WAASIGAN
TRANSMISSION LINE

FINAL ENVIRONMENTAL ASSESSMENT

Section 7.5 Archaeological Resources

November 2023

Acknowledgements

We wish to acknowledge that the Waasigan Transmission Line Project is located within lands that represent the traditional territories and homelands of the Robinson-Superior Treaty (1850) and Treaty #3 (1873) First Nations, and traverse the Red Sky Métis Independent Nation, Northwestern Ontario Métis Community and Northern Lake Superior Métis Community.

Hydro One also wishes to acknowledge Indigenous artist, Storm Angeconeb, for developing the covering page and wildlife designs throughout the Final Environmental Assessment. Storm is a highly recognized visual artist from Lac Seul First Nation in Treaty #3 and currently resides in Red Lake. Many of her works include animals and birds as representations of herself or those close to her. The artist's description of the covering page is presented below.

Hydro One Environmental Study Art:

What stands out in this art piece is the symbolic representation of solar rays as "Bringing Power"; we can see the environment represented through the wildlife and Ojibwe floral visuals. This artwork is an excellent representation of Hope, Life, and Opportunity, visually portrayed through the Black Bear and her two cubs. The colour theme of this artwork comes from the Waasigan Transmission Line Project brand identity.

Artist: Storm Angeconeb

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7.5 Archaeology Resources

Enodewiziimagak Ishkonigan

This section describes and summarizes the archaeological study (Stage 1 Archaeological Assessment) undertaken for the proposed Waasigan Transmission Line (the Project) in accordance with the *Ontario Heritage Act (Ontario Heritage Act 1990)* and the Ministry of Tourism, Culture and Sport's (MTCS) *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011) and presents an assessment of the effects of the Project on archaeological resources. Archaeological resources include known and undiscovered archaeological objects, and material or physical features that may have cultural heritage value or interest and are protected under the *Ontario Heritage Act*. In addition to being protected under the provincial law, archaeological sites have an intrinsic value and significance to local communities, and particularly for local Indigenous communities.

The assessment follows the general approach and concepts described in Section 5.0.

7.5.1 Input from Engagement

Comments pertaining to archaeological resources that were raised by Indigenous communities, government officials and agencies, and interested persons and organizations during engagement, and how they are addressed in the environmental assessment (EA), are listed in Table 7.5-1. Comments and responses are provided in the Engagement Summary (Section 4.0). In addition, the Draft EA Report was provided to Indigenous communities, government officials and agencies, and interested persons and organizations for review and comment on May 17, 2023. A high-level summary of the key themes from the comments on the Draft EA Report and related engagement meetings are included in Table 7.5-1. The detailed responses to these comments are included in Appendix 4.0-A.

Table 7.5-1: Summary of Comment Themes Raised during Engagement

Comment Theme	How Addressed in the Environmental Assessment	Indigenous Community or Stakeholder
During engagement, a question was received asking for information regarding the archaeology field program.	The Stage 1 Archaeological Assessment, prepared in 2022 and circulated to Indigenous communities in draft for review and comment, will help to inform the Stage 2 field component that is being undertaken. This is acknowledged in this section of the EA.	Métis Nation of Ontario Region 2

Comment Theme	How Addressed in the Environmental Assessment	Indigenous Community or Stakeholder
Indigenous communities should participate and be actively engaged during the Stage 1 Archaeology Assessment.	The Stage 1 Archaeological Assessment was started early in the EA process to provide additional time for Indigenous communities to participate in the process. Hydro One engaged with communities and offered to meet to review the process and methods for the Stage 1 Archaeological Assessment. A draft of the Stage 1 Archaeological Assessment report was also provided to Indigenous communities, including their archaeology consultants, for review and comment.	All Indigenous communities engaged
Concerns regarding unmarked burial sites on homesteads.	A Stage 1 Archaeological Assessment was completed to identify potential archaeological resources. If the Project crosses properties where stakeholders have identified potential burials, Hydro One will conduct appropriate surveys prior to construction. Hydro One with its contractor(s) will prepare and implement an Archaeological Resources Contingency Plan prior to construction to provide direction in the event that archaeological resources not previously identified are encountered. This will include procedures in the event that a burial is encountered such as stopping all work and notifying appropriate authorities.	Members of the public
Concerns regarding effects to historical portage routes.	The Stage 1 Archaeological Assessment completed for the Project considers historical portage routes and major waterways when identifying areas of archaeological potential where further study is required.	Members of the public
Concern regarding archaeological potential within landowner's private property.	The area of this property crossed by the Project footprint was added to the area of archaeology potential that will require further assessment in the Stage 2 Archaeological Assessment.	Member of the public

7.5.2 Information Sources

Information for the archaeological resources baseline was collected from the following sources:

- Data from the Ministry of Citizenship and Multiculturalism's (MCM's) Ontario Archaeological Sites Database (OASD), which provides information about registered archaeological sites in the province, was provided to Hydro One's consultants (WSP Golder) on August 17, 2022;

- MTCS *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011);
- Published documents and books related to previous land uses in the archaeological resources local study area (LSA) (refer to Section 7.5.4.2 for a definition of the LSA for archaeological resources);
- Reports from previously completed archaeological assessments and surveys;
- Published environmental and topographic literature and maps;
- Ministry of Natural Resources and Forestry (MNRF) Heritage Assessment Tool (Archaeological Potential Modelling);
- Results of engagement with Indigenous communities;
- Results of the Indigenous Knowledge (IK) studies; and
- Aerial imagery of lands in the LSA.

The review of the MCM archaeological sites database was carried out to determine the presence of known archaeological sites in the LSA. For the purposes of the EA, sufficient information was deemed to be available from the references listed above to assess the archaeological potential within the LSA and effects of the Project on archaeological resources.

7.5.3 Criteria and Indicators

Criteria are components of the environment that are considered to have economic, social, biological, conservation, aesthetic, or ethical value, as described in Section 5.2. Indicators are an aspect or characteristic of a criterion that, if changed as a result of the Project, may demonstrate a physical, biological or socio-economic effect.

The criteria and indicators for archaeology were initially outlined in the Draft ToR. Feedback from Indigenous communities, government officials and agencies, and interested persons and organizations received during engagement was incorporated into the preliminary criteria and indicators approved in the Amended ToR.

No concerns have been raised during the EA process regarding the preliminary criteria and indicators proposed in the Amended ToR. Areas of marine archaeological potential was identified as an indicator following the Amended ToR, as the LSA contains numerous navigable waterways that have been used by Indigenous and non-Indigenous peoples. No marine archaeological desktop assessment has been completed on the LSA thus far. This assessment will be addressed as part of planning for the Stage 2 Archaeological Assessment. The criterion and indicators selected for the assessment of Project effects on archaeological resources, and the rationale for their selection, are provided in Table 7.5-2.

Table 7.5-2: Archaeological Resources Criterion and Indicators

Criterion	Rationale	Indicators

Archaeological resources	• IK and Indigenous community feedback regarding the importance of protecting archaeological resources.
	• Archaeological resources are a non-renewable resource that could be affected by Project activities.
	• Archaeological resources may have spiritual and cultural importance to Indigenous peoples and Canadians.
	• Archaeological sites are protected under the *Ontario Heritage Act*.
	• Commitment to the identification and protection of significant archaeological resources.
		• Change to archaeological resources considering:
		  • Number of archaeological sites in the Project footprint.
		  • Area (in hectares) of Project footprint with archaeological potential.
		  • Number of archaeological sites where archaeological assessment is completed prior to Project construction.
		  • Areas of marine archaeological potential.

Archaeological resources are non-renewable resources with potential cultural, spiritual, and scientific importance for Indigenous communities as well as Indigenous and non-Indigenous peoples that could be affected by the Project. The indicators for archaeological resources are defined as follows:

- **Number of archaeological resources**: archaeological sites, objects, material, or physical features that may have cultural heritage value or interest, that are protected under the Ontario Heritage Act.
- **Area of archaeological potential**: areas with archaeological potential include proximity to navigable waterbodies, elevated topography, pockets of sandy soil in heavy soil or rocky ground, distinctive land formations, resource areas (e.g., food, medicinal plants, scarce raw materials, early Euro Canadian industry), areas of non-Indigenous settlement (e.g., monuments, cemeteries), areas of early Euro Canadian settlement, early historical transportation routes, listed or designated heritage properties, and properties with archaeological potential as identified by local histories or informants. Areas subject to extensive land disturbance, such as the construction of roadways and affiliated rights-of-way (ROWs), and building footprints, usually have low to no archaeological potential. Additionally, deep land alteration damages the integrity of archaeological resources (MTCS 2011).
- **Area of marine archaeological potential**: areas with archaeological potential within a marine context include proximity to known archaeological sites and resources, known and expected historical occupation, or land use within proximity to the Project area including historical wharfs, piers or dock installations, proximity of the area to known historical transportation corridors, known and expected shipwrecks and vessel debris fields, distinctive land formations (e.g., caverns, waterfalls, peninsulas, etc.), biological features (such as the distribution of food and animal resources in the area),

environmental and historically significant landscapes, and proximity to properties designated and/or listed under the *Ontario Heritage Act*. Additionally, marine landscapes known/interpreted to have been utilized by Indigenous occupants and marine landscapes identified as historically significant by local Indigenous communities represent areas with archaeological potential.

7.5.4 Assessment Boundaries

7.5.4.1 Temporal Boundaries

The Project is planned to occur in three stages:

- **Construction stage**: the period from the start of construction to the start of operation (in-service date).
- **Operation and maintenance stage**: the period from the start of operation and maintenance activities through to the end of the Project life.
- **Retirement stage**: the period from the end of the Project life and start of retirement activities through to the end of final reclamation of the Project.

As described in Section 5.3.2, the Project will be operated for an indefinite period and the timing of retirement, or decommissioning, is not known at this time as it is anticipated that upgrades to reinforce or rebuild portions of the Project may occur over its lifetime to maintain its longevity. Further, potential effects and mitigation measures to be identified during the EA for the construction of the Project will likely equally apply to the potential removal of the Project at a future point in time, should it ever be required. Therefore, the construction scenario assessed as part of the EA is considered bounding and potential effects and mitigation measures for retirement are not identified separately in this EA.

The assessment of Project effects on archaeological resources considers effects that occur during the construction stage. Understanding that activities with potential to cause new ground disturbance are likely to be limited to the construction stage, this timeframe is sufficient to capture the effects of the Project on archaeological resources.

7.5.4.2 Spatial Boundaries

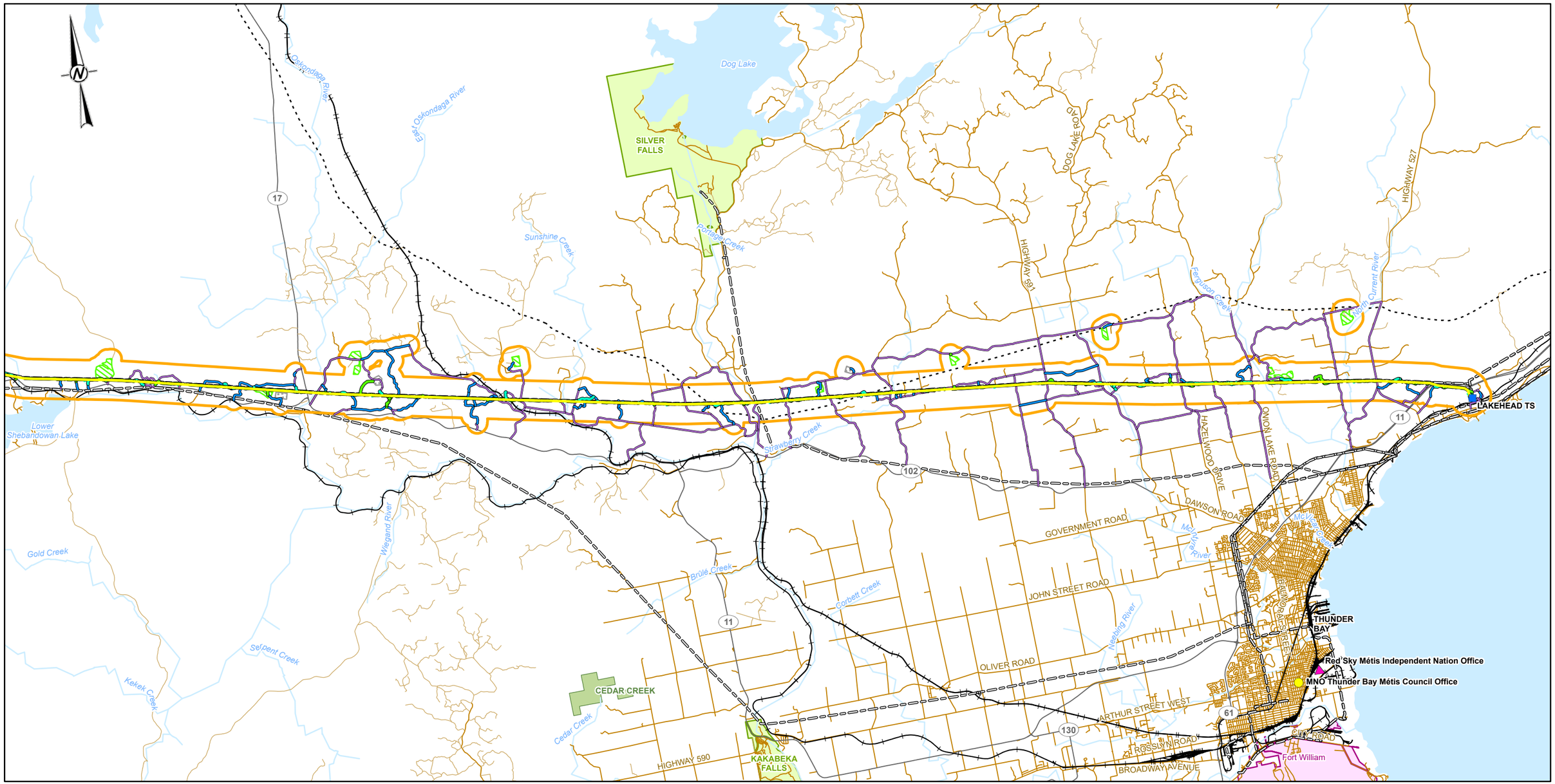
Spatial boundaries for the assessment are provided in Table 7.5-3 and shown on Figure 7.5-1.

