The nine townships were Dysart, Dudley, Harcourt, Gilford, Stanhope, Bruton, Havelock, Eyre, Clyde, and Langford. Most of the land was purchased in block by the speculative firm of the Canada Agency Association based in London, England, which would become the Canadian Land and Emigration Company upon completion of the purchase of lands in 1862. The intention of the sale was to encourage rapid settlement of the lands.

The Canadian Land and Emigration Company's plans included "the survey, improvement, clearance, cultivation, and sale of company lands; loans for settlers, construction of schools and churches, the building and improvement of roads, railways and communications to facilitate settlement, plus promotion of emigration from the British Isles and elsewhere" (Emerson 2015:12). The village of Haliburton and the County would be named after Hon. Thomas Chandler Haliburton who became the first chairman of The Canadian Land and Emigration Company. By 1871, The Canadian Land and Emigration Company had sold 16650 acres of land within the townships to settlers.

In 1874, the Provisional County of Haliburton was organized via the Legislative Assembly of Ontario, by removing certain townships from the Counties of Peterborough and Victoria. This was carried out due to the desire of the settlers who wished to have a rail line built into the region. A bonus ($55,000.00) was requested to build the proposed Victoria Railway. They also expected that more rapid development of their district would take place if they themselves had exclusive control of their own local affairs.

In 1883, the Ontario Government, began to offer free land to settlers in the townships surrounding the block that was sold to The Canadian Land and Emigration Company. As a result, The Canadian Land and Emigration Company sold its remaining holdings in Haliburton County to W. H. Lockhart and James Irwin on April 11, 1883. James Irwin had previously entered in a partnership with Mossom Boyd regarding lumbering in the region. Irwin and Lockhart formed the Canadian Land and Immigration Company of Haliburton Ltd. in 1889. However, settlement and lumber activities within their holdings practically ceased and in 1895 Irwin declared bankruptcy and the Canadian Bank of Commerce took possession of his shares in the Canadian Land and Immigration Company of Haliburton Ltd. and its lands, including the project area.

In 1920, the Canadian Land and Immigration Company of Haliburton Ltd. sold the township of Bruton to the Ontario Hydro-Electric Commission. The profits from this sale allowed the Canadian Land and Immigration Company of Haliburton Ltd. to acquiredJames Irwin's remaining timber rights in the Haliburton townships. Lumbering activities once again picked up but the industry was decimated a short time later during the Great Depression. However,

with the construction of numerous logging roads into the region during the previous decade, it is at this time that the Canadian Land and Immigration Company of Haliburton Ltd. began to sell a substantial number of lots for recreational purposes. Lumbering activities increased in the region during World War 2, but declined once again after the war. In 1946, the Canadian Land and Immigration Company of Haliburton Ltd. sold off its remaining lands and closed down operations (Cummings 1963). Throughout the latter half of the twentieth century, recreational use of the former Canadian Land and Immigration Company of Haliburton Ltd. lands has increased substantially.

The images on Map 2 are of the best quality possible that could be found to include in this report. The subject property is not associated with a colonization road nor any historic structures.

1.3.4 Study Area History

Dorset. Originally called Cedar Narrows, the Village of Dorset was first settled 1859 by Francis Harvey and the area became known as Trading Bay on behalf of his trading post. The name was changed shortly thereafter to Colebridge, in honour of Zachariah Cole, the individual responsible for mapping the area on behalf of the government in 1860.

Early settlement in the Dorset area was, in large, assisted by the construction of the Bobcaygeon Colonization Road, which extended north from the Village of Bobcaygeon (Victoria County), to just north of the Peterson Colonization Road (Hastings County). Early settlers to the area were granted lots of land once they fulfilled various settlement duties (i.e., clear land, build dwelling, etc.).

Economic activities in the area were primarily relegated to the timber industry with some also partaking in hunting and trapping. Today the region is mostly inhabited by cottagers and there is a thriving tourist industry during the three seasons (spring, summer and fall).

L14/15C2. Unfortunately the land registry abstract records a the Haliburton Land Registry office in Minden were too blurred and faint to identify any names, dates, amounts or land size. As a result, we were unable to get any additional information regarding the early granting on these two lots.

1.3.5 Summary

Euro-Canadian settlement in the GToS and throughout HC remained sparse throughout the nineteenth century owning to the lack of arable soils for agricultural pursuits. However, Euro-Canadian alteration to the landscape was nonetheless great with the exploitation of timber resources. Euro-Canadian archaeological resources will likely be associated with the

lumber industry in the region during the latter half of the nineteenth century. This could include work camps, especially during the construction and maintenance of the original splash dams, or when the dams were reconstructed and rehabilitated during the twentieth century. Archaeological resources can include ceramic tableware, glass shards from liquid containers, tools, and faunal remains as well as materials related to the lumber industry such as metal.

However, the land registries, census records and historic maps show that this area was mainly rural and had a low level of occupancy in the eighteenth and nineteenth centuries (and even the twentieth and twenty-first) centuries. Through historical background research, there is no evidence to suggest that the any of the project area was occupied during the Euro-Canadian settlement of the the township.

1.4 Archaeological Context

1.4.1 Current Conditions

The project area is located within the northern portion of Haliburton County, between Harvey Lake to the south and Kawagama Lake to the north. It is surrounded by a number of other bodies of water including the Harvey Lake Creek and tributaries of the Hollow River. The current lagoon is surrounded by secondary growth forest which included such trees and wildflowers as maple, milkweed, goldenrod, oxeye daisy, poison ivy, St. John's wort, elm, oak, wild raspberry and blackberry, bugloss, vetch, poplar, paper birch, pine, Queen Anne's lace, yarrow, bedstraw, aster, spruce, sensitive fern and pin cherry.

A portion of the subject property has already been subjected to previous development with the current McClintock Lagoon, McClintock Road and Wes Clarke Trail. Exposed bedrock was not noted within the project area but some was noted outside of the limits. A number of monitoring wells placed by CI were present throughout the area.

Images 2 to 12 illustrate the current conditions of the project area. These can be found in Section 9.0.

1.4.2 Physiography

The assessment of physical and environmental conditions of a region is important to the analysis of past human settlement behaviour as well as for the interpretation of features and site patterns on the landscape. The cultural development of every society is strongly influenced by the surrounding natural environment which provides a finite set of resources that humans use to fulfill a variety of needs. Geomorphology, soils, water sources, climate, and vegetation are all significant factors in understanding patterns on the landscape. Changes in the landscape over time influences the types of cultural materials found during an archaeological assessment as well as their visibility.

Location. The project area is located in the GToM, on McClintock Road and Wes Clarke Trail; in close proximity to the Town of Dorset. It is situated at between 360 metres and 370 metres above sea level (a.s.l.) (Image 1). The project area is equidistant from Kawagama Lake (north) and Harvey Lake (south).

Glacial History and Geomorphology. Landscape features seen today are the result of the most recent period of glaciation. Beginning with the Illinoian glacier and ending with the Wisconsinan, the ice masses advanced as far south as Ohio and as far east as the continental shelf edges. The first interstadial period, the Sangamonian, witnessed ice retreat of the Illinoian glacier as far north as Hudson Bay. At this time, Easton (1992) posits that global temperatures were warmer or similar to that which we experience today. This period extended until approximately 75,000 years BP with the onset of the Wisconsinan glaciation.

The Wisconsinan glaciation is characterized by a series of advances (stadials) and retreats (interstadials), scouring, transporting and depositing surface materials across Ontario. Seven major stadials and six interstadials, along with several minor phases, have been recorded (Table 2).

Table 2. Major stadial and interstadial periods, including timelines and features, of the Wisconsinan glaciation (taken from Remmel 2009:20-23).

Period	Stadial / Interstadial	Years BP	Feature /s
Nicolet	Stadial	70,000	-blocked the St. Lawrence River -caused water to dam into Lake Scarborough -created the Scarborough Bluffs
St. Pierre	Interstadial	67,000	-St. Lawrence is free of ice -Great Lakes waters drain towards the Atlantic Ocean
Guildwood	Stadial	55,000	-ice covers all of Ontario and extends into northern US
Port Talbot	Interstadial	48,000 - 36,000	-two warm intervals separated by a cold phase -palynological studies indicate boreal tree taxa -meltwaters drain through present-day New York
Cherrytree	Stadial	35,000 - 28,000	-ice sheet covers most of Southern Ontario -formation of Glacial Lake Thorncliffe

Plum Point	Interstadial	27,000	-ice retreats across Ontario
Nissouri	Stadial	20,000	-ice sheet reaches maximum extent
Erie	Interstadial	15,000	-ice retreats -Lake Erie drains eastward through the St. Lawrence River
Port Bruce	Stadial	14,000	-ice advances across Ontario and into US
Mackinaw	Interstadial	13,000	-ice retreat causes splitting of ice lobes -split exposes a dome of higher land called Ontario Island -Proglacial Lakes Arkona I, II and III form at southern ice margins
Port Huron	Stadial	12,900	-short-lived advance -Glacial Lakes Lake Whittlesey, Warren I, Warren II, Wayne and Warren III form
North Bary	Interstadial	11,840 - 8,100	-warmer climate -ice retreats across Canadian Shield -drainage flows east -formation of Glacial Lake Grassmere
Driftwood	Stadial	8,200 - 8,100	-deposition of clay tills in the Lake Barlow-Ojibway region -about 8,000 Glacial Lakes Ojibway and Agassiz catastrophically drain into Hudson Bay

The North Bay Interstadial, as it retreated across the landscape, exposed our project area.

Retreat during this phase was quite rapid and a number of post glacial lakes developed as a result of meltwater flow and drainage, ice dams and glacial deposits (i.e., Lake Algonquin, Lake Iroquois, Lake Erie and the Champlain Sea). Consequently, substantial areas would have been inundated by the copious flow of meltwaters at elevations well above modern sea levels before the formation of drainage outlets. Three major drainage outlets formed during this period (Map 3): the Kirkfield Outlet (~11,500 BP) which drained Lake Algonquin into Lake Iroquois across the Kawarthas (south of the project area); the Fossmill Outlet (~10,800) which drained Lake Algonquin into the Champlain Sea to the Atlantic Ocean through Algonquin Park by way of the Petawawa and Barron Rivers; and, the Mattawa Outlet was

exposed as the glacier receded northward and exposed lower outlets (~10,000) which continued to drain Lake Algonquin into the Champlain Sea via the Mattawa River (north of the project area) (Chapman and Putnam 1984:25-39; Larsen 1987:19; and Kaszycki 1985).

In existence from ~12,800 BP - 10,000 BP (Chapman and Putnam 1984:39; Gadd 1980), the Champlain Sea was a temporary inlet of the Atlantic Ocean. Although the maximum extent of this marine transgression is not yet known in specific terms, it has been posited that its eastern limits extended to the clay beds found within Leeds County and the Frontenac Axis, an eastern extension of the Canadian Shield which reaches into the Appalachian region of the United States. We also know that the northwestern arm of the Champlain Sea extended just north of Deep River (Barnett 1988). Unfortunately, because of the rocky nature of the region, the shoreline features of the western extension of the Champlain Sea remain unknown (Chapman and Putnam 1973:117).

