



Stage 1 Archaeological Assessment: Nipigon LNG Project

Part of Lots 10-11, Concession 3 and Lots 10-12,
Concession 4, Township of Ledger, District of
Thunder Bay, Ontario.

July 19, 2018

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Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by Nipigon LNG to complete a Stage 1 archaeological assessment for a 160 acre parcel located in Lots 10-11, Concession 3 and Lots 10-12, Concession 4, Township of Ledger, 22 kilometres north of Nipigon, west of Highway 11. Nipigon LNG is proposing to construct and operate a regional liquefied natural gas (LNG) facility in the Township of Ledger, with a goal to establish a regional natural gas delivery system in Northern Ontario to serve off-pipeline customers. The study area consists of the proposed facility property contained within a proposed fence line; a proposed pipeline route; and two access routes connecting the facility to Highway 11. The study area is located in an area of undeveloped land with flat to slightly rolling terrain, partially cleared of trees. The proposed access routes are over existing gravel and dirt roads over Crown land, as well as over existing TransCanada PipeLines (TransCanada) and Hydro One Networks Inc. rights-of-way (ROW). The proposed pipeline route will connect the property to the existing TransCanada pipeline infrastructure, located on Crown land approximately 50 metres from the property. The study area is surrounded by predominantly Crown land, with no homes within a five-kilometre radius.

This assessment was conducted in support of National Energy Board (NEB) requirements under the *National Energy Board Act*. This Stage 1 archaeological assessment was carried out in accordance with the provisions of the *Ontario Heritage Act* and conducted in compliance with the provincial standards and guidelines set out in the Ministry of Tourism, Culture, and Sport's (MTCS) *Standards and Guidelines for Consultant Archaeologists*. Permission to enter the property and conduct the site assessment was provided by Nipigon LNG.

The objectives of the Stage 1 assessment were to compile available information about the known and potential archaeological heritage resources within the study areas and to provide specific direction for the protection, management, and/or recovery of these resources. The Stage 1 assessment of the Nipigon LNG project resulted in the determination of potential for the identification and recovery of archaeological materials in portions of the study area. **Those portions of the study area which retain archaeological potential are recommended for Stage 2 archaeological assessment prior to construction. It has also been determined that portions of the study area do not retain archaeological potential and no further archaeological assessment is recommended for those areas**

As the portion of the study area that requires Stage 2 assessment is inaccessible for ploughing, the Stage 2 archaeological assessment will include a systematic test pit survey at five metre intervals as outlined in Section 2.1.2 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists*. The Stage 2 assessment will follow the alternative strategies for test pit survey in northern Ontario and the Canadian Shield, as per Section 2.1.5 of the *Standards and Guidelines for Consultant Archaeologists*.

The MTCS is asked to review the results presented and accept this report into the Ontario Public Register of Archaeological Reports.

The Executive Summary highlights key points from the report only; for complete information and findings, the reader should examine the complete report.



Project Personnel

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1.0 PROJECT CONTEXT

1.1 DEVELOPMENT CONTEXT

Stantec Consulting Ltd. (Stantec) was retained by Northeast Midstream LP to complete a Stage 1 archaeological assessment for a 160 acre parcel located in the Township of Ledger, 22 kilometres north of Nipigon, west of Highway 11. Nipigon LNG is proposing to construct and operate a regional liquefied natural gas (LNG) facility in the Township of Ledger, with a goal to establish a regional natural gas delivery system in Northern Ontario to serve off-pipeline customers.

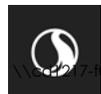
The study area consists of the proposed facility property contained within a proposed fence line; a proposed pipeline route; and two access routes connecting the facility to Highway 11. The study area is located in an area of undeveloped land with flat to slightly rolling terrain, partially cleared of trees. The proposed access routes are over existing gravel and dirt roads over Crown land, as well as over existing TransCanada PipeLines (TransCanada) and Hydro One Networks Inc.(HONI) rights-of-way (ROW). The proposed pipeline route will connect the property to the existing TransCanada pipeline infrastructure, located on Crown land approximately 50 metres from the property. The study area is surrounded by predominantly Crown land, with no homes within a five-kilometre radius.