Table 7.5-3: Archaeological Resources Spatial Boundaries

Spatial Boundaries	Area (ha)	Description	Rationale
Project Footprint	4,072.5	• The Project footprint includes: ◦ Typical 46 m wide transmission line ROW;	• Designed to capture the potential direct effects of the physical footprint of the Project.

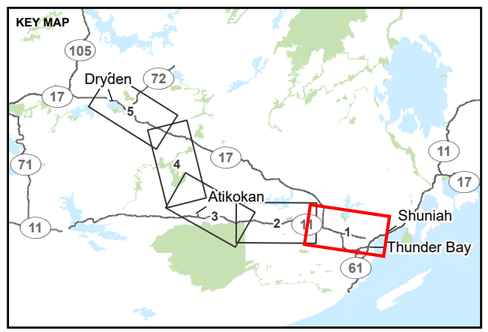
Spatial Boundaries	Area (ha)	Description	Rationale
		• Widened ROW for the separation of circuits F25A and D26A for 1 km; • Modification of the Lakehead Transformer Station (TS), Mackenzie TS, and Dryden TS; • Access roads (improved existing roads and new); • Temporary supportive infrastructure associated with construction including fly yards, construction/stringing pads, laydown areas, construction camps, and helicopter pads; and • Aggregate pits.	
LSA	89,098.3	• Includes the Project footprint and: • A 1 km buffer on the transmission line ROW (including the ROW for circuits F25A and D26A); • A 500 m buffer on the ancillary components including: – TS expansion areas; – Access roads (improved existing roads and new); – Temporary supportive infrastructure; and • Aggregate pits.	• Designed to capture the area within which most potential effects of the Project and immediate indirect effects are likely to be measurable. • Provides area for regional context and consideration of cumulative impacts. • A separate archaeology RSA was not assessed because the predicted zone of influence is anticipated to be confined to within the LSA, and the spatial extent of the archaeology LSA is appropriate for assessing potential cumulative effects on archaeological resources within the LSA.

ha = hectares; km = kilometres; LSA = Local Study Area; m = metres; TS = Transmission Station; ROW = Right-of-Way; RSA = Regional Study Area.



LEGEND

- RED SKY MÉTIS INDEPENDENT NATION OFFICE
- MNO COUNCIL OFFICE
- 230 kV TRANSFORMER STATION (TS)
- RAILWAY
- LOCAL ROAD
- SECONDARY HIGHWAY
- RESOURCE / RECREATION
- WATERCOURSE
- NATURAL GAS PIPELINE
- EXISTING TRANSMISSION LINE
- EXISTING ACCESS ROAD - NO IMPROVEMENTS REQUIRED
- EXISTING ACCESS ROAD - POTENTIAL IMPROVEMENTS
- NEW ACCESS ROAD - PREFERRED
- NEW ACCESS ROAD - ALTERNATE
- PREFERRED ROUTE TRANSMISSION LINE RIGHT-OF-WAY
- TRANSFORMER STATION FENCELINE - EXISTING
- TRANSFORMER STATION FENCELINE - APPROXIMATE AREA OF EXPANSION
- TEMPORARY LAYDOWN AREA (PULL SITE)
- AGGREGATE SITE
- HELICOPTER PAD
- FLY YARD
- LOCAL STUDY AREA
- FIRST NATIONS RESERVE
- PROVINCIAL PARK
- CONSERVATION RESERVE
- WATERBODY



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CONSULTANT
wsp

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DESIGNED	LM
PREPARED	DB
REVIEWED	HK
APPROVED	CS

TITLE
ARCHAEOLOGICAL RESOURCES LOCAL STUDY AREA

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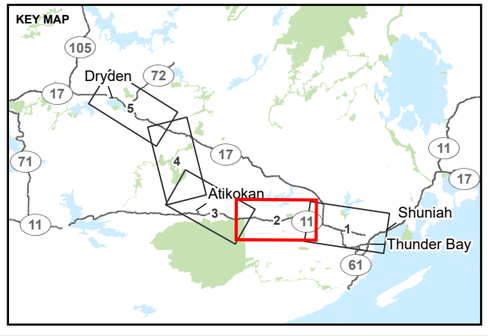
Bedivere Lake
Mercutio Lake
Lac des Mille Lacs
Athelstane Lake
Crooked Pine Lake
Atikokan River
LAC DES MILLE LACS
Baril Lake
Kashabowie River
Sabrina Creek
Swamp River
Windigoostigwan Lake
Crayfish Creek
KASHABOWIE
Kashabowie Lake
Drift Creek
Middle Shebandowan Lake
11
HIGHWAY 586
Upper Shebandowan Lake
Lower Shebandowan Lake
Huronian River
Tilly Creek
HIGHWAY 802
Greenwater Lake
QUETICO
Burchell Lake
Wawiag River
Squeers Creek
Gold Creek
Obadinaw River
LITTLE GREENWATER LAKE
Zephira Creek
Deatys Creek
Kekek Creek
McKenzie Lake

LEGEND

- RAILWAY
- LOCAL ROAD
- SECONDARY HIGHWAY
- RESOURCE / RECREATION
- WATERCOURSE
- NATURAL GAS PIPELINE
- EXISTING TRANSMISSION LINE
- EXISTING ACCESS ROAD - NO IMPROVEMENTS REQUIRED
- EXISTING ACCESS ROAD - POTENTIAL IMPROVEMENTS
- NEW ACCESS ROAD - PREFERRED
- NEW ACCESS ROAD - ALTERNATE
- PREFERRED ROUTE TRANSMISSION LINE RIGHT-OF-WAY
- TEMPORARY LAYDOWN AREA (PULL SITE)
- AGGREGATE SITE
- HELICOPTER PAD
- FLY YARD
- LOCAL STUDY AREA
- PROVINCIAL PARK
- CONSERVATION RESERVE
- WATERBODY

KEY MAP



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APPROVED	CS

TITLE
ARCHAEOLOGICAL RESOURCES LOCAL STUDY AREA

PROJECT NO.	CONTROL	REV.	FIGURE
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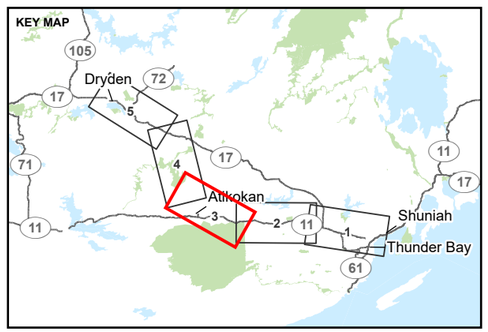
CAMPUS LAKE
Sandford Lake
White Otter Lake
TURTLE RIVER-WHITE OTTER LAKE
Cornell Creek
Lumby Creek
Light Creek
Seine River
Finlayson Lake
Seine River
Marmion Lake
Mercutio Lake
Atikokan River
Crooked Pine Lake
Baril Lake
Windigoostigwan Lake
Crowrock Lake
Dashwa Lake
Eye River
Turtle Lake
HIGHWAY 622
Eye Lake
HIGHWAY 633
HIGHWAY 633
Eva Lake
Crystal River
French River
Baptism Creek
11
MNO Atikokan Métis Council Office
MACKENZIE TS
11B
Nym Lake
Nym River
QUETICO
Pickerel Lake
Batchewaung Lake
Cache River
Miranda Creek
Jackfish Creek
Ferguson Creek
McKenzie Lake

LEGEND

- MNO COUNCIL OFFICE
- 230 kV TRANSFORMER STATION (TS)
- RAILWAY
- LOCAL ROAD
- SECONDARY HIGHWAY
- RESOURCE / RECREATION
- WATERCOURSE
- NATURAL GAS PIPELINE
- EXISTING TRANSMISSION LINE
- EXISTING ACCESS ROAD - NO IMPROVEMENTS REQUIRED
- EXISTING ACCESS ROAD - POTENTIAL IMPROVEMENTS
- NEW ACCESS ROAD - PREFERRED
- NEW ACCESS ROAD - ALTERNATE
- PREFERRED ROUTE TRANSMISSION LINE RIGHT-OF-WAY
- TRANSFORMER STATION FENCELINE - EXISTING
- TRANSFORMER STATION FENCELINE - APPROXIMATE AREA OF EXPANSION
- D26A / F25A CIRCUIT SEPARATION
- TEMPORARY LAYDOWN AREA (PULL SITE)
- AGGREGATE SITE
- HELICOPTER PAD
- FLY YARD
- CAMP / LAYDOWN
- CONSTRUCTION CAMP (NO LONGER TO BE USED)
- FLY YARD / CAMP / LAYDOWN
- LOCAL STUDY AREA
- PROVINCIAL PARK

KEY MAP



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APPROVED	CS

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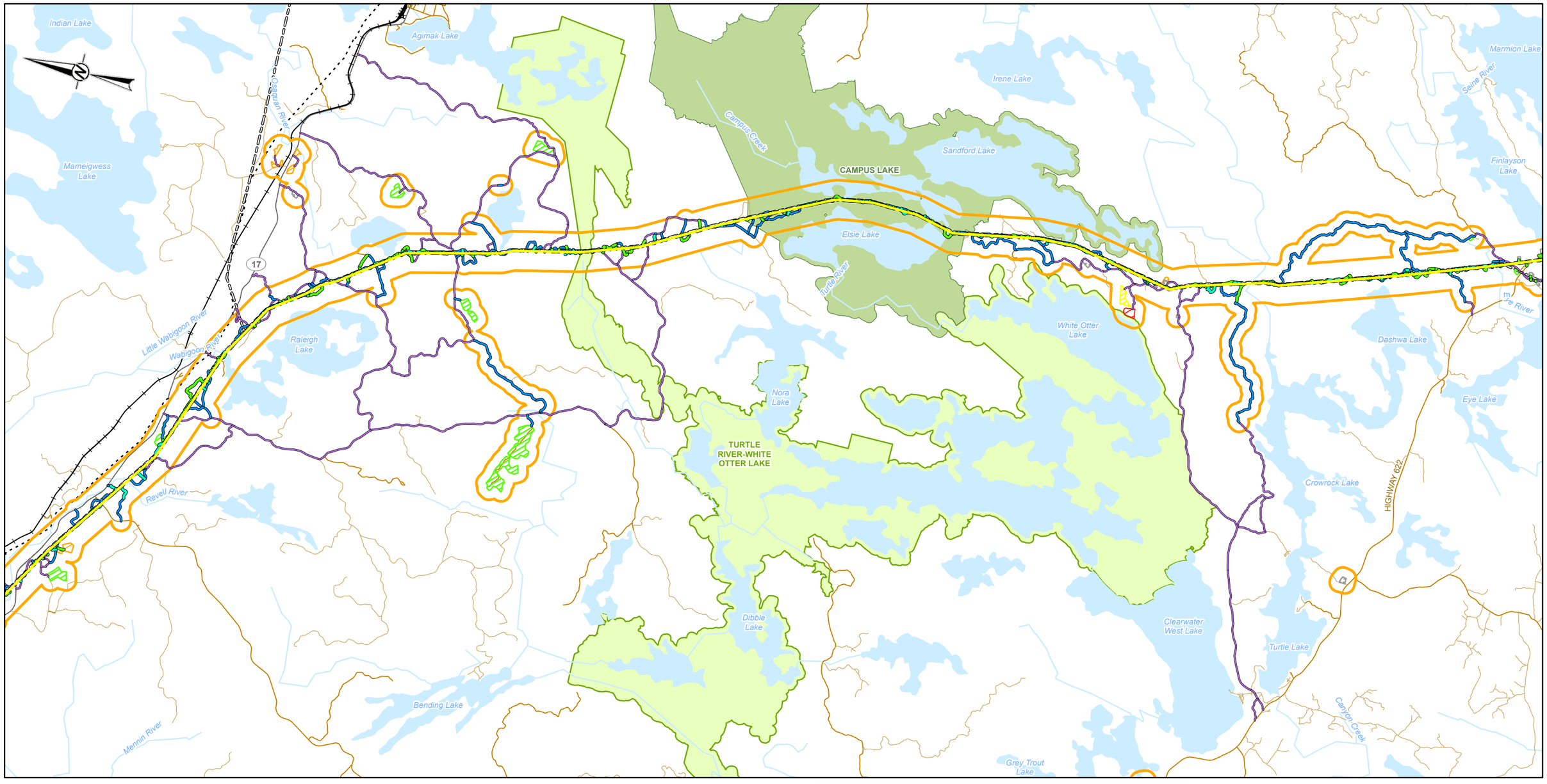