As these glacial water sources drained, the zones created could have supported an extensive variety of animal, insect, bird, and vegetation species. Resource exploitation of these zones by early peoples is supported by the discovery of archaeological sites along the edges of ancient shorelines (palaeo-shorelines) across North America.

Palaeoecology. The last ice age completely disturbed vegetational patterns throughout the Eastern Ontario. Climatic warming marked an official end to the Pleistocene Period and caused an abrupt change in the composition of forests, woodlands and parklands south of the ice sheets.

With deglaciation, vegetation migrated northwards and different species populated the ice free margins. Palynological analysis of pollen grains (Pielou 1991; Remmel 2009:30; Wright 1966) illustrates that more diversified vegetation developed with slight differences noted between the west side of the continent and the lowlands and east side of the continent. Furthermore, the process of recolonization depended on the production rates of different species and their ability to grow on freshly exposed terrain which may have reduced pH levels (Matthews 1992:122). Initially, species more common to herbaceous tundra environs grew (i.e., herbs, mosses and lichens) followed by shrub tundra communities (i.e., sedges and small shrubs) and then to spruce (Picea ssp.) and poplar (Populus ssp.) woodlands. Warming temperatures also encouraged deciduous growth like hemlock and beech and also caused treelines to shift northward, terrestrial and marine species to increase their range northward, and in the mountains, caused the above to shift to higher elevations.

Taxa noted within the project area is today, not much different from that which it would have been thousands of years ago. The project area lies within the Northern Hardwood Forest, which is within the Great Lakes-St. Lawrence Forest ecoregion. This is a transitional forest

which illustrates an overlap of northern needle-leaved trees and southern broad-leaved deciduous trees and produces a mosaic of various vegetative communities controlled by local climate and soils.

Climatic upheavals wrought diverse changes amongst terrestrial and marine animal and bird migration patterns and habitats. It may be assumed that mammals typically found today in these environments, would have been present during the late Pleistocene and early Holocene Periods in the project area (i.e., caribou, bear, fox, hare, chipmunk, squirrel, mouse, weasel, lemming, vole, moose, porcupine and bat) (Remmel 2009:32). Today, mammals such as black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*) and wolf (*Canis lycaon*) are commonly seen throughout the region. Furthermore, marine fossils in the vicinity of the former Champlain Sea indicate large mammals such as whale, walrus and seal inhabited the area during the open-water season (Chapman and Putnam 1984; Cronin 1977; Loring 1980). As these mammals would have migrated into the region following their food sources, it is also safe to assume that smaller marine life, whose skeletal existence may not have survived to become part of the archaeological record, were present.

Moreover, as the prevailing climate of the time would likely have meant that the Champlain Sea would have frozen over during the winter season, marine mammals would have been forced to migrate into the Gulf of St. Lawrence, where the waters were open. However, as hypothesized by Loring (1980:35), "local populations of belugas or seals might have been trapped in areas of open water surrounded by ice and would have been easily killed by hunters..." This suggests that marine as well as terrestrial exploitation of food resources would have been an important aspect of subsistence practices of the local indigenous populations. Therefore, the probability of at least a partial maritime-based economy in the region of the project area is high.

Physiography and Geology. The project area is located within the Mixed Wood Plains ecozone (Map 4). According to Natural Resources Canada (2011), the Mixed Wood Plains can be characterized by the following description:

> "... topography ranges from extremely flat areas in the southwest and southeast to rugged terrain of the Niagara Escarpment. Vegetation is diverse, characterized by mixed deciduous-evergreen forests and tolerant hardwood forests including those forests known as Carolinian forests. Alvars and tallgrass prairies also occur. Wetlands are numerous in certain areas, although many wetlands have been drained. Carolinian Canada (the most southerly portion of this ecozone) boasts the highest concentration of species in Canada. The number of species at risk is also high."

Bedrock geology within the project area is comprised of Precambrian-aged rocks (Map 5). The Shield is broken into many sections, or "provinces." Almost 3 billion years ago, these

provinces began to rub against each other, causing friction and a build up of pressure. Many fissures and faults were created in the area as the Earth's crust twisted, sheared, and folded. Molten material, specifically andesite, a dark grey coloured rock, was forced up through the fissures to the surface. As it reached the ground, the new rock, in some cases carrying precious metals such as gold and silver, cooled and became part of the landmass. These ancient folded rocks are known as Greenstone belts which eventually were overlain with more recent glacial sediments.

Sedimentary rocks of Paleozoic and Mesozoic age formed between approximately 570 to 66.4 million years ago, during a global warming period, when several periods of marine inundation of North America were responsible for the deposition of thick layers of sediments which eventually resulted in the formation of shale, limestone and sandstone (Eyles 2002:5).

The area surrounding the dam is located within a tectonite unit. These formations are included within the central metasedimentary belt. Rocks surrounding the dam are comprised of tectonites, gneisses, mylonites, protomylonites, diorite, gabbro, peridotite, pyroxenite, anorthosite and derived metamorphic rocks. These materials were typically used for ground stone tool technology. Ground stone tools are usually made of basalt, rhyolite, granite, or other macrocrystallineigneous or metamorphic rocks, whose coarse structure makes them ideal for grinding other materials, including plants and other stones. Native Americans used cobbles found along streams and in exposures of glacial till or outwash to produce a variety ground stone artifacts. The process by which ground stone tools are manufactured is a labour-intensive, time-consuming method of repeated pecking and grinding with a harder stone, followed by polishing with sand, using water as a lubricant. In addition, these materials could also be worked into expedient tools if necessary.

One of the most common characteristics of Palaeoamerican material assemblages is the prevalence of cherts and similarities of lithic tools across wide ranging regions (Mason 1981, 1986; Goodyear 1989). Chert is a fine-grained, siliceous material which is easy to knap and therefore commonly used in the production of stone tools. In addition to chert use, quartz materials were also widely utilized, particularly in more northern regions or within the Canadian Shield, where quartz and quartzite materials were more locally available. There is an outcropping of clastic metasedimentary rocks which contain limestone, siltstone and chert to the south of the project area, along the south shore of Haliburton Lake. These materials could have been mined and traded throughout the region or exploited for personal use (Map 5).

An increase in quartz exploitation during the Archaic period has been documented in the Northeast (Deal and Rutherford 1991; McGhee and Tuck 1974; Robinson 2006; Sanger 2005; Suttie 2005). As veins of good-quality siliceous material (i.e., chert, ryolite, chalcedony) are

are present within the areas surrounding the dam site, they are limited and it stands to reason quartz tools should anticipated within the area.

The physiography of the study area encompasses a single surficial geology type; shallow till and rock ridges (Map 6). However, it is also surrounded by a number of spillways and a few till moraines.

The Little Brother Lake Dam is located within the Algonquin Highlands physiographic region. This region is characterized by rough knobs and ridges of Precambrian granite, irregular to steeply undulating topography, swamps in low-lying and depressional areas and thin, shallow till soils on upland areas. Only marginally suited for agriculture, one primarily bears witness to large-scale forestry and mining operations as well as recreational activities within the region.

Soils. Soil, in terms of its morphological characteristics, is defined as unconsolidated surface material forming "natural bodies" made up of mineral and organic materials as well as the living matter within them. It is a dynamic entity with materials continually and simultaneously absorbed, released and transformed.

The formation of soils is heavily influenced by its parent material, climate, topography, bio-activity and time, however, it is mainly the combined effects of climate and living matter that convert a material to soil. For example, in moisture-rich environs, the dampness and rich vegetation may lead to deep, richly organic soils, good for agricultural production. However, in desert areas, where precipitation is low, the lack of moisture and vegetation may lead to sparse soil development and where soils exist, they may be thin and highly mineral. Furthermore, human disturbances such as grave sites, dwellings, agricultural activities and garbage dumps may also affect soil development, giving it other unique characteristics.

The soils of the project area formed to their current composition over the past 10,000 years or so; since glacial melting at the end of the last ice age. Soils formed from glacial deposits vary in composition depending on the rock type over which the glacier travelled. Since glaciers advance and retreat with time, the composition and depositional environment of the parent material can be quite complex. Overall, the texture of soil produced in glacial deposits reflects the mode and distance of transport as well as the type of rock scoured. Shale and limestone scouring tends to produce a soil with relatively more clay and silt-size materials, whereas igneous and metamorphic rocks produce mostly sandy soils. Deposits beneath the ice usually result in finer textured, denser materials, whereas outwash and front and side deposits are generally coarser. Furthermore, glacial till, glaciofluvial and glaciolacustrine sediments often occur in close association. With time, soil horizons, or "zones within the soil that parallel the land surface and have distinctive physical, chemical and biological properties" develop

(Holliday 2004:3). Soil horizons together, form a profile; a vertical arrangement of horizons seen in a two-dimensional arrangement (what we see during observations).

A soil map is not available for HC, however, we were able to recover a soil map for southern Ontario which includes HC (Map 7). This map illustrates the area of the McClintock Lagoon project area to be dominated by coarse textured soils with Precambrian rock at one foot or less. These soil types include Rock Wendigo and Rock Monteagle and the topography is typically hilly to undulating with good drainage and stonefree to excessively stony textures. Rockland has various topographic features but is characterized by shallow soils and barren rock outcrops.

*Hydrology***.** The modern water courses we see today evolved as their ancestral waterways and their tributaries adjusted to the retreat of the Champlain Sea, and to a lesser degree, Lake Iroquois. During glacial melt and ice retreat at the end of the Pleistocene and beginning of the Holocene periods, there was a much larger flow of water through the project area than at present and on several occasions, rivers shifted into new channels. However, by approximately 8,000 years ago, modern drainage patterns were established (Kennedy 1970).

The project areas are all located within the larger St. Lawrence watershed (Map 8), and is drained via a number of meandering waterways (Map 1; Image 1). More specifically however, the Little Brother Lake Dam is located within the Gull River watershed. Watersheds are typically defined by the topography of the surrounding landscape and includes such factors as shape, contours and elevations. They are comprised of streams, creeks, brooks, rivers, lakes, ponds, wetlands, estuaries, uplands, forests and meadows and also shorelines. This watershed is within the Trent-Severn Waterway region which is managed by Parks Canada Agency.

Present within, or within relative close vicinity to the Little Brother Lake Dam project area are lakes (i.e., Kawagama Lake, Harvey Lake, Limburner Lake, Millichamp Lake, Clinto Lake, Crumby Lake, Ashball Lake, Otter Lake, McFadden Lake, etc.), rivers, streams and creeks (i.e., Hollow River, Harvey Creek, Cod Creek, Clinto Creek, Ten Mile Creek, etc.) and low-lying areas (i.e., swamps, marshes, wetlands and ponds). Although the geography of the area has been largely shaped by the geomorphology of the region (i.e., Canadian Shield, glacial advance and recession, meltwater outlets, poor drainage, etc.), many of these watersheds have been altered by human intervention; a by-product of development. Specifically the use of dams to create reservoirs for the Trent Severn Waterway.