This assessment was conducted in support of National Energy Board (NEB) requirements under the *National Energy Board Act* (Government of Canada 1985). This Stage 1 archaeological assessment was carried out in accordance with the provisions of the *Ontario Heritage Act* (Government of Ontario 1990a) and conducted in compliance with the provincial standards and guidelines set out in the Ministry of Tourism, Culture, and Sport's (MTCS) *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Permission to enter the property and conduct the site assessment was provided by Nipigon LNG.

1.1.1 Objectives

The objectives of the Stage 1 assessment are to compile available information about the known and potential archaeological resources within the study area and to provide specific direction for the protection, management and/or recovery of these resources. In compliance with the provincial standards and guidelines set out in the Ministry of Tourism, Culture and Sport's (MTCS) 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the objectives of the Stage 1 Archaeological Overview/Background Study are as follows:

- To provide information about the study area's geography, history, previous archaeological fieldwork and current land conditions;
- To evaluate in detail the study area's archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property; and
- To recommend appropriate strategies for Stage 2 survey.



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To meet these objectives, Stantec archaeologists employed the following research strategies:

- A review of relevant archaeological, historic, and environmental literature pertaining to the study area;
- A review of the land use history, including pertinent historic maps;
- An examination of the Ontario Archaeological Sites Database (ASDB) to determine the presence of known archaeological sites in and around the study area; and
- A property inspection of the study area.

1.2 HISTORICAL CONTEXT

1.2.1 Post-Contact Aboriginal Resources

The post-contact Aboriginal occupation of Northern Ontario was heavily influenced by an influx of European explorers, traders, and missionaries. The growing fur trade and the designation of animal skins as money led to changes in economic and social organization patterns. The study area falls just north of the shore of Lake Superior and is identified with Ojibwa peoples (Dawson 1983: 34).

During the initial expansion of the fur trade in Northern Ontario, settlement size and population distribution did not shift. Once bands began to congregate along trade routes, joint villages and hunting grounds were set up in relation to fur trading posts. Due to increased contact, technologies such as ceramics were phased out and replaced by more convenient European goods such as brass or copper kettles. Although in contrast, Aboriginal residences continued to be dome-shaped wigwams constructed from locally available materials (Dawson 1983).

The study area is situated within the District of Thunder Bay, Ontario. The area was subject to the Robinson-Superior Treaty in 1850 (Figure 2). The Robinson-Superior Treaty between the Crown and the Lake Superior bands is part of “two agreements signed in September of 1850 and secured virtually the whole of the Upper Canadian northwest for government use” (Surtees 1986: 19). This agreement includes “the northern shore of Lake Superior in the said province of Canada from Batchewanaung Bay to Pigeon River at the western extremity of said lake, and inland throughout the extent to the height of land which separates the territories covered by the Charter of the Honourable Hudson Bay Company from the said tract and also the Islands in the said lake, within the boundaries of the British possession therein of the other part” (Morris 1943: 30). The parcel surrendered “contained 16,700 square miles of territory” (Surtees 1986: 19).

Three reserves were included in the treaty, the locations of which could be chosen by the chiefs. The treaty was likely inspired by the promotion of mining activity in the area (Surtees 1986: 20).

The study area is situated within roughly 15 kilometres of the modern First Nations community of Rocky Bay and 30 kilometres of Bingwi Neyaashi Anishinaabek (BNA) First Nation. The BNA were originally not given a reserve, as under the Robinson-Superior Treaty only a single reserve at Gull River was established for the Ojibway communities living around Lake Nipigon. They historically occupied the east



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shore of Pijitiwaabik Bay. A large source of the community's economy in the 19th century came from the sale of whitefish to the Hudson's Bay Company at the Nipigon House post on Jackfish Island. In 1917, it was recorded that the BNA comprised a population of approximately 75 people, and in 1918 the Department of Indian Affairs instructed that a reserve for the community should be created. The Ontario Deputy Minister of Lands and Forests, however, issued only a "license of occupation" rather than establishing a formal reserve and the community was granted 236 acres (95.5 hectares) of land. Following the construction of control dams on Lake Nipigon, the community experienced flooding in 1927, affecting docks, gardens, cellars, structure foundations, and the community's cemetery, and by 1938 the community was forced to evacuate the settlement entirely. In 1958, the license of occupation was cancelled, and the land grant became Blacksand Provincial Park. The BNA were displaced until 2010 when the current reserve was established. The community's current population is 250 people (BNA 2017).