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- RAILWAY
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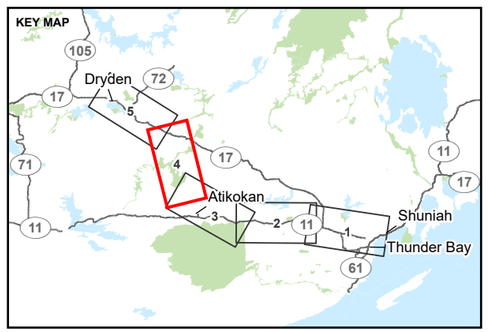
- CONSERVATION RESERVE
- WATERBODY

KEY MAP



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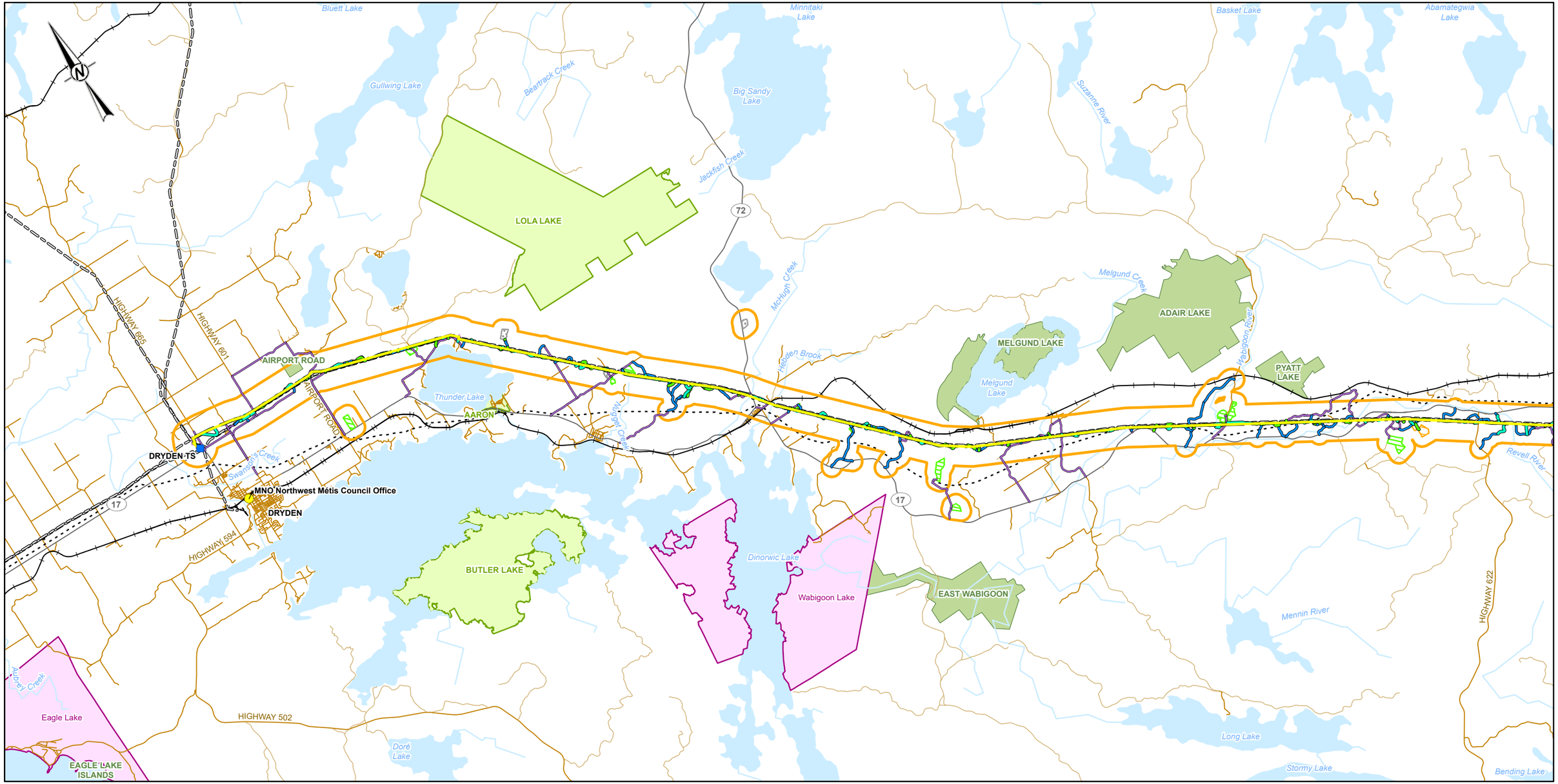

LEGEND

- MNO COUNCIL OFFICE
- 230 kV TRANSFORMER STATION (TS)
- RAILWAY
- LOCAL ROAD
- SECONDARY HIGHWAY
- RESOURCE / RECREATION
- WATERCOURSE
- NATURAL GAS PIPELINE
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- EXISTING ACCESS ROAD - NO IMPROVEMENTS REQUIRED
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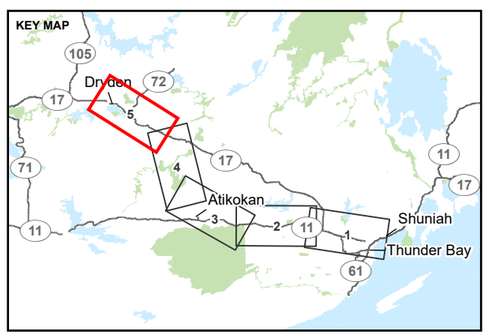
- NEW ACCESS ROAD - ALTERNATE
- PREFERRED ROUTE TRANSMISSION LINE RIGHT-OF-WAY
- TRANSFORMER STATION FENCELINE - EXISTING
- TRANSFORMER STATION FENCELINE - APPROXIMATE AREA OF EXPANSION
- TEMPORARY LAYDOWN AREA (PULL SITE)
- AGGREGATE SITE
- HELICOPTER PAD
- FLY YARD
- CAMP / LAYDOWN
- LOCAL STUDY AREA
- FIRST NATIONS RESERVE
- PROVINCIAL PARK
- CONSERVATION RESERVE
- WATERBODY



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7.5.5 Description of the Existing Environment

This section provides a summary of the existing environment for archaeological resources based on the Stage 1 Archaeological Assessment (desktop study) completed for the Archaeological Resources LSA, which includes the Project footprint and a 1 km buffer on the transmission line ROW (including the ROW for circuits F25A and D26A) and a 500 m buffer on the ancillary components, such as the TS expansion areas, access roads, temporary supportive infrastructure, and aggregate pits. Due to changes in the Project footprint after the submission of the Stage 1 Archaeological Assessment to the MCM, the LSA of the EA differs slightly from the LSA assessed during the Stage 1 Archaeological Assessment. Archaeological potential mapping in this EA is based on the current Project footprint and all archaeological potential data is current to this footprint except the data concerning registered archaeological sites in the LSA from the OASD, which was only completed for the areas assessed as part of the Stage 1 Archaeology Assessment.

7.5.5.1 Baseline Data Collection Methods

A Stage 1 Archaeological Assessment (desktop study) was undertaken for the Archaeological Resources LSA. This study was undertaken in compliance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). This assessment was undertaken to compile available information about the known and potential archaeological resources that could be affected by the Project, and provide specific direction for the protection, management, and recovery of these resources in compliance with the provincial standards and guidelines. No marine archaeological desktop assessment has been completed on the LSA thus far. This will be addressed as part of planning for the Stage 2 Archaeological Assessment as the LSA contains numerous navigable waterways that have been used by Indigenous and non-Indigenous peoples. Refer to Appendix 7.5-A for the Stage 1 Archaeological Assessment report for the LSA.

To compile an inventory of archaeological resources, the Ontario Archaeological Sites Database (OASD), maintained by the MCM, was consulted. This database contains archaeological sites registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden Block is approximately 13 km east to west and approximately 18.5 km north to south. Each Borden Block is referenced by a four-letter designator and sites within a block are numbered sequentially as they are found. The area under review is within numerous Borden Blocks.

7.5.5.2 Results

The Archaeological Resources LSA extends from the Lakehead TS in the Municipality of Shuniah, to the Mackenzie TS in the Town of Atikokan, and on to the Dryden TS in the City of Dryden. Evidence of human occupation in this region begins approximately 9,500 years ago with settlement concentrated along strandlines of glacial Lake Agassiz as it receded across the western portion of northern Ontario and glacial Lake Minong in the Lake Superior Basin, as well as outcrops of the Gunflint Formation, and extends into the present day. A brief summary of the

region's human history with notes about the potential archaeological resources associated with these periods is included in the following sections. The known archaeological resources located within the LSA, and potential archaeological resources found during the desktop study are also described.

7.5.5.2.1 Regional History

Indigenous people live, work, hunt, fish, trap, and harvest throughout their lands and rely on them for their individual, as well as their community's, overall cultural, social, spiritual, physical, and economic wellbeing. Lands are inextricably connected to a community's shared identity and culture. It is recognized that the relationship between Indigenous communities and their lands is a symbiotic one and the health of the community is tied to the health of the land. As such, what happens to lands in relation to past, current, and future land use, ecosystems, and sustainability is of fundamental importance to the communities.

For a more holistic understanding of the pre-contact Indigenous culture history presented below, which is largely based on archaeological evidence interpreted through a western perspective, it is critical to understand and to incorporate information about Indigenous traditional land and resource use because, in many cases, the locations of archaeological sites from which archaeological evidence is derived are connected to areas of past and current traditional land and resource use.

In the following section, "BP" refers to years Before Present, which in archaeology and other scientific disciplines is commonly set at January 1, 1950, when practical radiocarbon dating is commonly considered to have begun.

Based on the archaeological evidence that has been documented to date, the culture history of northern Ontario has been sub-divided into a series of phases (Periods). These are based upon the material remains that survive within the archaeological record that allow the reconstruction and differentiation of past lifeways. These subdivisions are an archaeological construct created to help better understand the evolution and change of cultures across the region, and benefit from the broad brush of hindsight and generalisation without the fine detail of local variation.

The broadest pre-contact archaeological periods corresponding to northern Ontario are identified as Paleo-Indigenous, Archaic (Middle Period), Middle Woodland, and Late Woodland, within which further temporal and regional subdivisions exist.

Within the pre-contact culture history of northern Ontario, there are several themes and issues that are relevant across all phases:

- The general acidity of the podzolic and brunisolic soils that make up the vast majority of the soils on the Canadian Shield in Ontario leads to a lack of organic preservation. As a consequence, there are large gaps in the understanding of various aspects of past cultures, ranging from mortuary practices and skeletal morphology through to diet and subsistence strategies. A huge portion of the non-lithic technologies developed in response to the demands of the environment leave no trace; with perishable organics

such as bone tools, bark storage containers, hide clothing, and birch canoes, all archaeologically invisible. Aside from rare occasions of survival due to waterlogged or chemically altered soils, such ephemeral yet crucial aspects must be inferred through site locations and the general survival requirements of people within a harsh climate.

- The Indigenous peoples of northern Ontario have used its multitude of interconnected watercourses as a transport network to some degree, either by birch bark canoe or as trails when frozen in the winter. The affiliation with water also extends to the constant utilization of fish as a stable and dependable resource, without which habitation of the Shield would be virtually impossible.

- The highly mobile, multi-resource oriented, hunting and gathering lifestyle is a consistent theme throughout the pre-contact history of northern Ontario. The very nature of the landscape and its dispersed resources mean that there are no other options to this flexible strategy in most of the Canadian Shield (Wright 1995). This results in a very widespread and relatively homogenous set of subsistence patterns and attendant tool kit across the boreal forests of northern Ontario. This is not to define the area as stagnant, but rather acknowledge the complexity and mobility required to populate such an expanse of “micro ecological zones” (Hamilton and Larcombe 1994).

- A combination of thin soils, bioturbation, including floralturbation and faunalturbation, frost action, and regular forest fires have resulted in the disturbance and mixing of any previously stratified sites, with artifacts congregating at the mineral/organic soil interface (Hinshelwood 1996, Courchesne et al. 2012). This has greatly hindered attempts to separate occupation phases and the research into the temporal and spatial chronologies of such sites.

- Settlement patterns consist of small social groups engaged in seasonal subsistence hunting and gathering, with the more productive late spring and summer seasons able to support greater concentrations of population. Winter hunting camps consisted often of a single-family unit or groups of two to three at most. The stability and easily available resources associated with large fishing sites enabled the congregation of people to conduct ceremonies and trade, serving as community focal points within an otherwise dispersed routine (Larcombe 1994).

- Habitation probably consisted of a form of shelter constructed from wood, animal hides and/or birch bark, in keeping with early ethnographic accounts (Wright 1999). These shelters do not survive archaeologically (Wright 2004), at best leaving a hearth, post moulds, and weight stones. They are, however, highly mobile and ideally suited to the Boreal forest-adapted way of life. Large permanent settlement does occur in the southern portion of northwestern Ontario during the Woodland period (Reid 1984, Reid and Rajnovich 1991), but within the LSA there was likely little need for change until the encroachment of Europeans produced a reliance on trade goods and the pursuit of furs.