Water routes played a very important role in the early development of Canada and served as a transportation route for pre-contact First Nations groups prior to European arrival. These water sources were used to traverse the interior of the province prior to the construction of railways and roads. The potential for the discovery of archaeological resources increases

drastically in particularly difficult areas along these routes, such as at rapids or chutes, where a portage was necessary. In addition, the shores of rivers and creeks were particularly attractive for temporary and semi-permanent settlement, especially in areas of the shore that were easily accessible by water. These areas were of particular interest, not only for their transportation value, but for access to potable water and foodstuffs, especially fish. The presence of secondary water sources, including permanently or seasonally inundated swamps, offered access to a variety of resources, including migratory birds, rice, and reeds for basket-making.

Climate. Modern climatic variation depends almost entirely upon location and human impacts on the environment. HC, located in south-central Ontario, is heavily influenced by the modifying factor of the Great Lakes. The Great Lakes tend to add moisture to the air in the autumn and winter while at the same time protecting the region from the worst of the cold during the winter months, and during the spring and summer they act to moderate the temperature of the region. This produces an ideal environment for agricultural practices as the growing season tends to be longer and the cold months not as harsh as throughout the remainder of Canada.

1.4.3 Previous Archaeological Assessments

Archaeological research within Ontario is often limited to discoveries made during development activities. However, this does not necessarily reflect the known and unknown, yet unrecorded archaeological history of the area. Throughout the nineteenth and early twentieth century, as Euro- Canadian settlers and loggers penetrated the forests and lakes of the region, some would encounter and collect evidence of past First Nations activities, in the form of stone and copper tools, or organic paraphernalia. This practice continued well into the twentieth century and is still carried out to this day by cottagers, tourists, and local residents, some who have amassed significant collections. Furthermore, there are oral references to evidence of pre-contact First Nations occupation made by the first Euro-Canadian settlers to the region, which sometimes results in sites being "recreationally" excavated by non-professional archaeologists.

With increased sensitivity towards the need to preserve cultural heritage within the Province, hundreds of archaeological projects have been recently undertaken within Ontario. Often initiated by development projects, including infrastructure development and improvement, subdivision applications, and construction activity, First Nations and early Euro-Canadian history of the region is being revealed.

A search of the database of archaeological assessments found that no archaeological assessments have been conducted within the study area and/or within 100 metres of the project area.

1.4.4 Registered Archaeological Sites

The Ontario Ministry of Tourism, Culture and Sport maintains a database (OASD) of all known registered archaeological sites in the Province. A search of the database within a one kilometre radius around the study area indicates the absence of registered archaeological sites.

1.4.5 Historical Plaques

Aside from the presence of nearby registered archaeological sites, other indicators of the presence of extant archaeological remains are the proximity of historical plaques to the study area that commemorate important events in a region's past, whether it be the birth of an individual, the site a specific battle, or the construction of a unique building. Generally, historical plaques and markers point to a specific locale on the landscape that can be visited by the public. Although plaques and markers may not be placed in the exact location that the event has occurred, generally it is in close proximity, taking into consideration access to the public. In Ontario, historical plaques may be erected by the federal government through the Historic Sites and Monuments Board of Canada (HSMBC), the Ontario Heritage Trust (OHT), and local heritage agencies or historical societies. There are no historical plaques or markers within the study area.

1.4.6 Summary

Archaeological and cultural heritage work conducted in the immediately surrounding area has not provided any evidence of archaeological remains. However, the physical setting of the project area indicates that it may retain potential for extant cultural materials associated with pre-contact First Nations and Euro-Canadian settlement in the area.

Pre-contact First Nations groups migrated across Ontario, likely following the ice sheet as it receded northwards and adapting to the changing environment. The newly exposed landscape would have been a productive ecozone, with large numbers of terrestrial and marine mammals, birds, insects and vegetation populating the margins. This biomass would have been considerable and would have offered a readily available food source for migrating populations. Archaeological and cultural heritage work conducted in the surrounding area has provided evidence of archaeological remains, dating back to the Late Archaic period and extending into the Historic period.

2.0 FIELD METHODS

A Stage 1 property inspection of the Project Area was undertaken by Laura McRae and Derek Paauw on July 13, 2018 under the professional archaeological consulting license P248 (P248-0318-2018) in order to observe the current land conditions and evaluate the Project Area's archaeological potential. The inspection was undertaken to determine if there were any areas of disturbance which would affect archaeological potential and to determine which survey strategies would be appropriate for a Stage 2 property survey, should one be required.

The site inspection systematically covered the entire study area. As the study area was comprised of the McClintock Lagoon and surrounding area, it was easily accessible and the permission for conducting work within the project area was provided by Stephanie Reeder, CI.

The weather on July 13, 2018 was hot, humid and overcast with a slight breeze and a temperature of 30^{o}C. At no time during the archaeological assessment were weather or lighting conditions detrimental to the observation of features of archaeological potential.

The Project Area is made up of the existing McClintock Lagoon and 3.33 ha of surrounding secondary growth forest. There are no listed or registered heritage properties or cemeteries within the Project Area, or within 50 m of the Project Area.

Topographic maps and orthographic images were examined to confirm if features of archaeological potential were present and if there were any areas of extensive disturbance which would have removed archaeological potential.

The property inspection started at the current, in-use, lagoon and radiated outwards in a clockwise direction.

Field notes and photographs of the study areas were taken during the inspection by Laura McRae. Image locations and orientations were noted and are illustrated on the site conditions map (Map 9).

The archaeological assessment was carried out following approval of project proposal by the Ministry of Transportation. Therefore, BTE was able to provide a plan of the study area in advance of the archaeological assessment. It was this plan and a .kmz file (google earth) that were used for base mapping of conditions, potential and results.

Table 4. Photograph and description.

Photo #	Description
2	Viewing southeast from the existing McClintock Lagoon.
3	Viewing southwest into the existing McClintock Lagoon.
4	Viewing southwest into the McClintock Lagoon.
5	Viewing south from the central portion of the project area.
6	Viewing southwest.
7	Viewing east. Note the exposed ground surface. Humus appears very thin in this area.
8	Viewing southwest towards monitoring well TP107-16.
9	Viewing northwest.
10	Viewing east along Wes Clarke Trail.
11	Viewing northeast.
12	Viewing southeast.
13	Viewing northwest along Wes Clarke Trail.
14	Viewing southeast along Wes Clarke Trail.
15	Viewing southwest.
16	Viewing southwest along an unnamed trail.
17	Viewing west.
18	Viewing east.
19	Viewing east.

3.0 ANALYSIS AND CONCLUSIONS

3.1 Archaeological Potential

Levels of potential archaeological significance are assigned by applying provincial environmental assessment guidelines (Weiler 1980). The information includes the identification and evaluation of any feature that has one or more of the following attributes:

* Potential can be determined via archaeological exploration, survey, or fieldwork. The information gleaned from these activities can provide answers to hypothesized questions (i.e., relate to particular times and places) regarding events and/or processes that occurred in the past, thereby adding to our knowledge and appreciation of history.

* Potential may be determined through archaeological exploration, survey, and fieldwork that may contribute to testing the validity of anthropological principles, cultural change and ecological adaptation, thereby contributing to the understanding and appreciation of our human-made heritage.

* The possibility that various technical, methodological, and theoretical advances might occur during archaeological investigation of a feature, alone or in association with other features exists. This therefore may contribute to the development of better scientific means of understanding and appreciating our human-made heritage.

Evaluating the archaeological potential of an area involves the assessment of various criteria. The most common criterion used to evaluate archaeological potential relates to its physical setting which may include potable water sources, elevated landforms, and well-drained areas to which First Nations settlement was often oriented, as well as the presence of fertile soils suitable for cultivation. Features and characteristics that indicate archaeological potential are defined within Section 1.3.1 of the S&Gs (MTCS 2011:17-18) and include:

* Previously identified archaeological sites;

* Water source:

    * Primary water sources (e.g. lakes, rivers, streams, creeks);

    * Secondary water sources (e.g. intermittent streams and creeks; springs; marshes; swamps);

    * Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels, shorelines of drained lakes or marshes and cobble beaches);

    * Accessible or inaccessible shoreline (e.g. high bluffs, swamps or marsh fields by the edge of a lake, sandbars stretching into marsh);

* Elevated topography (eskers, drumlins, large knolls, plateaux);

* Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground;

* Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases;

* Resource areas including:

    * Food or medicinal plants;

    * Scarce raw minerals (e.g., quartz, copper, ochre or outcrops of chert);

    * Early Euro-Canadian industry (fur trade, logging, prospecting, mining);

* Areas of early Euro-Canadian settlement including:

    * Early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes);

    * Early wharf or dock complexes, pioneer churches and early cemeteries;

* Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes);

* Property listed on a municipal register or designated under the Ontario Heritage Act or that is a federal, provincial or municipal historic landmark or site;

* Property that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Many of the above features of archaeological potential have a buffer assigned to them, extending the zone of archaeological potential beyond the physical feature. The following buffers are commonly accepted by the MTCS and specifically indicated in Section 1.4 of the S&Gs (MTCS 2011:20-21).

* 300 metre buffer: previously identified archaeological site; areas of early Euro-Canadian settlement; or locations identified through local knowledge or informants;

* 100 metre buffer: early historical transportation route;

* No buffer, potential is restricted to the physical limits or the feature: elevated topography, pockets of well-drained sandy soil, distinctive land formations, resources areas, listed or designated properties and landmark properties.

As this project is located within Northern Ontario, alternative buffers have been identified by the MTCS and are specifically indicated in Section 2.1.5 of the S&Gs (MTCS 2011:35):

* 150 metre buffer: 50 metres from a modern water source; 150 metres from a glacial shoreline.

Features of archaeological potential found on or in the vicinity of the Project Area include: water sources (modern and ancient), areas of early Euro-Canadian settlement and early historical transportation routes.

3.2 Archaeological Integrity

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

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

> Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources.

Natural physical features can also indicate that all or portions of a Project Area have low or no archaeological potential including: permanently wet areas, exposed bedrock and slopes greater than 20 degrees (except in locations likely to contain pictographs or petroglyphs).

3.3 Conclusions

The Stage 1 archaeological assessment of the Project Area determined that it lacked general archaeological potential to contain pre- or post-contact archaeological resources (Map 10). Following the criteria outlined above in section 3.1, there were no factors identified which suggest potential for Pre- and Post-contact First Nations archaeological resources within the project area. There are a couple areas of elevated topography in close proximity to the project area boundaries (approximately 225 metres to the southwest at 420 metres and 125 metres to the southeast at 385 metres).