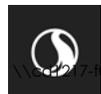
The Red Rock First Nation have historically lived at several different locations around Lake Nipigon, including Jackfish Island, Gull Bay, and McIntyre Bay. The traditional name of the band is *Opwaaganasiniing*, meaning "at the place of pipestone" (Red Rock Indian Band [RRIB] 2017a) referring to the dark red outcrops in the area (Rayburn 1997:289). The Parmachene #53 reserve was granted in 1885, comprising 480 acres (195 hectares). In 1886, the community had a population of 166. Today, the band lives on the Lake Helen #53A reserve and has a population of over 1,800. The Parmachene Reserve is still regularly used for fishing, berry picking, hunting, trapping, camping, gathering medicine, and traditional ceremonies (RRIB 2017b).

1.2.2 Historic Euro-Canadian Resources

1.2.2.1 Thunder Bay District

Beginning in 1858, Northern Ontario was divided into unincorporated districts for administrative and judicial purposes (Government of Ontario 2015). The Thunder Bay District was created in 1871, by provincial statute, from the western half of the Algoma District and named after a large bay on the north shore of Lake Superior. Its northern and western boundaries were uncertain until Ontario's right to Northwestern Ontario was determined by the Judicial Committee of the Privy Council. It was therefore often called Algoma West until circa 1902 (Canada Gen Web 2013). The District of Thunder Bay has an area of 135,900 square kilometres north of Lake Superior, encompassing 17 townships and the Town of Geraldton. Lake Nipigon sits at its centre (Mika and Mika 1983:507).

Trading activities occurred near Lake Nipigon as early as 1656 (Lavoie 1987:9) between Ojibwa and Euro-Canadian groups. The fur trade developed further during the late 17th and 18th centuries as European groups (specifically the French and the British) founded and abandoned a number of trading posts. The first recorded French trading post in what is now the District of Thunder Bay was established in 1679 at the present location of the City of Thunder Bay. Subsequently, Fort Caministigoyan (or Kaministiquia) was constructed nearby, in 1717, by the French. The name was changed to Fort William in 1807 after the Northwest Company gained control of the fort (Mika and Mika 1983). The Hudson's Bay Company, in rivalry with the Northwest Company until their amalgamation in 1821, built their own forts, including one at the north end of Lake Nipigon in 1775. Other posts were built around the lake in the following years, including the Hudson Bay Company's Poplar Lodge, which was built in 1825 on the east



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shore of the lake (Voorhies 1930:127), and a small post called Red Rock House in 1859 at the mouth of the Nipigon River, south of the current community of Nipigon (Government of Canada n.d.).

In the last half of the 19th century Euro-Canadian settlements began to stabilize and grow as the fur trade was overshadowed by the introduction of railways, logging, and mining. The first permanent settlements in the area were Port Arthur and Fort William. Although the James Bay Treaty would not cede the land until the early 20th century, surveys of the region were made between 1869 and 1871 with consideration for the construction of the Canadian Pacific Railway being built in the area (Lavoie 1987:14-16). Construction for the Canadian Pacific Railway began in the district in 1875, in Fort William (now Thunder Bay). Thereafter, Fort William experienced a boom in population and industry thanks to the improved transportation (Mika and Mika 1983). The remainder of the district, which did not benefit from a still distant railway line, however, remained sparse in settlement, with many areas only visited by Aboriginal fishers and trappers by the 1900s (Lavoie 1987:18). In 1970, the cities of Fort William and Port Arthur and the municipalities of Neebing and McIntyre amalgamated into the City of Thunder Bay (Mika and Mika 1983).

1.2.2.2 Lake Nipigon Area

Lake Nipigon drains through the Nipigon River into Lake Superior. Nipigon gets its name from the contraction of the Ojibway name for Lake Nipigon, “Alemipigon,” meaning “deep, clear water” (Mika and Mika 1983:50). During the fur trade, the Nipigon River formed part of the canoe route between Lake Superior and James Bay. In 1678, a French fur trading post, later replaced by a Hudson Bay Company trading post, was established where the current settlement of Nipigon stands today (Mika and Mika 1983).