- Unlike southern Ontario, agriculture, permanent settlement, and large societies are not currently known to have become established in most of northern Ontario during the pre-contact phase, except for the areas immediately adjacent to the Minnesota border along the Rainy River, as well as Lake of the Woods, and the Winnipeg River near present-day Kenora (Reid 1984, Reid and Rajnovich 1991). Here, settlement and ceremonial mound building, as well as the possible cultivation of maize, has been linked to indirect connections to the Hopewell Interaction Sphere in the midwestern United States (Boyd and Surette 2010).

7.5.5.2.2 Paleo-Indigenous; *circa* 10,000 to 7,000 BP

Initial habitation of southern Ontario followed the retreat of the ice sheets at the end of the Late Pleistocene 11,000 BP; however, the LSA for this Project was fully covered by ice and not open to inhabitation until the Holocene transition approximately 2,000 years later (Harris 1987).

Archaeological evidence collected to date indicates that groups of hunter-gatherers moved north following caribou and other arctic species that colonized the tundra-like margins of the glacial lakes. Late Paleo-Indigenous people moved north and east into the Interlakes Region between glacial lakes Agassiz and Minong around 9,500 BP (Dawson 1983, Norris 2012) with settlement favouring the strandlines of glacial Lake Agassiz as it receded across the western portion of northern Ontario and glacial Lake Minong in the Lake Superior Basin, as well as outcrops of the Gunflint Formation (Ross 1995). The retreat of the Lake Agassiz shoreline across the Project area during this period (Thorleifson 1996), as well as the shoreline of Lake Minong in the Lake Superior Basin at the eastern end of the LSA, likely provided ideal habitation for Paleo-Indigenous people. William Fox (1975) originally grouped Paleo-Indigenous sites in the Thunder Bay area into the Lakehead Complex; however, it has subsequently been suggested that the Lakehead Complex is one of four complexes in a larger Interlakes Composite, including the Lake of the Woods/Rainy River Complex, the Quetico/Superior Complex, and the Reservoir Lakes Complex (Ross 1995).

The incoming large game hunting populations ambushed migratory caribou herds at the various bottlenecks caused by the lakes and rivers of the region (Wright 1972a), with small family groups following game across the tundra landscape in a varied and highly flexible manner. Site location has also been linked to raw materials found in bedrock outcrops within northwestern Ontario, utilized in the production of distinctive unfluted, ribbon-flaked, lanceolate spear points, and knives. These lithic resources were often obtained by quarrying and used to produce blades, spear points, large scrapers, and bifaces (Dawson 1983). There are a number of known sources of fine-grained lithic materials available in northern Ontario, including various materials associated with the Gunflint Formation northwest of Lake Superior in northwestern Ontario and northern Minnesota, including Gunflint silica, Kakabeka chert, jasper taconite, taconite, and Rossport chert, as well as Lake of the Woods chert, and Hudson Bay Lowland chert. Other stone material commonly recovered from archaeological sites in the northern Ontario include rhyolites, siltstones, argillite, slate, greywacke, quartz, quartzites, pipestone, and greenstone (Fox 2009).

7.5.5.2.3 Archaic (Middle Period); *circa* 7,000 BP to 3,000 BP

The retreat of the Laurentide Ice Sheet during the onset of the Holocene resulted in changes to environmental conditions that included the establishment of coniferous forests in addition to mixed and deciduous forest cover with open grasslands in milder areas to the south (McAndrew 1982). This facilitated a corresponding change in material culture and subsistence strategies. The migratory caribou herd dominated lifestyle of the Paleo-Indigenous people was replaced by a more seasonally shifting hunting and gathering of caribou, deer, elk, moose, fish, and plant resources. This is reflected in the archaeological record by a decrease in the size and change in style of projectile points, along with the appearance of hooks and net sinkers (Wright 1995). In adapting to a forested environment, new woodworking tools such as axes, adzes, and chisels were developed (Dawson 1983).

A defining technological change of the Archaic Period was the progression of copper tools, produced from near surface copper deposits found on the shores of Lake Superior and traded across eastern North America. Copper work of this period consisted of heating and hammering the ore to a desired form, rather than smelting and casting. This was achievable because Lake Superior copper ore is unusually pure, allowing it to be malleable at lower temperatures and shaped with simpler tools. The earliest evidence of copper working near the LSA comes from South Fowl Lake on the Ontario/Minnesota border, providing a radiocarbon date of 6,800 BP for the wooden haft of a copper projectile point (Wright 1995); however, radiocarbon dates from northeastern Wisconsin provide the earliest known date for a copper artifact at 8,500 BP (Pompeani et al. 2021).

7.5.5.2.4 Middle Woodland; *circa* 3,000 BP to 1,000 BP (Initial Woodland Period)

Within southern Ontario, the Woodland Period is split into three distinct phases, Early, Middle, and Late, with influence from the preceding Laurentian cultures of the Great Lakes/St. Lawrence region. In northwestern Ontario, there is little to no evidence of the Early Woodland, and the Middle and Late Woodland appear more influenced by Plains cultures to the south and west.

For archaeologists, the adoption of pottery and the bow and arrow mark the beginning of the Woodland Period. It is important to stress that this provides a marker within the archaeological record that is convenient to use as a subdivision and is not indicative of a change of people through migration, rather a continuing evolution of the Paleo-Indigenous and Archaic way of life by encompassing new technological advancements. The introduction of pottery around 2,200 to 2,300 BP (Wright 1999) is postulated to have diffused into northwestern Ontario from the southwest or east and, with it, the evolution of the Laurel culture within the northern forests of the Canadian Shield, running east from Saskatchewan to northwestern Quebec.

Laurel ceramics were thick-walled and manufactured using the coil method and were stylistically conical with a tapering base. Decoration was restricted to the upper portion of the vessel's exterior surface and consisted of a variety of techniques that left impressions or drag marks.

In addition to the introduction of pottery, the bow and arrow began to replace the spear as the dominant hunting technology, resulting in a change of projectile point morphology. Chipped stone technology was dominated by small side-notched arrowheads and a wide range of scraper varieties (Wright 1999). Tools were based mainly on relatively small nodular chert cores with a heavy reliance upon Hudson Bay lowlands nodular chert (Wright 1999) in contrast to the previously quarried rhyolite and quartzite. This resulted in a marked decrease in the size of the tool types and decline in the occurrence of biface knives, along with an increase in projectile points and scrapers (Wright 1995).

A well-developed bone technology toolkit is suggested for Laurel culture by the unusually well-preserved Heron Bay site on the north shore of Lake Superior, with hafted beaver incisors, bone awls, toggle harpoons, needles, beads, and snowshoe netting recovered (Dawson 1983). Copper tools were concentrated around the Lake Superior area and were traded further afield for exotic stone, obsidian, and marine shell into Manitoba, southern Ontario, and the northern United States (Ross 1979, Harris 1987).

The spread of Laurel culture has been linked to the northward expansion of wild rice due to late Holocene cooling; however, few Laurel components have been associated with micro-floral evidence of rice, or rice processing features (Boyd and Surette 2010). Recent microfossil analysis on Middle and Late Woodland pottery fragments has revealed the preparation and consumption of maize on sites within the southern edge of the boreal forest near the Ontario-Minnesota border. No evidence for agriculture survives at these sites; however, the results suggest trade networks linked to the maize producing cultures upon the plains to the south (Boyd and Surette 2010).

7.5.5.2.5 Late Woodland; *circa* 1000 BP to 400 BP (Terminal Woodland)

The Late Woodland period in northern Ontario is defined arbitrarily based on ceramic distinctions. With the climate and landscape prohibiting the adoption of agriculture above the Rainy River, there does not appear to have been the same profound change in lifestyle that occurred amongst the agricultural populations to the south. The boreal forests and lichen woodlands of the shield are environmental constraints on the density of population that can be supported (Wright 1999), and also deterministic of the subsistence methods of such populations. Fish and large game were, as before, essential to supporting human existence within northern Ontario.

Settlement patterns reflect this focus on fishing and hunting, with fish sought in the spring, summer and fall, and large game hunted in the fall and early winter. Sites are located on level, well-drained ground with protection from northwest winds, and access to canoe landing beaches. Larger summer encampments were located in proximity to favourable fishing locations, such as lake narrows and rapids, while the probable location of dispersed winter camps on frozen creeks has led to a lack of surviving archaeological information (Wright 2004).

The Late Woodland period is represented as a wide variety of pottery styles and manufacturing techniques that did not appear uniformly over northern Ontario. In some areas, it can be identified around 1,500 BP while in other, usually remote, areas, Laurel-type pottery continues until 1,000 BP. A variety of pottery types are typically found at Late Woodland sites, ranging from Iroquoian to vessels from Michigan, and Wisconsin, provide further evidence of previously established trade networks and contacts with the south (Dawson 1983, Wright 2004).

7.5.5.2.5.1 Blackduck

The Blackduck complex has been identified based on the existence of a contrasting pottery tradition to Laurel. Vessels were large globular and manufactured using the paddle and anvil technique or formed inside textile containers. Decoration is diverse, consisting of horizontal and/or oblique lines along with circular indentations or punctates, and is present on the neck, rim, lip, or inner rim of the container.

Tools associated with the Blackduck culture include small triangular and side-notched arrowheads, a large array of scrapers, both stone and bone, ovate knives, stone drills, smoking pipes, bone awls needles and harpoons, and copper tools.

The advancement of Blackduck culture extends through the southwest part of northern Ontario, Manitoba, northern Minnesota, and eastern Saskatchewan (Wright 2004).

7.5.5.2.5.2 Selkirk

The Selkirk complex is again characterized by its pottery, manufactured with the same techniques as Blackduck, similar in form but distinguished only by decoration. If decorated, it is usually only a single row of punctates or impressed with a cord wrapped stick along the rim (Dawson 1983, Meyer and Russell 1987). The non-ceramic assemblage associated with Selkirk is almost identical to that found on Blackduck sites, with the two often being found together in northern Ontario.

The Selkirk are represented as the ancestors of the present-day Cree (Meyer and Russell 1987); however, it must be noted that inferring ethnicity based on pottery traditions is problematic. The interchangeable nature of both cultures purported to precede the Cree and Ojibwa in northwest Ontario highlight this and caution against focusing on a single technological element when talking of a cultural construct, such as ethnicity. It is possible to identify the Selkirk and Blackduck as ancestral to a Cree-Ojibwa complex, but further separation is perhaps misrepresentative (Wright 2004).

Selkirk pottery is found mainly to the north of northwestern Ontario and into northern Manitoba, Saskatchewan, and northeastern Alberta. Attempts to produce a ceramic chronology in relation to the Blackduck complex have been hampered by the lack of stratified sites and the validity of carbon-dating attempts. It is now generally accepted that Selkirk is slightly later and did not develop from Blackduck; diffusing in from the northwest rather than developing out of existing traditions.

A number of other traditions have been identified based on additional decoration variation; however, the uniformity present within the non-ceramic assemblages suggests caution against over-emphasizing small differences and the subscription to regional patriarchy (Wright 2004).

7.5.5.2.5.3 Rock Art

The Late Woodland also sees the emergence of rock art as an expression of spiritual life and ritual. Rock paintings, known as pictographs, comprised of red ochre mixed with a binding agent, such as bear fat or sunflower oil, are typically found within western Ontario on the vertical faces of cliffs where they enter a body of water (Rajnovich 1994). Pictographs constitute a form of written language, signifying sounds, objects, and ideas in reference to subsistence, geography, climate, history, as well as sacred or religious beliefs and/or visions (Bursey *et al*), although they could have served a variety of cosmological functions and even political ones by marking territory (Wright 2004:1545). The damming of lakes and rivers by the timber and hydroelectric industries may have drowned many sites, while the fragile nature of the paintings themselves, when exposed to the elements, also reduces their chances of survival. There are two registered pictograph sites within the LSA on an unnamed lake approximately 25 km southwest of Ignace, as well as a registered pictograph site on the eastern shore of White Otter Lake, approximately 400 m west of the LSA about 37 km northwest of Atikokan (see Section 7.5.5.2.7 below). Rock etchings, or petroglyphs, are relatively rare within the Canadian Shield, with most examples occurring within the south and east of the province. Likewise, petroforms, or artificial arrangements of stones in pits or cairns, are not thought to be common within the area (Dawson 1983).

7.5.5.2.6 Post-Contact History

7.5.5.2.6.1 Early Exploration

European exploration of northern Ontario in the Lake Superior region began in the early 1600s. The first European to reach Lake Superior was most likely Etienne Brulé, an interpreter employed by Samuel de Champlain (Stuart 2003). It would be several decades before Lake Superior and its surrounding region were more thoroughly explored by the Europeans. These early European explorations relied heavily on knowledge of existing territorial routes provided by the local Indigenous peoples, which were based on extensive trade among the Indigenous peoples. The first known European explorers on the lake were Pierre Esprit Radisson and Médard Court. They set off in 1658 and returned two years later with "*a rich cargo of furs and the knowledge that the best furs could be obtained to the north and west of Superior*" (Stuart 2003).

European exploration of the James Bay Region began in 1610 with Henry Hudson, who entered the bay while exploring what would come to be called Hudson Bay. James Bay would later be named for Welsh captain Thomas James, who explored the area more extensively from 1630 to 1631. Apart from Hudson's ship being visited briefly by a Cree man in 1611, the English sailors made no contact with Indigenous people (Morantz 2001).