Following the criteria above (Section 3.1), to determine historical Euro-Canadian archaeological potential, we did not note any identifying characteristics. When applying the potential criteria, the Project Area does not exhibit archaeological potential for historic Euro-Canadian sites. As with pre and post-contact First Nations sites, while areas of previous disturbance eradicate the potential for the recovery of archaeological resources, areas of no or low disturbance retain their potential.

Some disturbance has occurred within the current McClintock Lagoon (delineated in blue on Map 10). This conclusion is consistent with the definition of "complete and intensive disturbance" described in Section 1.3.2 of the S&Gs (MTCS 2011:18).

4.0 RECOMMENDATIONS

Based on the background research and the results of the property survey, the archaeological assessment has provided the basis for the following recommendations:

1) As no features of archaeological potential have been identified within the project area, no further archaeological assessment is recommended (as illustrated by the areas marked in yellow and blue on Map 10);

2) Should construction activities associated with this project extend beyond those areas assessed during this project, further archaeological investigation will be required prior to ground-disturbing activities.

3) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.

The MTCS is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture 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 regards 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 Archaeological Report referred to in Section 65.1 of the *Ontario Heritage Act*.

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

The *Cemeteries Act*, R.S.O. 1990 C. 4 and the *Funeral, Burial and Cremation services Act*, 2002, S.O. 2002, C. 33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

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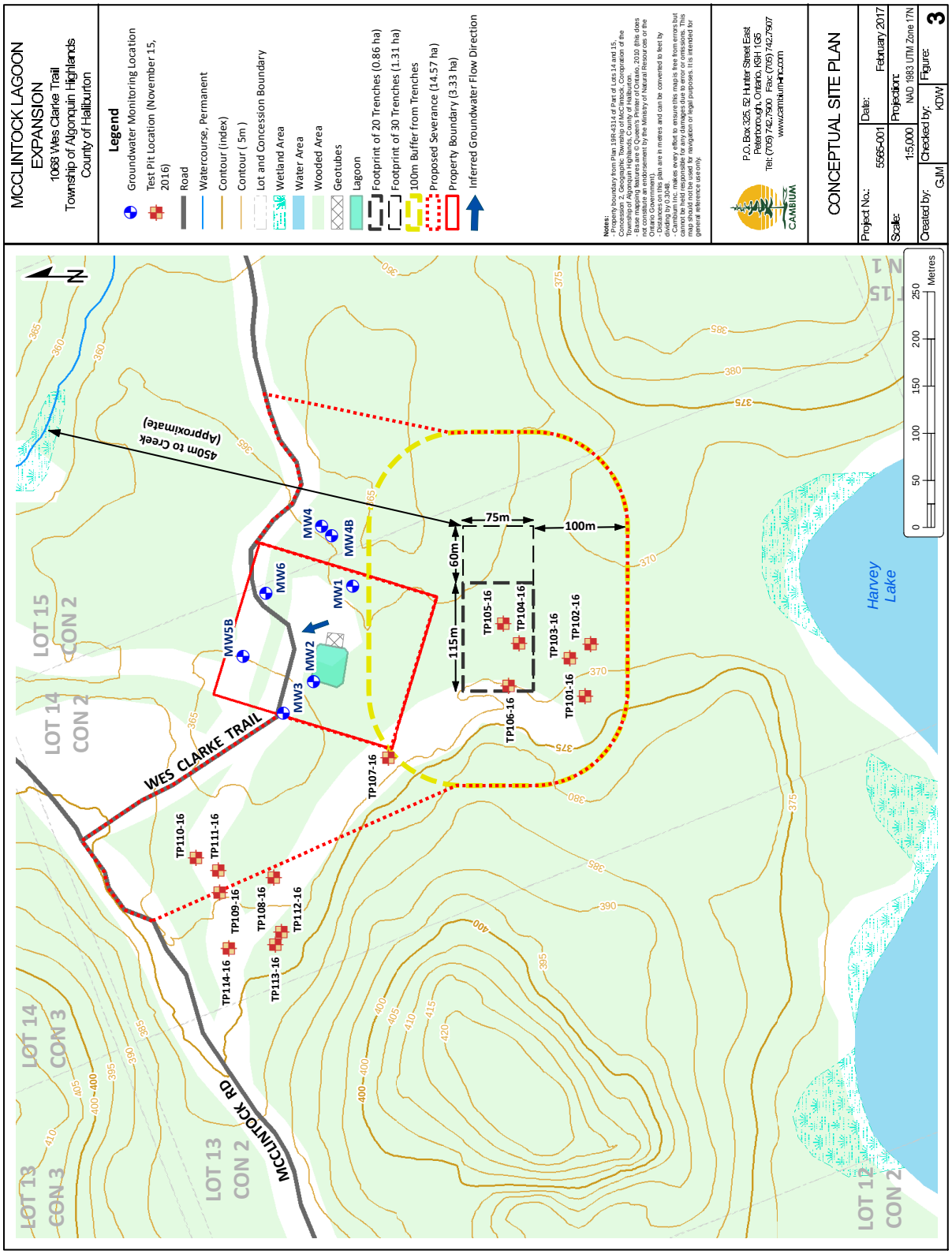
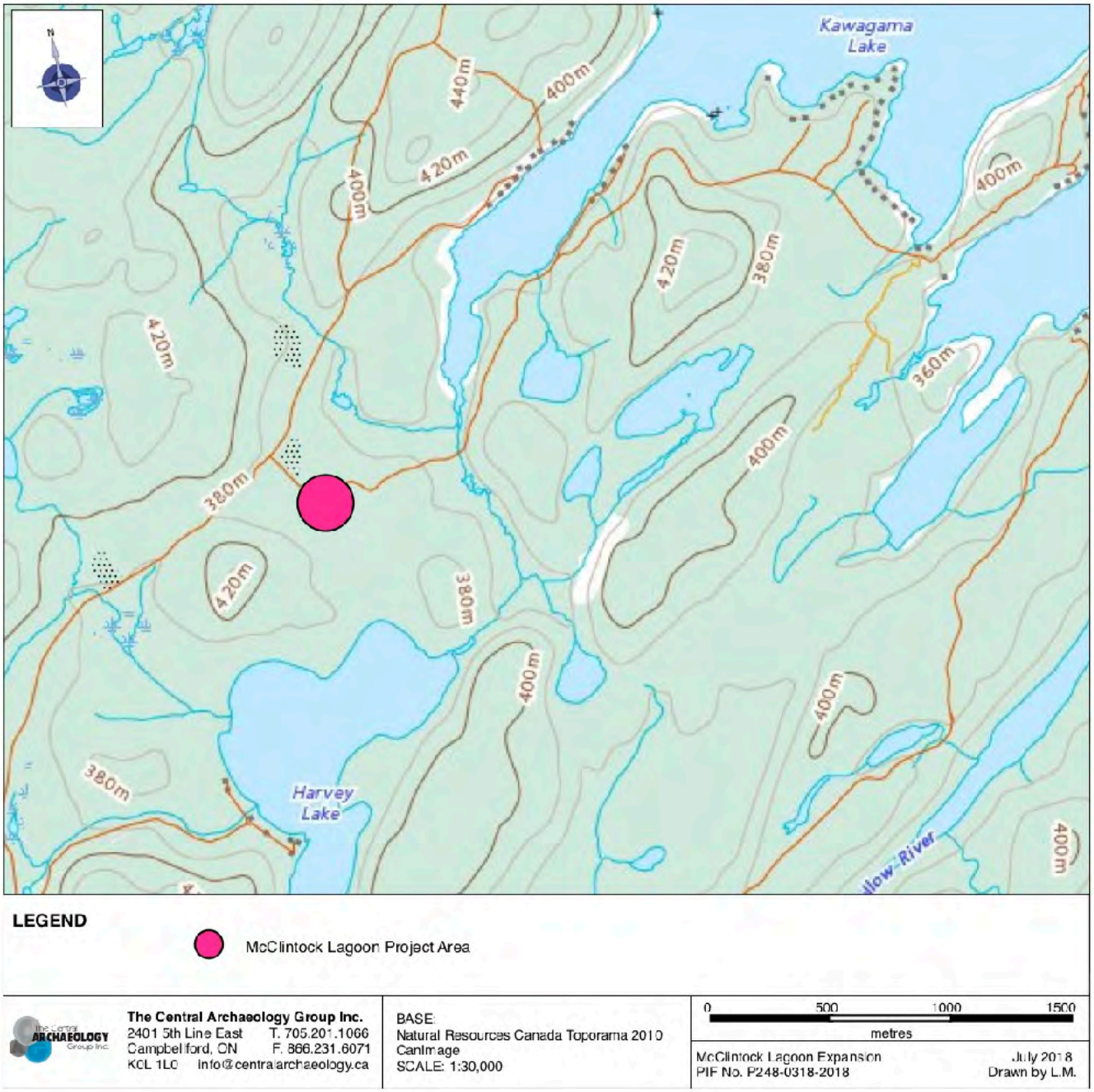
7.0 PLANS