The first permanent settlement in the Nipigon area occurred in the late 1880s when the construction for the Canadian Pacific Railway was underway. Many of these settlers were Scandinavian immigrants (mainly Finnish) who remained and turned to work in the lumber industry and fishing when the construction for the railway was completed (Mika and Mika 1983).

Construction for a road between Highway 17 in Nipigon and the gold mines of Geraldton, Ontario began in the late 1930s. By the time of its completion in 1943, this road stretched from Nipigon to Hearst and was renamed Highway 11 (Bever 2018). The study area lies roughly 1.5 kilometres west of this highway and is connected to Highway 11 via its two proposed access roads. The construction of Highway 11 between Thunder Bay and Fort Francis did not begin until the 1950s (Bever 2018).

1.2.2.3 Ledger Township

Ledger, a geographic township within the Thunder Bay District, was surveyed in 1894, and was named after Alfred Ledger of Burford, Ontario. It is located south of Lake Nipigon, and is currently transected by Highway 11, which links it to the town of Nipigon, approximately 16 kilometres to the south (Mika and Mika 1981). A Canadian Pacific Railway line also ran through the township (Mika 1981); however, it is no longer in use.

1.2.2.4 Historical Map and Survey Review of Ledger Township

The 1894 survey map of Ledger Township shows that the Township was divided primarily into 320 acre lots, with Purdom Township to the west and unsurveyed lands to the north, east and south (Speight



1894b). The map depicts the township mostly devoid of cultural features. No historic structures or landowner names are present. However, “Hudson Bay’s Winter Road to Lake Nipigon [sic]” is shown on the survey map running north along the western limits of the township beginning at Lake Polly (just south of the township), and then travelling in a northeast direction through the concession north of the study area, roughly following Wanogosh Creek (now Cash Creek) until it terminates at Lake Wanogosh (now Wanogu Lake) (Speight 1894b). This road is noted in T.B Speight’s original field notes when he was surveying Ledger Township in 1894, “The Hudson Bay Company’s winter road from Nipigon [sic] Station on the Canadian Pacific Railway, passes through this township, following generally the orientation of Wanogosh Creek and may in the future be of much service to settlers” (Speight 1894a). Though Speight states that this road connected the Nipigon Station to Lake Nipigon, it is possible that the road predates the railway, as there were known trading posts in the area which may have used similar routes.

A review of the survey map (Figure 3) and Speight’s surveyor’s field notes for Lots 10-12 Concession 4 and Lots 10-11 Concession 3, reveal that the study area is noted as having “slightly rolling clay land with some sand” and populated with spruce, balsam, birch, poplar, Jack pine, and some tamarack and scrub, but little of it was considered suitable for timber (Speight 1894a) Several small watercourses are also depicted, which still exist today.

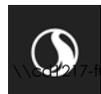
1.3 ARCHAEOLOGICAL CONTEXT

1.3.1 Natural Environment

The study area is situated within the Canadian Shield physiographic region, which covers 32% of Canada. Approximately half of the Shield is classified as upland and extends from northwestern Quebec through Northern Ontario, Manitoba, Saskatchewan, and portions of Nunavut and the Northwest Territories. The Shield is composed of crystalline Precambrian rocks which were formed during a number of mountain building episodes between 4 and 1 billion years ago (Brookes 2012). It is rich in minerals and lumber, accompanied by bare rock and thin soils (Royal Canadian Geographical Society 2013). The Canadian Shield contains numerous rivers and lakes, accounting for 22% of Canada’s freshwater (Royal Canadian Geographical Society 2013).

Within the Canadian Shield physiographic region, the study area is located on a glaciolustrine plain landform, which consists of primarily silt and clay, with some sand. The drainage is good, and the land soils are considered dry (Government of Ontario 2018b).

The closest potable water source to the study area is Mignet Creek, which crosses the study area at the south access route, roughly 500 metres east of the proposed facility fence line. Cash Creek is located roughly 200 metres south of the study area. There are also a number of primary and secondary watercourses nearby. Mignet Lake is roughly 2.5 kilometres to the east. These waterbodies are part of the Nipigon River Watershed, which drains an area of 24,650 square kilometres (WWF n.d.). The Nipigon River itself is the largest river to flow into Lake Superior and has been altered considerably since Euro-Canadian settlement through dams and diversions for hydroelectric power. It has been determined that only 3 metres of the Nipigon’s original 95 metre drop is unharnessed by dams (WWF n.d.). The watershed is home to 46 species of fish, including the largest population of the remaining coaster brook trout (WWF n.d.).