The earliest European exploration of north-central Canada occurred along the shores of the bays and the major river systems, with further inland exploration occurring at a later date. In the early decades of European exploration, northern North America was explored by both the English and the French. The English focused their efforts of exploration in and around Hudson Bay and James Bay, and farther inland along the watershed systems from these bays. The French concentrated their efforts farther south and moved inland along the St. Lawrence waterway before exploring the Great Lakes area farther inland.

7.5.5.2.6.2 The Fur Trade in Northern Ontario

The northern portions of Ontario, north of Lake Superior, and south and west of Hudson Bay and James Bay, have had a number of successive exploration ventures beginning in 1610 with the Hudson's Bay Company (HBC), but more extensively in the mid-18th century. Henry Kelsey was the first of the European explorers to venture into the northern part of Ontario and farther east. On Kelsey's second expedition (1690-1692), he explored from York Fort in Hudson Bay and extended the HBC trade west to the Saskatchewan River. Anthony Henday was the second explorer of European descent to venture into the Petit Nord of Ontario, penetrating farther west and well into the Prairies. The boundaries of the Petit Nord are approximately described as being James Bay and Hudson Bay to the north, the divide between the Moose and the Albany River drainages to the east, Lake Superior and the boundary waters between Lake Superior and Lake Winnipeg to the south, and Lake Winnipeg and the Hayes River system to the west (Hackett 2002).

The English formally initiated trading on James Bay in 1668 when Fort Rupert was established on the Rupert River. Moose Fort (Factory) and Fort Albany followed in 1673 and 1675, both located on the south end of James Bay. Trading post journals record the extent that Indigenous peoples were travelling to trade at these posts; one record from Gloucester House (operated from 1777-1818) indicates that Indigenous peoples were travelling to the trade post from up to 600 miles away (Newton and Mountain 1980).

During this time of initial exploration, both the HBC and the French St. Lawrence traders (SLT) began to create forts and houses in order to establish trade routes along the various water corridors. The primary corridors that the various groups utilized for trade and transport are mapped by the distribution of forts, company houses and trade posts. Major routes utilized by traders included the waterways connecting York Factory south along the Hayes River to Lake Winnipeg. The eastern side of Lake Winnipeg and the water ways from Fort Albany in James Bay, east down the Albany River, through Osnaburgh House, Lac-Seul, Bas-de-la-Rivière into the south end of Lake Winnipeg were also well travelled. Numerous other small or secondary corridors by the traders connected various other forts, houses, and depots within the Petit Nord. In 1670, Charles II granted the HBC exclusive rights for English trading in the land drained by rivers flowing into Hudson's Bay, referred to by the Europeans as Rupert's Land. Rupert's Land was composed of several different physiographic regions that included the Hudson Bay Lowlands, located along Hudson and James Bays consisting of marshy lowlands with slow-moving rivers and the Canadian Shield located to the south, east and west of the Hudson Bay

Lowlands, consisting of rugged terrain, exposed bedrock, glacial features, and numerous lakes. Farther to the west were the Prairies and to the south, the Great Lakes Region (Harris 1987). The LSA is located within the Canadian Shield region, also known as the Boreal Shield within the province of Ontario.

Unlike the HBC, French interests within the area were supported by independent traders and voyagers from Montreal and the St. Lawrence venturing into western and northern Ontario through the Great Lakes. Both the English HBC and the French SLT vied for control over the rich and highly productive resources of Rupert's Land. In 1686, French forces from the St. Lawrence captured Fort Albany and a few years later, took York Factory and Fort Severn on Hudson Bay. These victories enabled a French monopoly on fur trade in the Hudson Bay region until 1713 when the Treaty of Utrecht relegated the French to the southerly St. Lawrence – Great Lakes route into Ontario's hinterland, while the English regained control over their forts and over the northern Hudson Bay routes (Harris 1987).

Intermixed within the network of expanding HBC and SLT posts were groups of highly mobile boreal forest-adapted Indigenous groups, consisting mainly of Cree and Ojibway, with Assiniboine located farther to the west around Lake Winnipeg. In the early period of the fur trade, Indigenous groups acted as middlemen, trading furs for European goods such as firearms, ammunition, blankets, tobacco, and various other objects between European traders and other Indigenous groups farther afield. As tensions rose between the SLT and the HBC, so did the tensions rise between local Indigenous groups. Settlement and warfare patterns changed with local Cree families and communities settling beside or within close proximity to established forts and trading posts. These families supplied the posts with provisions and locally obtained furs. Eventually, the Indigenous peoples and Europeans intermixed giving rise to a population that became referred to as the Métis.

With these increased tensions between the HBC and SLT, Indigenous groups allied with the different trading companies. In doing so, traditional lands shifted as Indigenous groups expanded and retracted, vying for control over important trapping routes and transportation corridors. By 1720, the majority of land granted to the HBC by royal charter were controlled by Cree bands. The Cree in these areas had a number of allies, including the Siouan-speaking Assiniboine to the west and the Algonkian-speaking Ojibway to the south. The Cree's prime rivals were the Athabaskan-speaking Chipewyan who were located to the north of the Churchill River. However, by 1740, the Ojibway expanded north and east of Lake Superior and occupied the territory between Lake Winnipeg and Hudson Bay, traditionally Cree territory. This displaced the Assiniboine who moved westward and occupied the parkland areas as far north as the Saskatchewan River (Harris 1987).

The state-organized French fur trade within the region ended in 1759 when Montreal surrendered to the English. However, French fur traders continued to work independently and forced the HBC to set up more inland posts. It was around this time that the North West Company (NWC) was created to quell the HBC westward advances. From the early part of the 1770s until 1821, competition between the two groups was fierce. With both companies unable

to sustain the prolonged and intense competitions, they amalgamated into a single operation under the overall banner of the HBC (Klimko 1994).

The exploitation of fur bearing and game animals in the northern interior to facilitate the trade for imported items was unsustainable. The depopulation of natural resources led to an increased focus on smaller game, such as snowshoe hare and wildfowl, and placed Indigenous populations at the mercy of the cyclic nature of the smaller species. The decline of deer, elk, caribou, and moose also removed many of the raw materials needed for the boreal way of life, further increasing the dependence on goods from trade posts (Rogers and Smith 1994). The increased reliance upon fishing and trapping, and the inexorable pull of the trade posts resulted in an increasingly settled lifestyle that was compounded by the Treaty System, the creation of reserves, and the introduction of the snowmobile in the 1960s. Many current Indigenous community locations correlate with the fur trade posts and infrastructure that depended on them and in turn provided them with what became the essentials of a more settled existence.

7.5.5.2.6.3 The Métis

The Métis are distinct Indigenous people with a unique identity and culture that initially emerged from early relations between Indigenous women and European men and further developed through generations of the subsequent intermarriages. The territory of the Métis surrounds the Great Lakes and associated waterways, and spans what was known historically as the Northwest. The Métis played an important role in the formation of Canada while colonial expansion significantly affected the formation and enforcement of Métis identity (Supernant 2018). The Métis also developed a unique language, Michif, which is mainly a combination of Cree and French. Michif became broadly spoken across Métis territory during the 19th century. Although its use declined during the 20th century, Michif is still spoken today, with efforts to preserve and perpetuate it to Métis youth supported by groups like the Métis Nation of Ontario (MNO) (MNO 2022).

By the second half of the 18th century, the Métis were living at various fur trading posts and began to take on a larger economic role by supplying the HBC and the NWC with furs and pemmican, as well as transporting goods throughout a broad geographic expanse (Supernant 2018).

The early 19th century saw increasing competition between the HBC and NWC as the fur trade and European settlers expanded west. The Red River settlement was established in 1811 to support the HBC's operations between the Red River and the Assiniboine River. In 1814, the Red River settlement decreed several proclamations forbidding the export of provisions, such as pemmican, from the Red River settlement (Foster 2015). These decrees and their enforcement directly impacted the regional Métis, who made their living providing supplies to the HBC and the NWC. These events culminated in 1816 with the Battle of Seven Oaks, a skirmish between a group of HBC officers and employees and a group of Métis and Indigenous peoples attempting to deliver pemmican to the NWC. Following the skirmish, the HBC and settlers temporarily abandoned Fort Douglas in the Red River settlement to the Métis, which proved

crucial to the evolution of the Métis identity, as they declared themselves “the New Nation” in the west (Barkwell 2018, Supernant 2018).

Following the merger of the NWC into the HBC in 1821, the Red River settlement became more central in the fur trade. The Métis began transporting goods and furs throughout the northwest, developing major trails, canoe routes, and portages in all directions from the Red River settlement. As a result, large numbers of Métis moved to the Red River settlement where they increasingly became more involved in acquiring furs, pemmican production, transportation and haulage, and farming. The increasing demand for pemmican in the mid-19th century also led to a distinct practice by the Métis where groups of families would collectively build cabins on the plains and hunt bison overwintering in treed areas (Supernant 2018). Being deeply connected to the fur trade, distinct Métis settlements also began to appear along freighting waterways where they were often part of larger regional communities interconnected by a highly mobile lifestyle following seasonal rounds and building extensive kinship relationships that further formed a shared collective history and identity (MNO 2019a).

Historically, the Crown did not recognize the Métis as a distinct group of Indigenous peoples in Canada. As such, when William Robinson negotiated the Robinson-Superior Treaty in 1850, he left it up to the discretion of the Indigenous Chiefs involved in the treaty signing whether people of mixed blood would be included in the treaty or not (Taylor 1983):

> *“As the [Métis] at Sault Ste. Marie and other places may seek to be recognized by the Government in future payments, it may be well that I should state here the answer that I gave to their demands on the present occasion. I told them I came to treat with the chiefs who were present, that the money would be paid to the– - and their receipt was sufficient for m– - that when in their possession they might give as much or as little to that class of claimants as they pleased. To this no one, not even their advisers, could object, and I heard no more on the subject.”*
>
> Morris, 1880:20

This treaty set the background for Indigenous policy at the time of Confederation and the Métis were generally excluded from treaties that followed (Taylor 1983). When Canada acquired the HBC’s territories in 1870, the large Indigenous group within these territories formed a distinct social group. The Red River Rebellion, led by Louis Riel in 1869 and 1870, protected the Métis way of life by resisting the transfer of land to Canada. The Red River Métis prevented the Canadian government from assuming control of the Red River territory and declared a provisional government to discuss the terms of entry into Confederation with the government of Canada. Negotiations resulted in the creation of the province of Manitoba via the *Manitoba Act* on May 12, 1870, as well as guaranteed land titles for the Métis and 607,000 ha of land reserved for the Métis and their families. Riel did not receive amnesty for his actions and was forced into exile in the United States (Bumstead 2019). The decline of the fur trade and buffalo population in the late 19th century saw many Métis move farther west into Manitoba and Saskatchewan following the buffalo population, but also disperse into parts of northern Ontario for trapping (Taylor 1983).

Following the *Manitoba Act*, the government of Canada created the Métis scrip system to extinguish Métis land title so the land could be used for commercial expansion and Euro-Canadian settlement. This system, in use until the 1920s, was misrepresented to provide equitable settlements to Métis, and resulted in very little land being granted to them. Scrip was a document issued by the Canadian government redeemable at a *Dominion Lands Act* Office for either land or money. Numerous problems were inherent in the Métis scrip system, including the location of the majority of land allotments in southern and western Manitoba far from where many Métis lived, and fraud, as the owner of the scrip's name did not appear on the certificate, making it possible for fraudulent land speculators to redeem them (Robinson 2019).

By 1884, Métis in Saskatchewan along with the Cree, Siksika, Kainai, Piikani, and Saulteaux First Nations of the plains were facing difficult changes to their ways of life, including the near extinction of the bison, loss of land to settlers, and the decline of the fur trade. The Métis of Saskatchewan brought back Louis Riel from exile, who urged the dissatisfied peoples to unite against the Canadian government. In 1885, the Métis passed a "Revolutionary Bill of Rights" asserting Métis rights of possession to their farms along with other demands (Beal and Macleod 2019). On March 18 and 19 of that year, a Métis armed force seized the parish church at Batoche, demanded the surrender of nearby HBC post Fort Carlton, and formed a provisional government with Louis Riel as president, thus beginning the North-West Rebellion. Following this, the rebellion spread with a series of battles being fought between Métis, First Nations and Canadian forces, although most Métis and Indigenous communities of the region did not get involved. The North-West Rebellion ended on June 3, 1885, and Louis Riel was hanged for treason on November 16, 1885 (Beal and Macleod 2019).

As a result of the Métis scrip system and being left out of the majority of treaties, many Métis became disenfranchised and marginalized in the late 19th and 20th centuries, though many communities persisted (Supernant 2018). The Métis National Council was formed in 1983 to represent the Métis Nation both nationally and internationally through democratically elected representatives from the five governing members: The Métis Nation of Ontario, the Manitoba Métis Federation, the Métis Nation-Saskatchewan, the Métis Nation of Alberta, and the Métis Nation British Columbia (Métis Nation 2021).