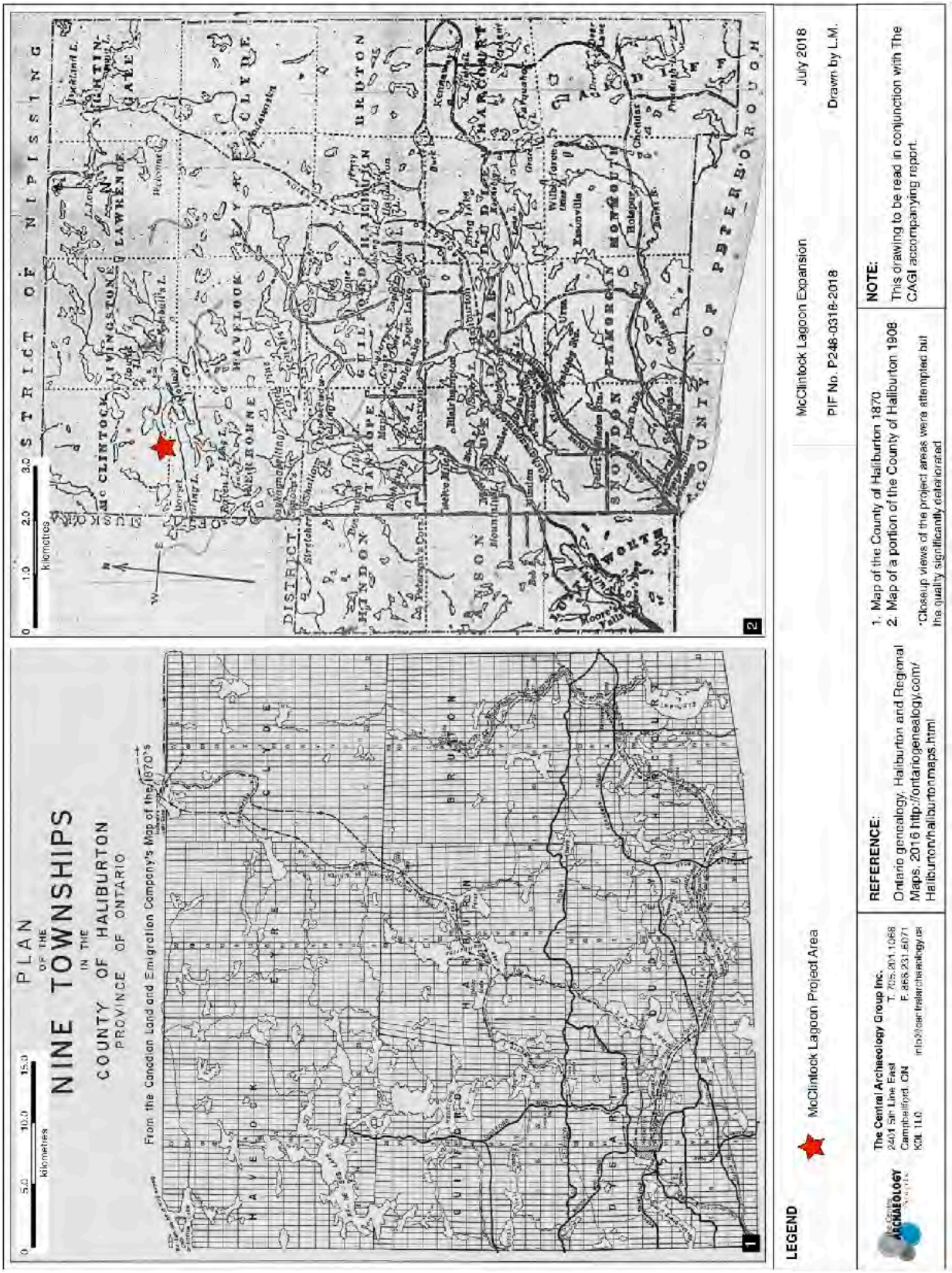


Plan 1. Conceptual site plan (provided by CI).

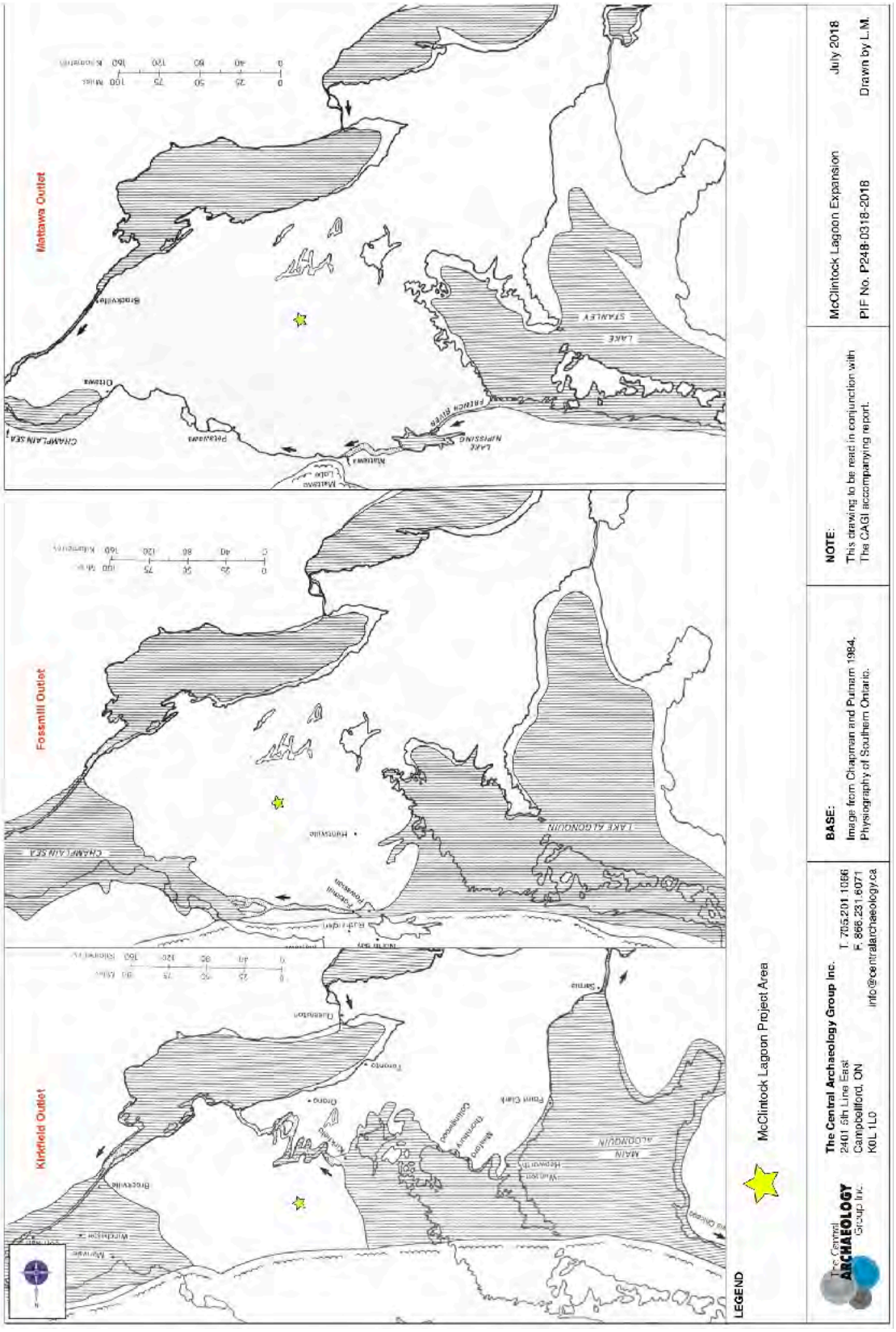
8.0 MAPS



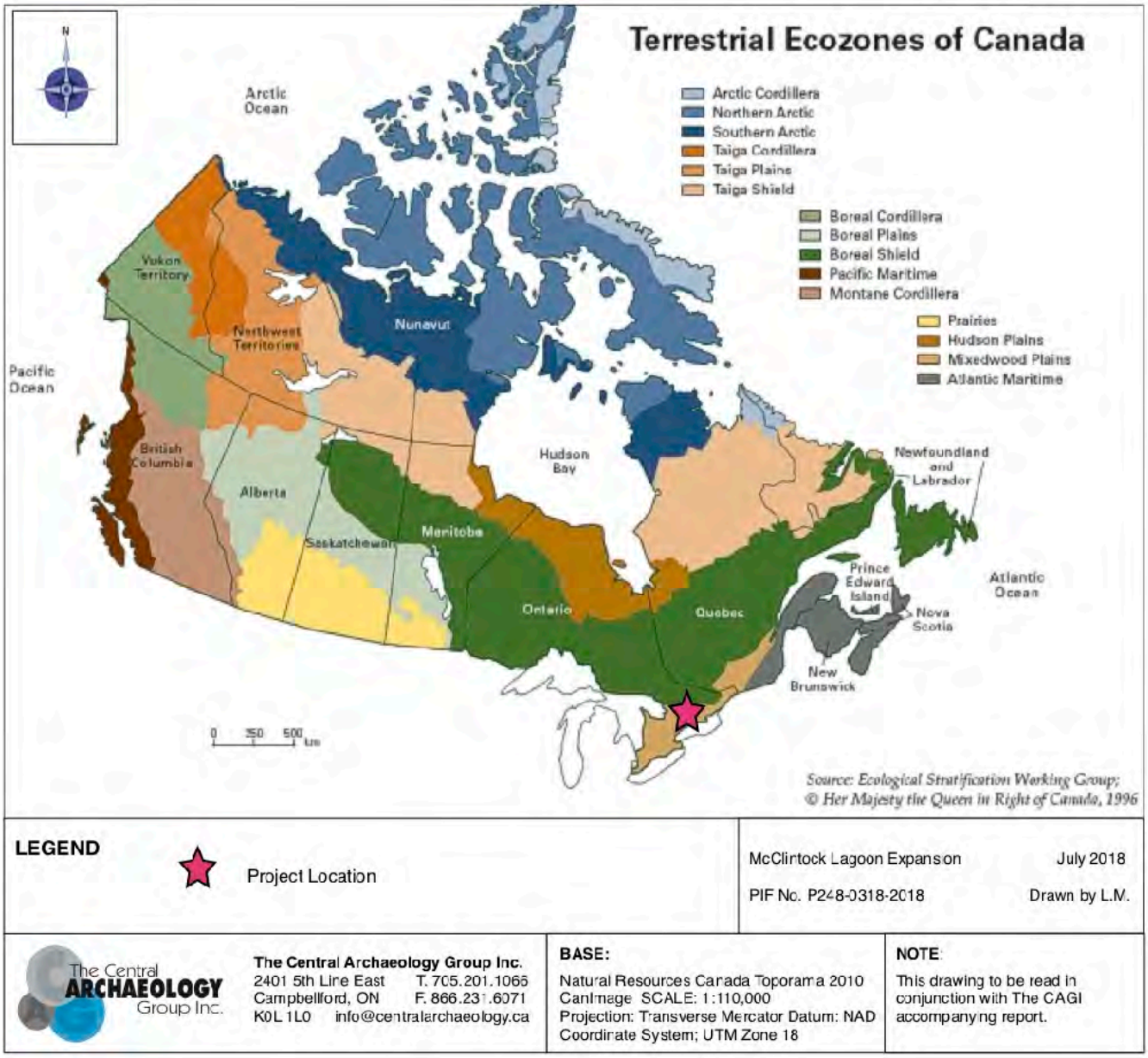
Map 1. Location of project area.