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1.3.2 Pre-contact Aboriginal Resources

The study area has been potentially occupied from 7000 BC until the present day. A summary of the culture history for the northern Lake Superior shore line is provided in Table 1 and discussed further below.

Period	Groups	Time Period	Comments
Paleo-Indian	Plano Group	7000 - 5000 BC	Unfluted projectile points; big game hunters; small camps along strandlines
Archaic	Shield Archaic	5000 - 500 BC	Seasonal camps; cold hammering of native copper
Initial Woodland	Laurel Culture	500 BC - 1000 AD	Introduction of pottery; evidence for exchange networks
Terminal Woodland	Blackduck Culture	1000 - 1650 AD	Fabric-impressed globular ceramic vessels
Contact Aboriginal	Various Algonkian Groups	1650 - 1850 AD	Early European contact and fur trade
Late Historic	Euro-Canadian	1850 AD - present	European settlement and treaties

The following summary of the possible archaeological resources and occupation north of the Lake Superior shoreline is based on: Bray and Epp (1984); Dawson (1983); Government of Ontario (1997); Hamilton (2013), Hinshelwood (2004); Julig (1994); Mason (2002); Morris (1943); Ross and Arthurs (1979); and Wright (1995-2004).

The north shore of Lake Superior was either beneath the Wisconsin Glacier or submerged under glacial Lake Minong until approximately 7000 BC when Paleo-Indian groups moved into the area from the west or south. The Plano phase of the Paleo-Indian culture (7000 - 5000 BC) includes a variety of temporal and regional variations in tool sets composed of unfluted points. Plano sites tend to be found on the beaches of the Upper Great Lakes and former beaches on the shores of glacial lakes (strandlines). For example, the Brohm site is located south of the proposed corridor east of Thunder Bay on a strandline. Evidence from Plano sites indicates a reliance on big-game hunting (i.e., caribou, extinct Pleistocene mammals), as well as the use of boats. Plano groups were likely small, occupying the same sites seasonally over a long period of time.

The Shield Archaic period (5000 - 500 BC) in Northern Ontario is evidenced by campsites throughout the Canadian Shield, as early Shield Archaic hunters followed the same subsistence patterns as Plano hunters. As the Continental Glacier receded and the glacial lakes dried, Archaic hunters moved farther into the interior of Northern Ontario following the caribou and, for a brief period, moose populations. Tool technologies were adapted to include axes, adzes, and chisels in response to the developing northern forests. These stone tools were generally ground or polished rather than the chipped and flaked tools that occurred in the Plano period and early Archaic. The addition of copper as a raw material led to the production of a more specialized Southern Shield Archaic tool set, that included a variety of tools for woodworking and more commonly fishing. Fishing technology grew to include copper harpoons, fish



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hooks and large gaff hooks. In addition to tool technology development, ceremonial burial practices developed in the Southern Shield Archaic period to include the practice of depositing grave goods. There was also an increase in trade between groups throughout the Great Lakes region, with trade networks extending into Southern Ontario and the American Midwest.

The Initial Woodland period in Northern Ontario (500 BC - 1000 AD) is characterized by the introduction of ceramics as part of the Laurel culture. There is no evidence that ceramic technology developed independently in Northern Ontario. Instead, the skill level indicates the introduction of a new group of people into Northern Ontario. Settlement patterns of the Initial Woodland period demonstrate seasonal settlement generally along major watercourses. Subsistence continued to depend more heavily on hunting in the interior of Northern Ontario and fishing in the Upper Great Lakes Region. New tool technologies include net sinkers that have been found at sites along the shore of Lake Superior, and red ochre which appears to have been used as pigment. The practice of using burial mounds was also adopted during the Initial Woodland period.