Despite being a large part of the history of Canada, the Métis of Canada did not receive recognition by the federal government until 2003. Section 35 of the *Constitution Act, 1982* protected existing Indigenous treaty rights for the first time, including "First Nation, Inuit, and Métis peoples of Canada." However, the government maintained that the Métis did not have any Indigenous rights protected by Section 35 and did not negotiate with the Métis. It was not until 2003 and the case of R. v. Powley, heard by the Supreme Court of Canada, that the Métis were recognized as a distinct Indigenous group and that their Indigenous rights were protected under Section 35 (MNO 2019b). Within Ontario, the Métis Nation of Ontario holds harvesting rights for hunting, trapping, fishing, and gathering of natural resources for food, social, or ceremonial purposes within harvesting areas created by the Métis Nation of Ontario based on Métis traditional land use and knowledge as well as Historic Métis Communities (MNO 2018). The LSA falls within the traditional territories of the Northwestern Ontario Métis Community

(Treaty 3, Lake of the Woods/Lac Seul and Rainy Lake/Rainy River traditional territories) and Northern Lake Superior Métis Community's Lakehead Harvesting area.

Archaeological research of the Métis is limited and for the most part has largely focused on Métis overwintering sites found throughout the prairies and parkland areas of western Canada and the northern United States (Supernant 2018). In Canada, these distinctly Métis sites, as opposed to other fur trade-era sites within traditional Métis territory, are primarily located in Manitoba and Alberta (Supernant 2018). In Ontario, historical Métis settlements were predominately centred on the fur trade, located along major river systems surrounding the Great Lakes and northwestern Ontario (MNO 2019a).

7.5.5.2.6.4 Further Euro-Canadian Settlement and Resource Extraction (circa 1850 to Present)

Settlement in northern Ontario for farming, forestry, mining, and other forms of resource extraction by Euro-Canadians began around the middle of the 19th century. A substantial presence on Lake Superior was made possible in 1855 through completion of a railway from Toronto to Collingwood on Georgian Bay and by a canal at Sault Ste. Marie for marine transport from Lake Huron to Lake Superior that opened the same year (Bray 1984). Additionally, effort was made in the latter half of the 19th century to complete an all-Canadian route linking the Great Lakes and the prairies. This route, known as the Dawson Trail, was a land- and water-based route connecting Port Arthur (Thunder Bay) on Lake Superior to the Red River settlement in what is now Manitoba. The route was initially surveyed in 1858 by Simon James Dawson, but construction on it did not being until 1868 and it was not completed until 1871 (DTAHC 2020).

Census records from 1871 list 15,000 people inhabiting northern Ontario, clustered in a few settlements, primarily Bruce Mines and Sault Ste. Marie. By 1911, largely driven by new railways, the population had increased to 215,000 people scattered over a wide geographical area (Bray 1984). The lumber and mining industries propelled population growth during the early and mid-20th century from 215,000 in 1921 to 722,000 in 1961 (Bray 1984). Census data from 2016 indicates that the population of northern Ontario is just over 780,000 and is clustered in regional centres (Statistics Canada 2016 a and b). Government policy in the early 20th century drove much of the expansion of northern Ontario through infrastructure creation and geological surveys. Aviation also played a role after World War I in aiding survey of difficult terrain and supplying remote communities.

Lumber, Mining, and Infrastructure

The lumber and mining industries were pivotal for developing northern Ontario from the mid-19th century to the present day. The history of lumbering in the area is commonly grouped into three overlapping periods: a first phase from the 1870s to early 1900s where the focus was on large white pine and white spruce for the global timber market; a second phase from 1900 onward when the focus shifted to spruce for the pulp and paper industry to provide the eastern United States with pulp for newsprint; and a third phase beginning in the mid-20th century marked by adoption of the combustion engine to power new equipment, which revolutionized all aspects of the industry (Smith 1984).

The first phase of the lumber industry from the 1870s to 1900s focused on white spruce and white pine primarily because of the distances to market. To be profitable, the value of the timber had to heavily outweigh the costs of bringing the trees to distant markets and the large white pine and white spruce trees of northern Ontario met this criterion. Lumberjacks would haul large trees to the rivers with teams of horses and live in semi-permanent camps that included bunkhouses, cookhouses, barns for the horses, smithies, and storage sheds (Bogue 2007). The remnants of these camps may be present as debris scatters on the surface or ruins.

The second phase shifted in focus to supplying the eastern United States with pulp for making newspaper (Smith 1984). Softwood spruce is easily pulped and abundant in northern Ontario. By the 1920s, lumbering in northern Ontario was devoted almost entirely to the pulp and paper industry. Larger, more permanent and complex mill operations were required for pulping, resulting in long-term investment in the area and a need for a permanent labour force. This, in turn, spurred further settlement in the region.

Mechanization marks the third phase of the lumber industry, which emerged in the mid-20th century with the invention of the chainsaw and the increased availability of heavy tracked vehicles. Chainsaws increased productivity in felling trees by approximately 25% over axes and handsaws, and a combination of bulldozer and crane called a “skidder” had replaced horses by the 1960s. Roads slowly outpaced waterways as the primary form of transport and also facilitated workers to commute to work and have greater choice in where they lived.

Mining also played an important role in northern Ontario’s expansion and settlement. At first, the mineral wealth of the Canadian Shield was exploited intermittently; first with the failed Bruce Mine southeast of Sault Ste. Marie from the 1840s to 1876, then with the Silver Islet Mine on and adjacent to the Sibley Peninsula from 1869 to 1874. Mining was not a major industry in northern Ontario until the Canadian Pacific Railway (CPR) was built in 1874. Following this, the industry expanded rapidly with the discovery of significant gold, silver, iron, and nickel deposits along the CPR line. Temporary or semi-permanent camps were built to sample and mine these various deposits.

In 1890, the Ontario government began supporting mine expansion through the Bureau of Mines, which also sponsored classes in prospecting and provided some specialized equipment to miners (Gilbert 1984). By 1914, Ontario was the leading mining province in the country, accounting for 40% of production and employing 11,000 workers. A boom in demand for minerals during the First World War dropped after the Armistice and growth in the industry slowed during the interwar years (Gilbert 1984).

With World War II came renewed demand for resources overseas, but also perceived security risks on the home front. During the war, German prisoners of war and Japanese-Canadians were detained at camps across the country, including several permanent and temporary camps along the north shore of Lake Superior. Camps at Red Rock, Neys, and Angler Creek were seen as so inhospitable that escape would be unlikely to succeed. At these camps, both German prisoners of war and Japanese-Canadian internees were put to work in the logging industry.

The demand for resources continued into the 1950s and 1960s. Investment and mechanization led to larger operations that could exploit deposits more effectively and could pull new returns from old mines. In the 1970s the growth rate seen in the previous three decades faltered and competition from other parts of the world redirected investment away from northern Ontario. Mechanization has increased since then and with it has come different labour requirements.

From around the turn of the 20th century until the First World War, mines and prospecting followed the path of railways. Travel and trade around the north shore of Lake Superior to this point had relied on the water but this began to change in the 1880s with the construction of the CPR. In 1884, the CPR finished its route across the north end of the lake. Construction of the railway relied on marine transportation and small ports were built approximately 100 km apart along the north shore of Lake Superior to deliver supplies for railway construction leading to the evolution of small communities and tracks or roads to support the railway. Other rail lines in the area included the Algoma Central Railway and Temiskaming and Northern Ontario Railway (Chisholm et al. 1998).

Infrastructure, including roads, was difficult to build in northern Ontario due to challenging terrain and environmental conditions. As early as 1912, the province began to fund roads, bridges, and transportation facilities in northern Ontario, and by 1930, the “Nipigon Highway” between Port Arthur and Nipigon opened (Shragge and Bagnato 1984). The Trans-Canada Highway began with federal funding in 1949. Progress was slow, with a section between the Agawa River and Marathon completed in 1956. The complete highway across Northern Ontario was connected at Wawa in 1960 (Shragge and Bagnato 1984).

Agriculture

Agriculture has also aided the expansion of northern Ontario, although climate and soil conditions limit the region’s capacity to support a viable agricultural economy. Most of the area around the LSA is unsuitable for large-scale agriculture use since the typical soil formation on the Canadian Shield produces sharply undulating terrain with minimal overburden and large areas of exposed bedrock. Despite these challenges, agricultural settlement has occurred on small areas of fertile land close to mining and lumbering centres such as Sault Ste. Marie, Thunder Bay, and on Manitoulin Island (Brozowski et al. 1984). These farms were vital for supplying lumber and mining industry workers and their horses with an affordable food source.

The Ontario government actively promoted the agricultural potential of the north in the last quarter of the 19th century, which attracted many prospective farmers to settle in the region. However, by the Great Depression, the regional agricultural economy was in decline, partly because of wider advancements in the industry and also due to the difficulties of farming in the harsh climate (Brozowski et al. 1984). In 1931, nearly 2.8 million acres of land were under cultivation in northern Ontario, but by 1981 only 1.2 million acres were being farmed.

7.5.5.2.7 Known Archaeological Resources in the Local Study Areas

The primary source of information regarding known archaeological sites within the Archaeological Resources LSA is the OASD. As described in Section 7.5.5, a query of the OASD was not completed for areas outside the area assessed in the Stage 1 Archaeological Assessment. This query will be completed as part of subsequent Stage 1 Archaeology Assessment for these new areas.

The Archaeological Data Coordinator for the MCM was consulted for the Stage 1 Archaeological Assessment. The results indicate that there are a total of nine registered archaeological sites within the LSA, including one site within the Project footprint, and 23 registered archaeological sites within 1 km of the LSA. Data concerning these sites may be found in Table 7.5-4 and Table 7.5-5.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information Act*. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. For this reason, maps and data that provide information about archaeological site locations are provided as supplementary documentation and do not form part of this public report.

The MCM will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

Table 7.5-4: Archaeological Sites within the Local Study Area

Borden #	Site Name	Cultural Affinity	Site Type	Cultural Heritage Value and Interest (CGVI) Recommendations[(b)]
DdJn-1	Young	Unlisted	Unlisted	Unknown
DdJo-1	Boyes	Unlisted	Unlisted	Unknown
DdJo-2	Portage	Pre-Contact Indigenous	Unlisted	Unknown
DdJo-3	Wylie	Unlisted	Burial	Unknown
DdJo-5	Kashabowie Station	Post-Contact	Portage	Unknown
DeJs-5	Windigoostigwan Beach I	Pre-Contact Indigenous, Late Woodland; Euro-Canadian	Campsite/ Other	Unknown

Borden #	Site Name	Cultural Affinity	Site Type	Cultural Heritage Value and Interest (CGVI) Recommendations[b]
DeJs-6	Windigoostigwan Beach II	Unlisted	Unlisted	Unknown
DhJw-1[a]	Balmoral Lake	Pre-Contact Indigenous, Late Woodland	Unlisted	Unknown
DhJw-5	Campus Lake #1	Pre-Contact Indigenous	Unlisted	Unknown

a) Site within the Project footprint.
b) Based on OASD Site Forms.

Table 7.5-5: Archaeological Sites within 1 km of the Local Study Area

Borden #	Site Name[a]	Cultural Affinity	Site Type	Cultural Heritage Value and Interest (CGVI) Recommendations[b]
DdJh-1	Cascades 2	Unlisted	Campsite	Unknown
DdJj-5	Kaministikquia River	Unlisted	Unlisted	Unknown
DdJm-1	Battley Site	Pre-Contact Indigenous; Euro-Canadian	Unlisted	Unknown
DdJm-2	Cherry	Pre-Contact Indigenous, Archaic	Unlisted	Unknown
DdJm-3	Patricia Kozak	Pre-Contact Indigenous, Late Paleo, Late Woodland	Unlisted	Unknown
DdJm-10	Davenport Burial Site	Pre-Contact Indigenous, Middle Woodland, Late Woodland; Post-Contact	Campsite/Burial	No Further CHVI
DdJo-7	Bogdon	Pre-Contact Indigenous, Archaic	Findspot	Unknown

Borden #	Site Name[a]	Cultural Affinity	Site Type	Cultural Heritage Value and Interest (CGVI) Recommendations[b]
DeJs-1	French Portage, East End	Euro-Canadian	Building/Dam	Unknown
DeJs-2	French Portage, West End	Pre-Contact Indigenous, Lake Woodland; Euro-Canadian	Campsite	Further CHVI
DeJs-4	French Lake	Pre-Contact Indigenous, Archaic, Middle Woodland; Euro-Canadian	Unlisted	Unknown
DeJs-3	Eva Portage	Pre-Contact Indigenous, Middle Woodland, Late Woodland; Post-Contact; Euro-Canadian	Fur Trade/Other	Unknown
DeJs-8	-	Pre-Contact Indigenous	Findspot	Unknown
DeJs-15	French River Rapids	Euro-Canadian	Campsite/Other	Unknown
DdJt-5	Pickerel Lake Site IV	Pre-Contact Indigenous, Woodland	Unlisted	Unknown
DdJt-6	Novaqua	Pre-Contact Indigenous, Late Woodland	Unlisted	Unknown
DdJt-7	Pickerel Beach	Pre-Contact Indigenous	Campsite	Unknown
DdJt-26	Pickerel Lake VI	Pre-Contact Indigenous	Scatter	Unknown
DdJt-44	-	Pre-Contact Indigenous	Findspot	Unknown
DdJt-48	-	Pre-Contact Indigenous	Findspot	Unknown
DeJu-1	Boileau	Unlisted	Unlisted	Unknown

Borden #	Site Name[a]	Cultural Affinity	Site Type	Cultural Heritage Value and Interest (CGVI) Recommendations[b]
DfJw-13	Crowrock	Unlisted	Unlisted	Unknown
DfJw-14	Sand Cove	Pre-Contact Indigenous, Lake Woodland	Campsite	Unknown
DfJw-15	Next Sand Cove	Unlisted	Unlisted	Unknown
DfKa-2	CWW Access	Pre-Contact Indigenous	Campsite	Further CHVI

a) "-" indicates no site name has been assigned.

b) Based on OASD Site Forms.