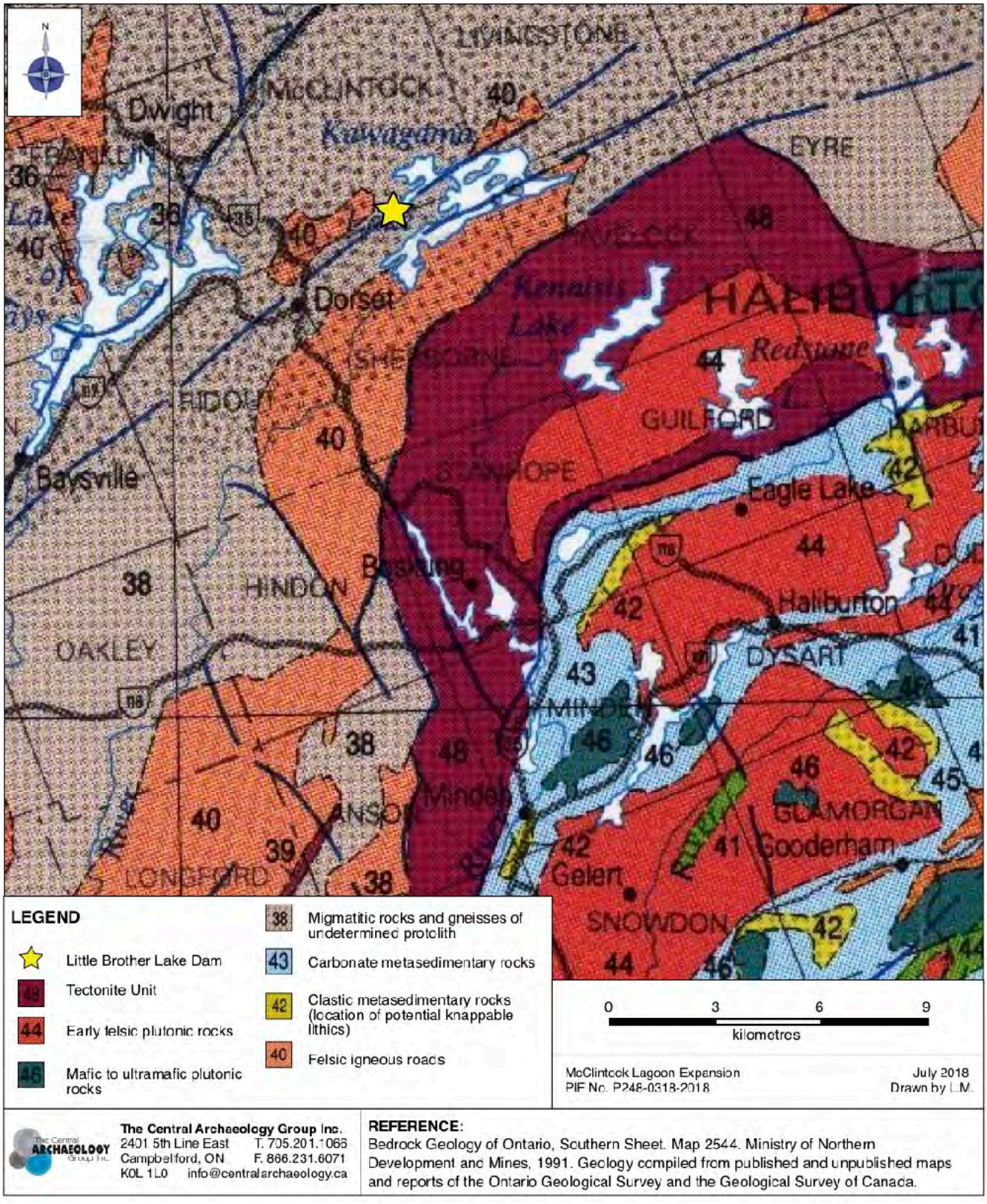
Map 2. Historical atlas maps of Haliburton County from 1870 and 1908 (Ontario Genealogy).



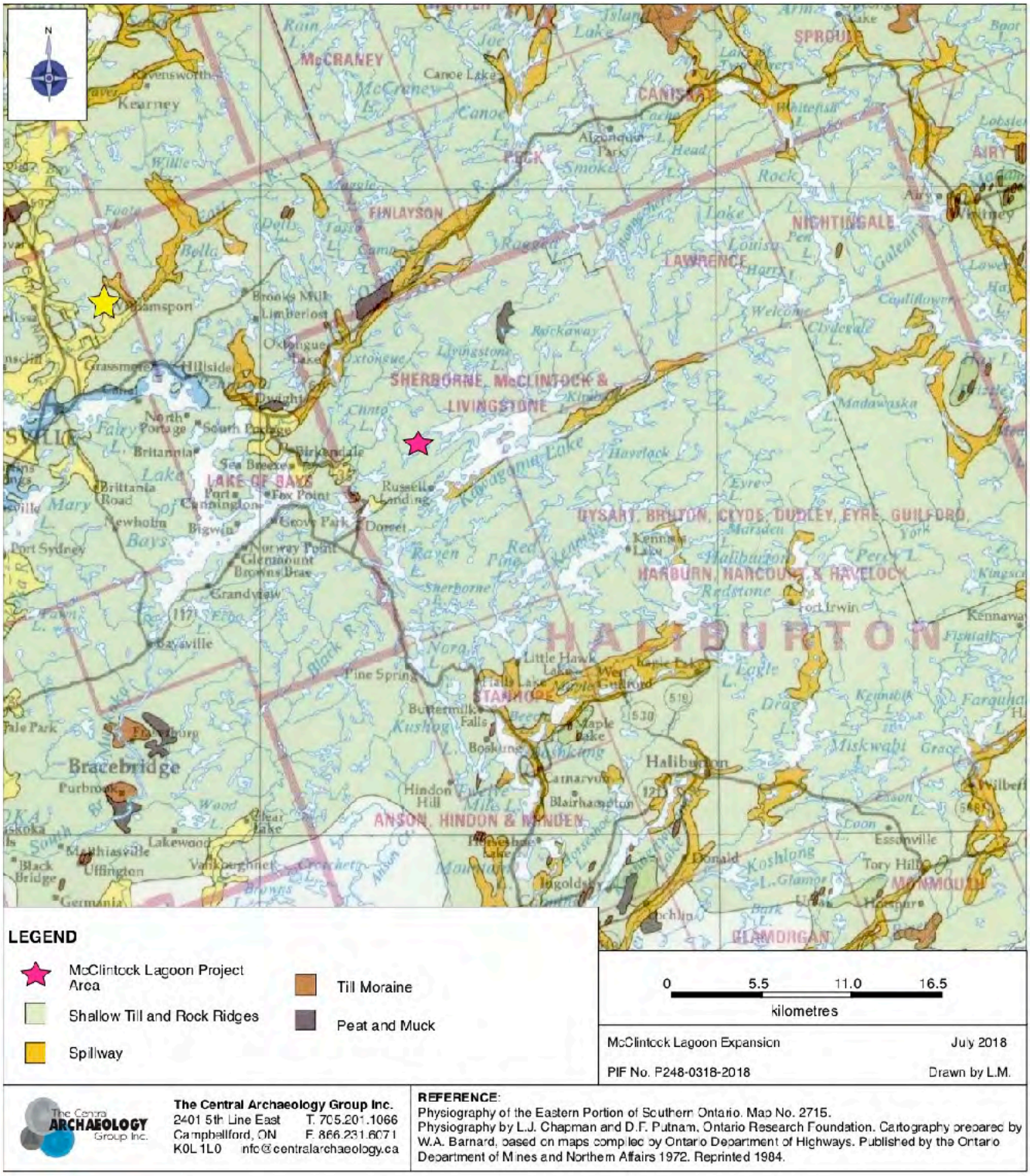
Map 3. Meltwater outlets (Chapman and Putnam 1984).



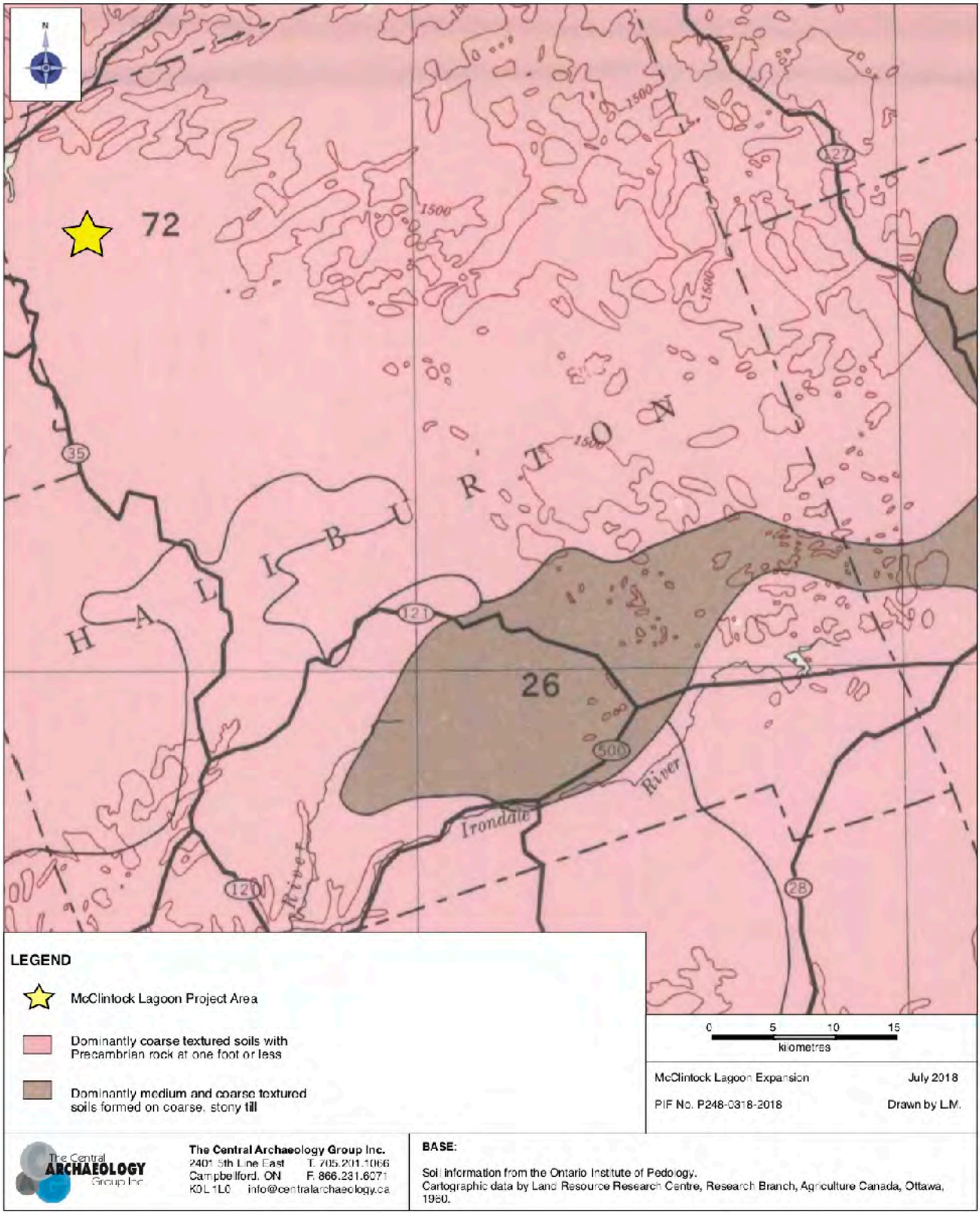
Map 4. Terrestrial ecozones of Canada (Ecological Stratification Working Group 1996).