7.5.5.2.8 Potential Archaeological Resources in the Local Study Area

The Stage 1 Archaeological Assessment identified areas in its study area that have the potential to contain archaeological resources; however, as a desktop study, the Stage 1 Archaeological Assessment is limited with regard to the identification of archaeological sites in areas of archaeological potential, particularly in areas with a limited historical record. Given this, it is a requirement of the MCM to recommend further archaeological investigation (i.e., Stage 2 Archaeological Assessment) in areas of archaeological potential anticipated to be impacted by a project to identify archaeological resources that may be present.

See Appendix 7.5B for a depiction of the areas of archaeological potential within the LSA and Project footprint. For the purposes of the EA, areas of the LSA outside the Stage 1 Archaeology Assessment study area are characterized using the available desktop data (e.g., proximity to water). A query of the OASD was not completed for these areas, but this step would be completed through the additional Stage 1 Archaeology Assessment completed in these areas prior to construction. Areas identified as having archaeological potential should be assessed through a Stage 2 Archaeological Assessment to identify known and potential archaeological resources prior to construction beginning in those areas.

The following is a summary of potential archaeological resources in the LSA from the Stage 1 Archaeological Assessment desktop study. For areas outside the Stage 1 Archaeology Assessment, the desktop mapping completed for the EA to date indicates similar results as the Stage 1 Archaeology Assessment and these results will be confirmed as part of additional Stage 1 Archaeology Assessment for the areas outside the Stage 1 Archaeology Assessment study area.

Numerous criteria are used to determine the potential for archaeological sites. Key indicators include proximity to water sources, the presence of well-drained soils, features indicating past water sources (e.g., glacial lake shorelines, relict river or stream channels), areas of elevated

topography (e.g., drumlins, eskers, large knolls, plateaux), railway infrastructure, early transportation routes, and known archaeological sites.

Potential archaeological resources within the LSA may include:

- Indigenous sites such as campsites, portage areas, canoe spills (i.e., where cargo from canoe was spilt and not recovered), caches, sacred sites, resource extraction areas, and burial sites.
- Resources related to historical Euro-Canadian sites, such as infrastructure associated with logging and mining, early domestic settlement, early industrial infrastructure, religious centres (e.g., missionary related), cemeteries, single isolated burials, canoe spills, caches, fur trade associated infrastructure, and early recreational infrastructure (e.g., related to tourism).
- Petroglyphs, pictographs, and guideposts used by both Indigenous peoples and Euro-Canadian settlers.

Indigenous-recognized archaeological resources are those formally or informally recognized by Indigenous communities, which may include sites registered in the OASD or unregistered sites. Indigenous communities will be engaged to prior to the Stage 2 Archaeological Assessment.

Areas exhibiting low archaeological potential include areas at a distance removed from a feature of archaeological potential, or those areas where the likelihood of someone actively using the area for subsistence, habitation, or spiritual means has been determined to be low. In the Canadian Shield, areas in excess of 150 m from a feature of archaeological potential are generally considered to exhibit low archaeological potential (MTCS 2011). Areas of low or no archaeological potential include, but are not limited to, areas distant from navigable waters or well-drained soils, and poorly-drained areas such as wetlands.

In addition, one landowner noted the presence of a homesteading settlement and the potential for archaeological resources to be present where the Project footprint crosses their property. This area was added to the area of archaeology potential that will require further assessment in the Stage 2 Archaeological Assessment as shown in Appendix 7.5-B.

7.5.5.2.9 Summary of Existing Environment

The following section summarizes the key findings of the baseline assessment of archaeological resources.

Features indicating archaeological potential within the Archaeological Resources LSA include previously identified archaeological sites, modern water sources (stream order three or higher), well-drained soils, relict shorelines, areas of historical settlement, and historical transportation routes. A total of nine archaeological sites have been identified within the LSA, including one site within the Project footprint. Stage 2 Archaeological Assessment has been recommended for the areas determined to have archaeological potential for the Project footprint in areas that will be affected during construction.

The Stage 1 Archaeological Assessment provided in Appendix 7.5-A includes detailed information about the environmental, archaeological, and historical factors that exhibit archaeological potential in the Stage 1 Archaeological Assessment study area.

7.5.6 Potential Project-Environment Interactions

Potential Project-environment interactions were identified through a review of the Project description and existing environmental conditions. The linkages between Project components and activities and potential effects to archaeological resources are identified in Table 7.5-6.

Table 7.5-6: Project-Environment Interactions for Archaeology

Criteria	Indicator	Project Phase Construction[(a)]	Project Phase Operation and Maintenance	Description of Potential-Project Environment Interaction

Archaeological resources	• Change to archaeological resources considering:
	  ◦ Number of archaeological sites in the Project footprint;
	  ◦ Area (hectares) of Project footprint with archaeological potential;
	  ◦ Number of archaeological sites where archaeological assessment will be completed; and
	  ◦ Area of marine archaeological potential.
		✓	-	Loss of, or damage to, an archaeological resource from construction activities.

Archaeological resources	• Change to archaeological resources considering:
	  ◦ Number of archaeological sites in the Project footprint;
	  ◦ Area (hectares) of Project footprint with archaeological potential;
	  ◦ Number of archaeological sites where archaeological assessment will be completed; and
	  ◦ Area of marine archaeological potential.
		✓	✓	Loss of, or damage to, an archaeological resource located downstream from the Project from erosion as a result of increased streamflows.

Archaeological resources	• Number of archaeological resources.	-	✓	Loss of, or damage to known archaeological resources from increase in public access to archaeological resources.

a) As described in Section 6.1.4.1, the construction scenario assessed as part of the EA is considered bounding and potential effects and mitigation measures for retirement are not identified separately in this EA.

"✓" = A potential Project environment interaction could result in an environmental or socio-economic effect.

"-" = No plausible interaction was identified.

7.5.7 Potential Effects, Mitigation Measures, and Net Effects

The linkages between Project components and activities and potential effects to archaeological resources were identified and assessed, mitigation measures were identified, and a net effects analysis was completed using the approach set out in Section 5.6. Potential effects were identified by reviewing the Project description, existing environmental conditions, input from engagement, knowledge from similar projects and activities, and the preliminary potential effects identified in the ToR.

7.5.7.1 Loss of, or Damage to, an Archaeological Resource from Construction Activities

Potential Effects

Alteration of the landscape can result in damage or destruction of both terrestrial and marine archaeological resources. These alterations can involve displacement of artifacts, resulting in the loss of valuable contextual information, or may result in the complete destruction of artifacts and features leading to complete loss of data. Activities with the potential to cause ground disturbance may affect archaeological resources unless appropriate steps are taken in advance to identify and either protect the resource or have the resource properly excavated by a licensed consultant archaeologist, following the recommended measures in the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). Avoidance and protection of archaeological resource sites is the preferred approach per the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).

Mitigation Measures

Direct effects can be avoided by identifying and avoiding archaeological resources prior to ground disturbance, and by increasing the awareness of Project personnel about archaeological resources in proximity to the Project footprint. There are nine registered archaeological sites in the Archaeological Resources LSA, including one in the Project footprint, and 23 registered archaeological sites within 1 km of the LSA. The CHVI of the nine sites within the LSA, including the site in the Project footprint, is not known, as all of these sites were identified prior to the MTCS *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). As such, these sites will require further assessment if they cannot be avoided.

As depicted on figures in Appendix 7.5B, there are areas of archaeological potential within the LSA and Project footprint. The required archaeological assessments will be undertaken in areas identified in the Stage 1 Archaeological Assessment as exhibiting archaeological potential before planned construction in these areas. Acceptance of the Stage 1 AA report and its recommendations by the MCM under the *Ontario Heritage Act* will be obtained before ground disturbance associated with Project construction. Due to changes in the Project Footprint after the submission of the Stage 1 Archaeological Assessment to the MCM, the LSA of the EA differs slightly from the study area assessed during the Stage 1 Archaeological Assessment. Areas outside of the Stage 1 Archaeological Assessment LSA should be assessed through a Stage 1 Archaeological Assessment to further assess archaeological potential prior to construction beginning in those areas.

The Project footprint will require a Stage 2 Archaeological Assessment prior to construction for the areas identified as having archaeological potential and recommended for further archaeological work. The results of the Stage 2 Archaeological Assessment will be used to develop strategies to mitigate potential direct effects of the Project on any archaeological resources identified within or adjacent to the Project.

Archaeological sites identified in the Archaeological Resources LSA through the completion of the Stage 2 Archaeological Assessment will be subject to avoidance and protection measures to avoid loss of, or damage to, archaeological resources, or assessed and mitigated by excavation through engagement with Indigenous communities and per the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). Typically, archaeological sites in boreal forest environments are identified and assessed, with potential effects mitigated, through the following strategies:

- Archaeological test pit survey (Stage 2 Archaeological Assessment) at 5 m or 10 m intervals, to provide an inventory of archaeological resources (sites);
- Site-specific assessment (Stage 3 Archaeological Assessment) to determine the limits and cultural heritage value or interest of the archaeological site; and
- Mitigation measures of the archaeological site (Stage 4 Archaeological Mitigation) through protection and avoidance or excavation.

Not all identified archaeological sites are recommended for subsequent archaeological work (Stage 3 Archaeological Assessment and Stage 4 Archaeological Mitigation). After archaeological sites are identified, criteria provided in the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011) are used to determine if they should be recommended for further assessment. Mitigation strategies will be developed per the MTCS S*tandards and Guidelines for Consultant Archaeologists* (MTCS 2011) if an archaeological site is recommended for further assessment and avoidance mitigation strategies cannot be implemented.

Should notable archaeological sites be identified, then Stage 3 Archaeological Assessment, and possibly Stage 4 Archaeological Mitigation, may be required depending on whether the identified site(s) will be affected during construction. Stage 3 Archaeological Assessment and Stage 4 Archaeological Mitigation are only required when an archaeological site or its protective buffer will be affected by Project impacts, including infrastructure construction, access routes, and the establishment of staging or laydown areas. Specifically:

- Stage 3 Archaeological Assessment will be undertaken if additional information is needed for a site to determine its extent, further assess its cultural heritage value or interest, and determine if the site requires Stage 4 Archaeological Mitigation to address Project impacts to the resource.

- Stage 4 Archaeological Mitigation will be undertaken if a site with cultural heritage value or interest warrants protection under the *Ontario Heritage Act* through either avoidance by relocating Project infrastructure, or excavation, if avoidance is not possible.

In addition, an Archaeological Resources Contingency Plan will be developed to guide contractors in the event that a previously unidentified heritage or archaeological resources (e.g., projectile points, modified bone, pottery fragments) are suspected or encountered unexpectedly during construction.

Net Effects

The effects of the Project on archaeological resources, including the number of archaeological sites in the Project footprint, and the area of the Project footprint with archaeological potential is predicted to be null with effective implementation of the mitigation measures described above and detailed in Table 7.5-7.

There is no potential for an effect from loss of, or damage to an archaeological resource from construction activities; therefore, this potential effect was not carried forward to the net effects characterization.

7.5.7.2 Increased Streamflow and Alteration of Archaeological Resources

Potential Effects

Construction of the ROW, tower foundations, new access roads, temporary construction camps, turn around areas, temporary laydown areas, and temporary construction easements will result in changes in land cover from treed to bare ground or low growing grasses and shrubs (ROW and temporary construction easements), and from treed to gravel, paved or roofed surfaces (access roads, construction camps, turn around areas and temporary laydown areas).

Operation and maintenance of the ROW will maintain this change for the duration of the Project's active life.

As described in Section 6.2 (Surface Water), these changes in land cover have the potential to increase runoff rates and runoff volumes, eventually draining into to waterbodies and increasing stream flows and water levels. Although no marine archaeological desktop assessment has been completed on the LSA thus far, this will be addressed as part of planning for the Stage 2 Archaeological Assessment as the LSA contains numerous navigable waterways that have been used by Indigenous and non-Indigenous peoples. Archaeological resources located downstream of the Project and in riparian areas could potentially be indirectly affected by water erosion from increased stream flows.

Mitigation Measures

Potential negative indirect effects on archaeological resources related to erosion as a result of increased stream flows are reduced by limiting the amount of new disturbance, implementing erosion control measures, and reclaiming disturbed areas at the end of construction. The amount of new access roads required for construction and operation is limited by using existing roads, to the extent practicable. Temporary workspaces will be constructed on existing disturbed

areas and/or at reasonably flat areas with stable soil sites, where possible, and a minimum of 30 m away from the ordinary high-water mark of a waterbody. Interim reclamation will follow as close as possible after decommissioning. Appropriate erosion and sedimentation control measures will be implemented to reduce potential for increase of stream flows. Mitigation measures are summarized in Table 7.5-7. The effectiveness of mitigation will be evaluated during construction and post-construction, and measures will be modified or enhanced as necessary through adaptive management.