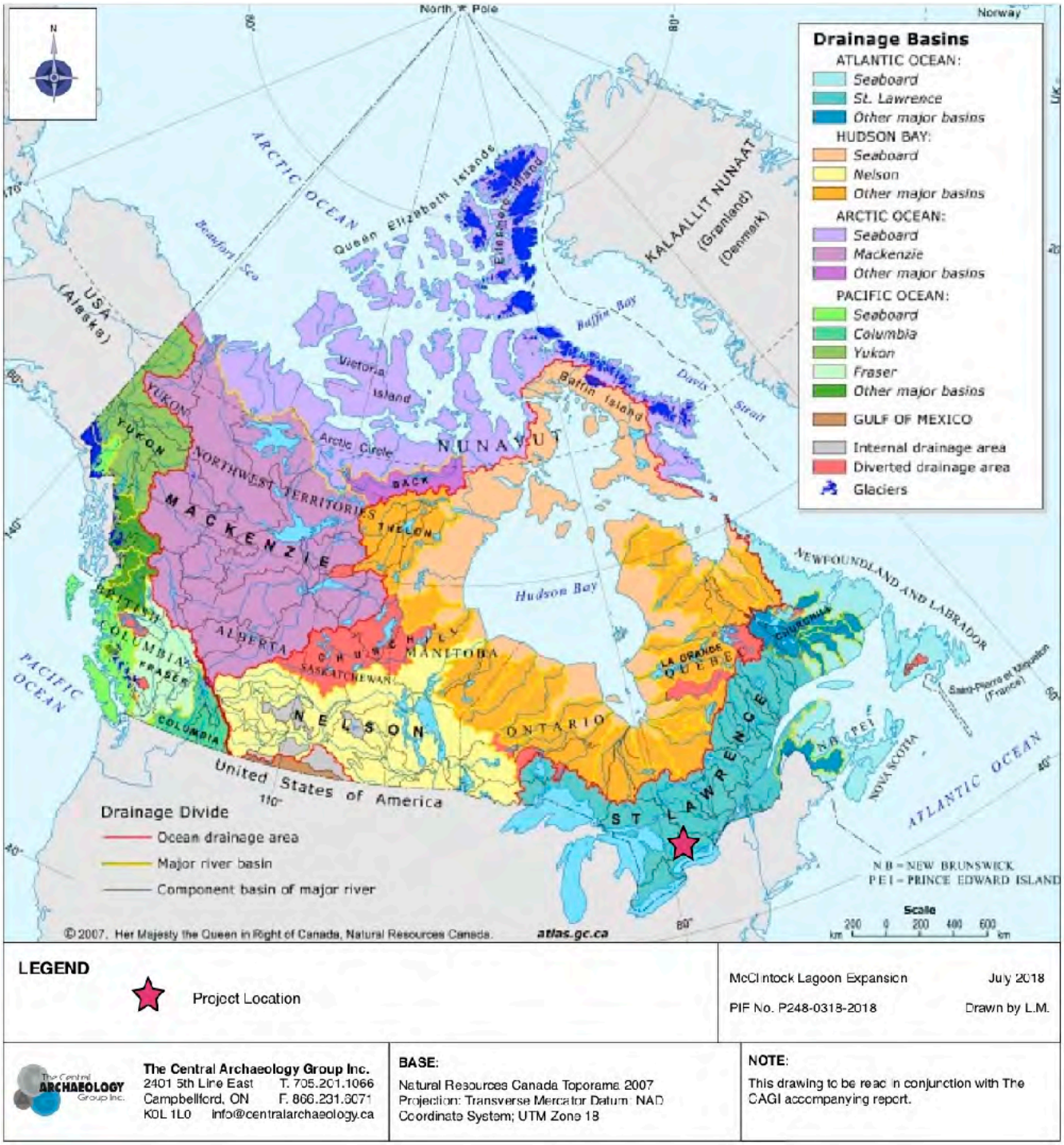
Map 5. Bedrock geology of the project and surrounding area (Ministry of Northern Development and Mines 1991).



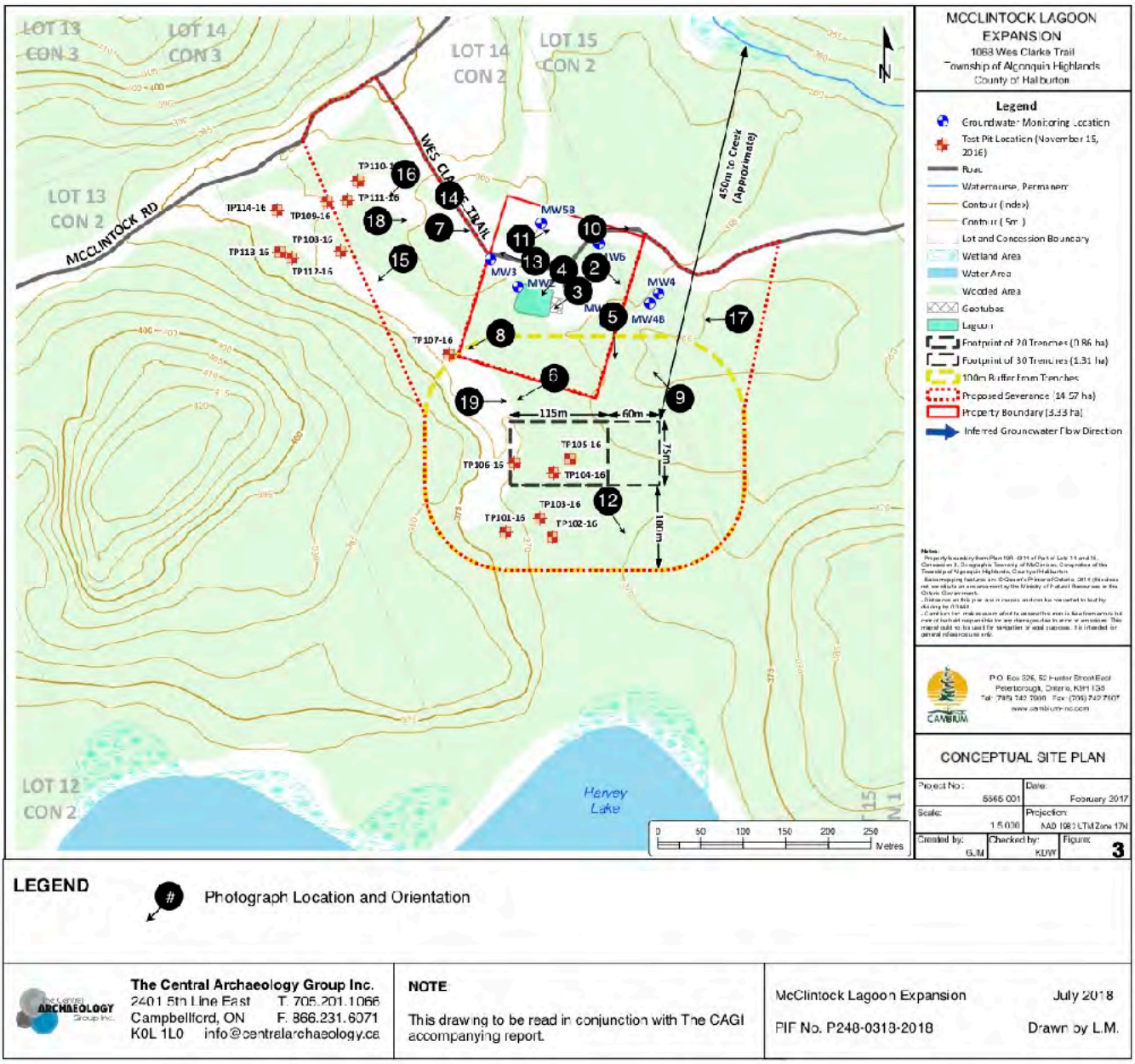
Map 6. Surficial geology of the project and surrounding area (Ontario Department of Mines and Northern Affairs 1972).



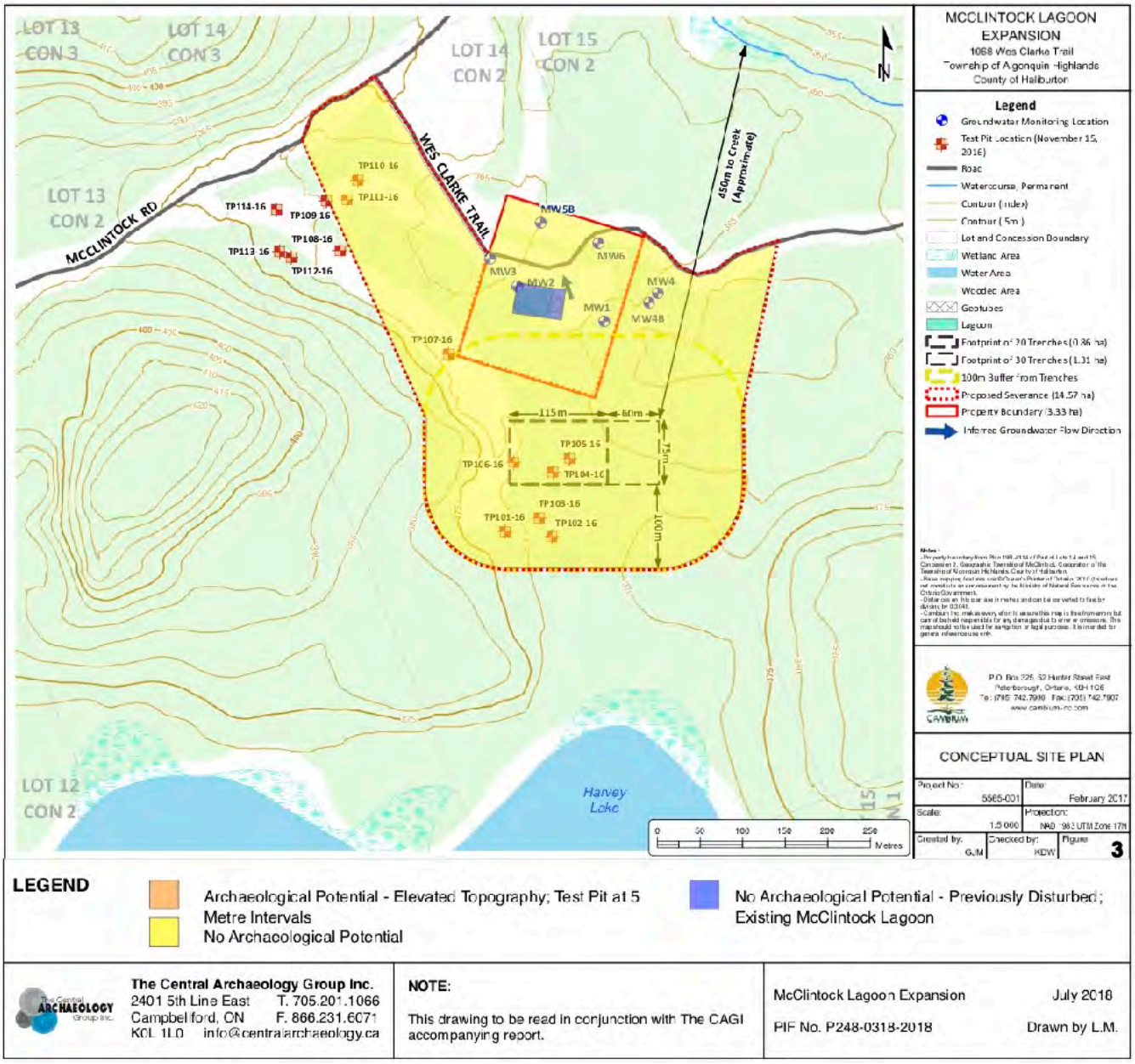
Map 7. Soils of the project and surrounding area (Ontario Institute of Pedology 1960).



Map 8. Watersheds of Canada (Natural Resources Canada 2007).



Map 9. Site conditions.



Map 10. Archaeological potential.

9.0 IMAGES

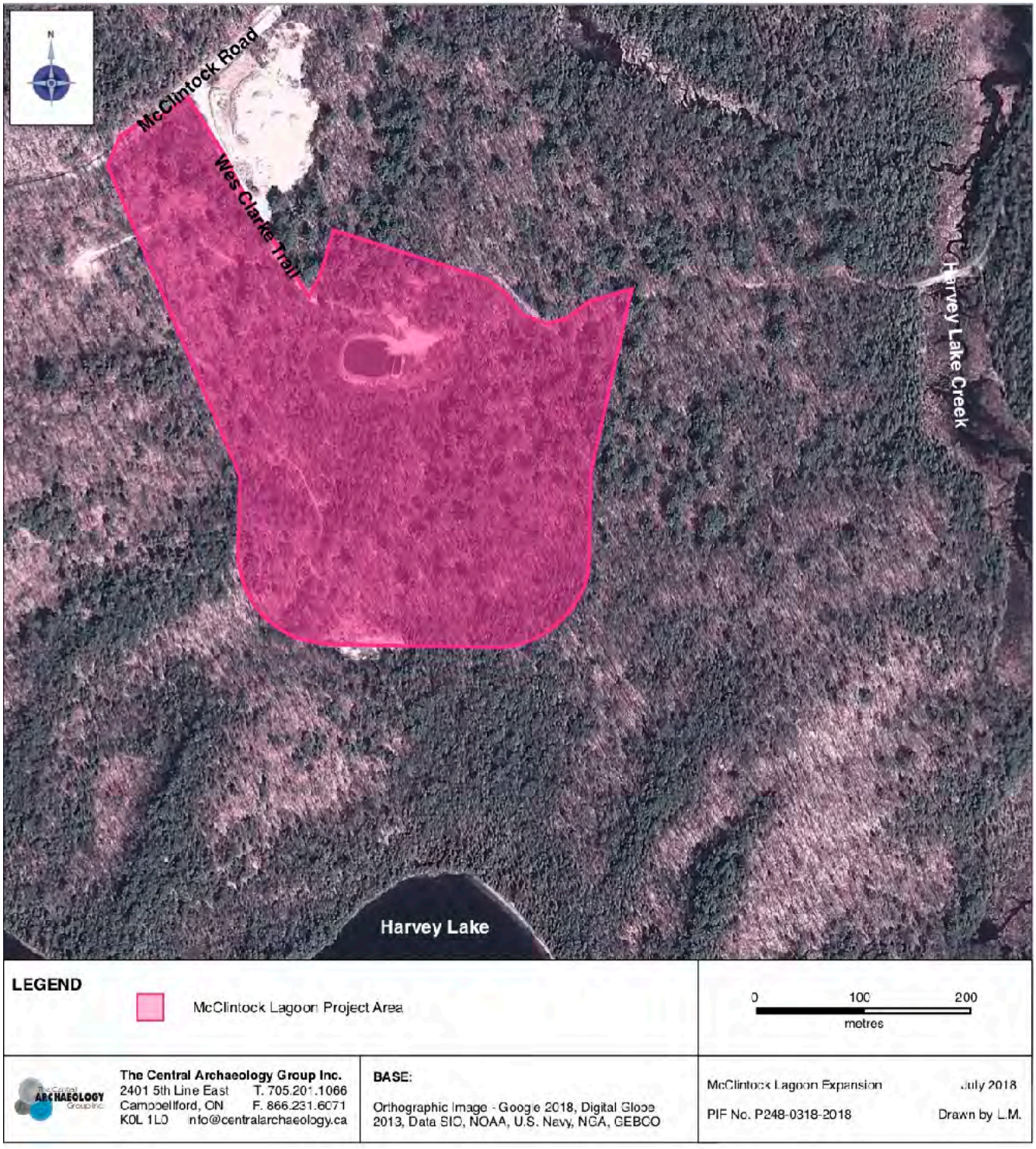


Image 1. Orthographic image of the project area (Google Earth 2012).

Image 2

Image 3

Image 4

Image 5

Image 6

Image 7

Image 8

Image 9

Image 10

Image 11

Image 12

Image 13

Image 14

Image 15

Image 16

Image 17

Image 18

Image 19

10.0 GLOSSARY OF TERMS

A Horizon - mineral horizon at or near the ground surface (topsoil). May be dark brown due to accumulated humus (Ah) or grey or lighter brown when clay, iron and humus have been leached out (Ae). It is most commonly disturbed by human activities.

Archaeology - is the scientific study of the physical evidence of past human societies recovered through excavation.

Archaeological Site - is a place in which physical evidence of past human activity is preserved and which has been, or may be, investigated using the discipline of archaeology.

Archaic Period - in Ontario is characterized by the appearance of ground stone tools, notched or stemmed projectile points, the predominance of less extensively flaked stone tools, increased reliance on local chert resources, a lack of pottery and smoking pipes, and an increase in the numbers and sizes of sites.

Atlatl - a tool used to throw spears faster and with more accuracy. It consists of a short pole with a handle at one end and a hook for engaging the spear in the other.

B Horizon - below the A Horizon (subsoil). It could be enriched with iron (Bf), with iron and organic matter (Bhf), with organic matter (Bh) or with clay (Bt). If saturated for extended periods, B horizons show signs of gleying or mottling (Bfg, Btg, Bg).

Bioturbation - results in changes to the nature, form, and arrangement of archaeological deposits and sediments as a result of biological activity in the ground. This includes root action, animal activity, and the degeneration of organic matter.

BP - Before Present. Years before present (1950), used in dating sites and/or artifacts from an archaeological site.

Borden Number - a borden number is an identifier given to an archaeological site in Canada. It was created by Charles E. Borden and contains four letters and one to several numbers.

Burial Goods or Burial Paraphernalia - items interred with an individual (or group) burial that may give clues to their social and/or economic and/or political position within their culture.

Chert - is a fine-grained, sedimentary rock, similar to flint. In antiquity, chert was one of the universally preferred materials for making stone tools.

Contact Period - refers to the period when European and First Nations peoples were first exposed to one another. In Ontario from 450 BP to 200 BP.

Cultural Resources - are sites, structures, landscapes, and objects of particular importance to a culture or community.

Diagnostic - a distinguishing characteristic serving to identify or determine the artifact.

Disarticulated - this occurs when bones are found separated at the joints.
Disturbed - refers to a study area that has recently been excavated or altered from its original

characteristics.

Ecozone - classification system that defines different parts of the environment with similar geography, vegetation, animals, climate, topography and water sources.

Environmental Assessment Act - sets up a process for reviewing the environmental impact of proposed activities prior to the granting of government funds.

Erratic - large rock or boulder that differs from the surrounding rock and is believed to have been transported a long distance as a result of glacial action.

Excavation - is the systematic digging and recording of an archaeological site. **Flake** - is a fragment of stone removed from a core or from another flake.

Feature - is a collection of one or more contexts representing some human activity that has a vertical characteristic to it in relation to site stratigraphy.

Fluted - grooved or channeled. A fluted point is a projectile point which has had one or more long thinning flakes removed from the base along one or both faces.

Glaciofluvial - sediments laid down by glacial meltwater action (i.e., rivers or streams).
Ground Stone - is a stone artifact shaped by sawing, grinding, and/or polishing with abrasive

materials.
Historic Period - the period when written records become available.

Holocene - the most recent period. Began approximately 10,000 years ago following the end of the Pleistocene.

Knap - to shape a piece of stone material by striking it at specific angles. Term used by archaeologists to denote the manufacture of a lithic tool.

Lanceolate - lance-shaped, much longer that wide, widened at or above the base and opening to the apex.

Lithic - stone, or made of stone.

Maize - also known as corn, is a cereal grain that was first domesticated in Mesoamerica and then

spread throughout the American continents.

Mitigation - measures undertaken to limit the adverse impact of construction methods on archaeological sites or cultural resources.

Ochre - used as a natural pigment, colour is commonly reddish-brown to yellow.

Ontario Heritage Act - allows municipalities and the provincial government to designate individual properties and districts in Ontario as being of cultural heritage value or interest.

Palaeoamerican Period - first evidence of human occupation in Ontario. This period is characterized by groups hunting large game and seasonal occupation along shore environments.

Pleistocene - an epoch within the Quaternary Period which began approximately 2,000,000 millions years ago and ended approximately 10,000 years ago. Immediately preceded the Holocene Period.

Projectile Point - is an artifact used to tip an arrow, atlatl dart, spear, or harpoon. Usually made of chipped or ground stone, however, some are also made of copper.

Stage 1 Background Study - The purpose of a Stage 1 assessment is to investigate the cultural land use, archaeological history, and the present conditions of a property. The majority of the Stage 1 process is conducted in the office and involves the examination of records such as historic settlement maps, land titles, and documents, historical land use and ownership records, primary and secondary documentary sources, and the Ministry of Culture's archaeological site database. The study may also involve interviews with individuals who can provide information about the property and consultation with local First Nations communities. The background study is followed by a property inspection to examine geography, topography and current conditions, and to determine the potential for archaeological resources. Stage 1 background research is usually completed in conjunction with a Stage 2 property survey.

Stage 2 Property Survey - A Stage 2 property survey is undertaken if the Stage 1 background study finds that a property retains archaeological potential. It involves the documentation of archaeological resources by collecting artifacts and mapping cultural features. Depending on the nature of the property environment, two methods are employed in the survey: 1)

pedestrian survey on cultivable properties, and; 2) test-pit survey on properties not cultivable due to tree growth, rock content, etc.

Strata - are layers of rock, soil, cultural material, etc. with internally consistent characteristics that distinguish contiguous.

Stratigraphy - the layering of deposits on archaeological sites. Cultural remains and natural sediments become buried over time, forming strata.

Subsistence - obtaining food and shelter necessary to support life.

Survey - is used to accurately determine the terrestrial or three-dimensional space position of points and the distances and angles between them.

Woodland Period - is a period of time following the Archaic Period. Middle, and Late.