Net Effects

As indicated in Section 6.2 (Surface Water), changes in land cover as a result of the construction, operation and maintenance of the Project are not expected to result in measurable changes to surface water quantity (i.e., stream flows) in the majority of waterbodies crossed by the Project. Where measurable changes are possible, these changes are expected to be localized in spatial extent (restricted to the Project footprint), short-term in duration (largely mitigated once the Project footprint has been reclaimed), and infrequent in occurrence (in response to large runoff events). Therefore, the net effects of the Project on the maintenance of surface water quantity related to increased stream flows are expected to be negligible during construction and operation, following the implementation of mitigation measures.

Similarly, potential negative indirect effects on archaeological resources related to increased stream flows are expected to be short-term in duration (largely mitigated once the Project footprint has been reclaimed), and infrequent in occurrence (in response to large runoff events). With the implementation of the mitigation measures outlined in Section 6.2 (Surface Water), increased stream flows and erosion are expected to result in a negligible net effect on the conservation of archaeological resources located downstream from the Project. Therefore, this potential effect was determined to not have a net effect.

7.5.7.3 Increased Public Access and Alteration to Known Archaeological Resources

Potential Effects

The construction of temporary and permanent access roads and the transmission line ROW have the potential to increase access to areas of known archaeological resources during the construction and operation and maintenance stages of the Project.

Increased access may provide more opportunity for people to access known archaeological resources, potentially causing loss of or damage to those resources.

Mitigation Measures

The location of known archaeological resources is protected by MCM and cannot be released to the public. In addition, as discussed in Section 7.5.7.2, the required archaeological assessments will be undertaken in areas identified in the Stage 1 Archaeological Assessment as exhibiting archaeological potential before planned construction in these areas, minimizing the likelihood for archaeological resources to be present in areas directly associated with the Project footprint.

As well, the Project design will consider existing roads and trails such that construction of new access roads will be avoided as much as feasible. Temporary access roads will be used for construction, then decommissioned and rehabilitated when not required during operations which will limit long-term access to locations along temporary roads. Destruction or collection of archaeological resources by Project personnel is prohibited.

In the event that previously unidentified heritage or archaeological resources (e.g., projectile points, modified bone, pottery fragments) are suspected or encountered unexpectedly during construction or operation, Hydro One may bring in a resource specialist and contact the regulators (e.g., MCM or the municipality), as required. Mitigation measures are summarized in Table 7.5-7. The effectiveness of mitigation will be evaluated during construction and post-construction, and measures will be modified or enhanced as necessary through adaptive management.

Net Effect

Based on the mitigation measures identified, loss of, or damage to, known archaeological resources as a result of increased access from the Project is not predicted; therefore, there is no net effect to the loss of, or damage to a known archaeological resource from an increase in public access, and this is not carried forward to the net effects characterization.

7.5.7.4 Summary

Table 7.5-7 provides a summary of the potential effects assessment, which is based on the previous assessment discussion and the implementation of mitigation measures identified above and further supplemented in the following table.

Table 7.5-7: Potential Effects, Mitigation Measures, and Predicted Net Effects

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect

Project activities during the construction stage:
• Clearing, grading, earth moving, grubbing of vegetation, and stockpiling of materials along the ROW, other access and construction areas, and construction of infrastructure (e.g., access roads, bridges, temporary laydown areas, turn around areas, and temporary construction camps).
	Loss of, or damage to, an archaeological resource from construction activities.	• Completion of Stage 2 Archaeological Assessment (and Stage 3 and 4 if required) in the areas of the Project footprint with archaeological potential and anticipated to be subject to Project impacts.
		  ◦ Areas of archaeological potential possibly requiring Stage 2 Archaeological Assessment are identified in Map 10 of the Stage 1 Archaeological Assessment report.
		  ◦ Stage 2 Archaeological Assessment will determine whether archaeological sites are present within the Project footprint and recommend appropriate mitigation measures should archaeological resources be identified.
		• The Stage 2 Archaeological Assessment should follow Section 2.1.5 of the MCM's Standards and Guidelines for consultant Archaeologists (MTCS 2011).
		• The Stage 2 Archaeological Assessment (and Stage 3 and 4, if required) should be undertaken as soon as possible in the Detailed
			No net effect

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect
		Planning Phase, prior to construction. • Further archaeological work will involve Indigenous community members interested in and/or knowledgeable about the area. • Training of the Indigenous community members about archaeological fieldwork methods, as well as general theory, will be built into the Project scope. Training of local Indigenous community members will build capacity for future archaeological projects within and outside their traditional territories. ● The Stage 2 Archaeological Assessment report will be provided to Indigenous communities prior to submission to the MCM. ● Identify whether the Project will affect areas below high-water marks and, if so, completion of marine archaeological assessment(s). • The marine archaeological assessment(s) (and Stage 3 and 4 if required) will be undertaken as soon as possible in the Detailed Planning Phase, prior to construction in these areas start. Additional mitigation measures may be identified and implemented as a result of the marine assessment(s).	

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect
		• The marine assessment(s) report will be provided to Indigenous communities prior to submission to the MCM. • Existing roads and trails will be used where possible. • The Project footprint will be surveyed before construction to limit activities to the designated areas of the Project. • Identified archaeological resources near the Project footprint and their associated setbacks will be staked or fenced off. • Project personnel will avoid areas that are staked or fenced and abide by restrictions on in/out privileges that are implemented in areas requiring special protection due to environmentally sensitive features. • No clearing or construction activity within flagged or fenced areas that contain archaeological resources until further investigation is completed. • Hydro One with its contractor(s) will prepare and implement an Archaeological Resources Contingency Plan prior to construction to provide direction in the event that archaeological resources not previously identified are encountered.	

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect

		• In the event that archaeological resources not previously identified are suspected or encountered unexpectedly during construction, implement the following mitigation measures:
		  ◦ Suspend activity at that location and do not allow work to resume until permission is granted by Hydro One who will engage Indigenous communities and their elders to obtain direction.
		  ◦ Following engagement with the affected Indigenous communities and their elders, Hydro One will bring in a licenced archaeologist and contact the MCM.
		  ◦ The licenced archaeologist will develop an appropriate mitigation measures plan including engagement with Hydro One, affected Indigenous communities, their elders and stakeholders, and if necessary, the appropriate regulatory agencies.
		• Continue to offer ongoing engagement to affected communities and apply protocols identified by Indigenous communities for land access and treatment of findings. Hydro One will consult with the MCM regarding proposed protocols on	

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect

		treatment of findings, where appropriate.
		• If site assessment is deemed necessary, the site will be assessed based on the following criteria:
		  ◦ The cultural importance of the site to the affected community;
		  ◦ The location of the site with respect to the Project footprint; and
		  ◦ The feasibility of alternate routing or siting to avoid the resource.
		• Based on site assessment, recommendations will be made through engagement with Indigenous communities, the MCM and relevant stakeholders.
		• Protect archaeological sites identified adjacent to the Project, if deemed appropriate based on the assessment.
		• Collection of archaeological resources by Project personnel is prohibited. Project personnel will be provided guidance prior to construction.	

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect
Project activities during the construction stage: • Clearing, grading, earth moving, grubbing of vegetation, and stockpiling of materials along the ROW, other access and construction areas, and construction of infrastructure (e.g., access roads, bridges, turn around areas, temporary laydown areas, and temporary construction camps); • Surface water management and erosion control; and • Reclamation of decommissioned access roads, turn around areas, temporary laydown areas, staging areas, and temporary construction camps. **Project activities during the operation and maintenance stage:** • Operation and maintenance of new ROW, fencing, transmission line, conductors, tower foundations, and permanent access roads.	Loss of, or damage to, an archaeological resource located downstream from the Project from erosion resulting from increased stream flows.	**Construction stage:** • The transmission line alignment ROW, and existing roads and trails will be used for access, to the extent practicable, to minimize changes in land cover. • Temporary laydown areas and temporary construction camps will be constructed on existing disturbed areas and/or at reasonably flat areas with stable soil sites, where reasonably possible. • New access roads will be constructed in accordance with the MNRF's Environmental Guidelines for Access Roads and Water Crossings (1990). • Temporary construction camps, temporary laydown areas and other Project activities will be located a minimum of 30 m away from the ordinary high-water mark of a waterbody. • Progressive reclamation of disturbed areas will be practiced. Temporary access roads and trails, temporary construction camps, turn around areas, and temporary laydown areas will be reclaimed at the end of construction. • Seeding will follow as close as reasonably possible to final cleanup and topsoil material	No net effect

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect

		replacement pending seasonal or weather conditions as appropriate.
		• Install, monitor, and manage appropriate erosion and sedimentation control measures to minimize or avoid sediment mobilization to drainages, or waterbodies. Adequate and appropriate erosion and sedimentation control materials shall be on-site and available prior to commencement of construction.
		• Temporary erosion control measures to be:
		  ◦ Properly installed;
		  ◦ Installed before or immediately after initial disturbance; and
		  ◦ Inspected and properly maintained (e.g., repaired, replaced or supplemented with functional materials) throughout construction until permanent erosion control is established, or reclamation is complete.
		
		Operation and maintenance stage:
		• Multi-stage drainage and sediment controls to collect and treat stormwater runoff from Project components will be employed at work sites as appropriate.	

Project Component or Activity	Potential Effects	Mitigation Measures	Net Effect
Project activities during the operation and maintenance stage: • Operation and maintenance of new ROW, fencing, transmission line, conductors, tower foundations, and permanent access roads.	Loss of, or damage to, known archaeological resources from increase in public access to archaeological resources.	• The location of known archaeological resources is managed by the MCM and is not released to the public. • The mitigation identified for "loss of, or damage to, an archaeological resource from construction activities" will minimize presence of known archaeological resources in the Project footprint. • Hydro One with its contractor(s) will prepare and implement an Archaeological Resources Contingency Plan prior to construction to provide direction in the event that archaeological resources not previously identified are encountered.	No net effect

Note: m = metre; MNRF = Ministry of Natural Resources and Forestry; MCM = Ministry of Citizenship and Multiculturalism; MTCS = Ministry of Tourism, Culture and Sport; ROW = Right-of-Way

7.5.8 Net Effects Assessment

No net effects were identified for archaeological resources as a result of the Project, as discussed in Section 7.5.7.1; therefore, no further assessment or characterization of net effects, including assessment of significance, is required.

7.5.9 Cumulative Effects Assessment

No net effects were identified for archaeological resources as a result of the Project, as discussed in Section 7.5.7.1). Consequently, the archaeological resources criterion is not carried forward for assessment of cumulative effects.

7.5.10 Prediction Confidence in the Assessment

The confidence in the effects assessment for archaeological resources is moderate, considering that the mitigation measures described in the Table 7.5-7 include the need for additional archaeological assessments, which have yet to be undertaken and will result in additional recommendations. The recommendations from the additional assessment will be provided to the MCM for review and will be based on the Ministry's *Standards and Guidelines for Consultant Archaeologists* and accepted and proven best management practices that are well understood and have been applied to transmission line construction projects throughout Canada.

As described in Section 7.5.5, due to changes in the Project footprint after the submission of the Stage 1 Archaeological Assessment to the MCM, the LSA of the EA differs slightly from the area assessed during the Stage 1 Archaeological Assessment. Archaeological potential mapping in this EA is based on the current Project footprint and all archaeological potential data is current to this footprint except the data concerning registered archaeological sites in the LSA from the OASD, which was only completed for the areas assessed as part of the Stage 1 Archaeology Assessment. Once the Stage 1 Archaeology Assessment is completed for the areas outside the original Stage 1 Archaeological Assessment, additional areas of archeology potential may be identified. However, the mitigation approach for these areas will remain consistent with Stage 1 Archaeology Assessment in that further work be completed in these areas including the completion of Stage 2 Archaeology Assessment.

The confidence in the effects assessment for marine archaeological resources is considered moderate, though no marine archaeological desktop assessment has been completed on the LSA thus far. This will be addressed as part of planning for the Stage 2 Archaeological Assessment.

Uncertainty in the assessment has been further reduced by planning adaptive management measures to address unforeseen circumstances should they arise, as outlined in the Archaeological Resources Contingency Plan.

7.5.11 Monitoring

This section identifies recommended effects monitoring to verify the prediction of the effects assessment and the effectiveness of the mitigation measures to evaluate whether the Project has been constructed, implemented, and operated in accordance with the commitments made in the Final EA Report.

Monitoring, as outlined in Section 6.2 (Surface Water), will be undertaken to ensure the effectiveness of the measures identified to minimize changes to surface water, which will in turn inform the effectiveness of the mitigation identified to minimize effects regarding downstream erosion to archaeological resources.

Monitoring programs may be required if archaeological resources are identified during the Stage 2 Archaeological Assessment and mitigation measures by avoidance and protection are undertaken.

The recommendations of the Stage 1 Archaeological Assessment and any subsequent recommended Archaeological Assessments (e.g., additional Stage 1, Stage 2, 3, and 4) will be followed. 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*. Hydro One or the person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an Archaeological Assessment in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act*, 2002, S.O.2002, c.33 requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11, the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

7.5.12 Information Passed on to Other Components

Results of the archaeological resources assessment were reviewed and incorporated into the following components of the EA:

- Cultural Heritage Resources (Section 7.6);
- First Nation rights, interests, and use of land and resources (Section 7.7); and
- Métis rights, interests, and use of land and resources (Section 7.8).

7.5.13 Criteria Summary

Table 7.5-8 presents a summary of the assessment results for archaeological resources by criteria.

Table 7.5-8: Archaeological Resources Assessment Summary

Criteria	Assessment Summary
Archaeological resources	No net effects predicted.

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