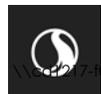
The Terminal Woodland period (1000 - 1650 AD) is marked by changes in the shape of ceramic artifacts. Whereas Initial Woodland ceramics were generally conical in shape with stamped decoration, Terminal Woodland ceramics were globular and fabric or cord-impressed. As with the introduction of Laurel pottery, there is no evidence that Terminal Woodland Blackduck ceramics developed in Northern Ontario. Throughout the Terminal Woodland period, sites became larger and more extensive, although they remained seasonal in nature. Villages were likely composed of extended families or hunting bands. Rock paintings also appear during the Terminal Woodland.

The Algonkian culture moved into Northern Ontario during the Terminal Woodland and is identified by the development of new pottery types. Small scrapers and projectile points used for hunting and fur processing became an integral component of the stone tool set, as well as bone awls, copper knives, fish hooks and scrapers. Algonkian groups became more mobile as food sources became sparser and seasonally unreliable as the climate changed during the Little Ice Age (*circa* 1550 AD). Trade networks with Iroquoian villages to the south were established allowing Algonkian hunters to exchange furs for agricultural goods.

1.3.3 Previously Known Archaeological Sites and Surveys

Charles Borden in 1952 (Borden 1952). The grid covers the entire surface area of Canada and is divided into major units containing an area that is two degrees in latitude by four degrees in longitude. Major units are designated by upper case letters. Each major unit is subdivided into 288 basic unit areas, each containing an area of 10 minutes in latitude by 10 minutes in longitude. The width of basic units reduces as one moves north due to the curvature of the earth. In southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario, adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lower case letters. Individual sites are assigned a unique, sequential number as they are registered. The study area under review is within Borden Block DhJb.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy Act*. The release of such information in the past has



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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. The MTCS 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.

An examination of the ASDB has shown that no archaeological sites have been registered within a 1 kilometre radius of the study area. No archaeological studies have been undertaken within 50 metres of the study area (Government of Ontario 2018a.).

1.3.4 Existing Conditions

The study area, consisting of the proposed fenced LNG facility property and its proposed pipeline and access routes is located on lots 10 and 11, Concession 3, and Lots 10, 11, and 12 on Concession 4. The study area comprises approximately 160 acres (64.75 hectares) of wooded, flat or gently rolling to steeply sloped land, roughly 1380 metres west of Highway 11. The terrain is flat to gently rolling, and steeply sloped in some portions (Figure 4). The Hydro One Networks Inc (HONI) ROW forms the northern boundary of the proposed facility fence line, within the northern boundary of the study area.



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2.0 FIELD METHODS

The Stage 1 assessment of the proposed Nipigon LNG project was conducted on June 12, 2018. During the Stage 1 site visit, the weather was warm, and overcast with some light rain. The lighting and weather allowed for good visibility of land features, and at no time were the field, the weather, or the lighting conditions detrimental to the recovery of archaeological material.

The Stage 1 archaeological assessment compiled the available information concerning known and/or potential archaeological heritage resources within the study area. A property inspection was conducted under archaeological consulting license P400 issued to Thanos Webb, MA, of Stantec by the MTCS, PIF number P400-0131-2018. The property inspection was completed on June 12, 2018. In accordance with Section 1.2 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the property inspection involved spot-checking of the study area and its periphery to identify the presence or absence of any features of archaeological potential (Photos 1-23).

Photographs from the property inspection are presented in Section 7.1 and confirm that requirements for a Stage 1 property inspection were met, as per Section 1.2 and Section 7.7.2 Standard 1 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The fenced facility property is accessed from Highway 11 via a northern and a southern access route over predominantly existing gravel or dirt roads (Photos 1-2, 6, 21), with the southern access road being partially overgrown (Photo 3). Both access roads are situated over Crown land and cross the TransCanada (TCPL) ROW. The northern access uses a portion of the Hydro One Networks Inc (HONI) ROW for its route (Photo 20). Multiple small, unmapped watercourses (both seasonal and year-round) pass through the study area. The proposed pipeline route connects the proposed facility footprint to the existing TCPL pipeline infrastructure, and traverses heavily wooded rolling land (Photo 22).

The terrain is flat to gently rolling, and steeply sloped in some portions (Photos 12, 13, 17). The land is generally heavily wooded, with some clearings which are heavily overgrown with weeds or bush (Photos 12, 15-16, 23). There is some evidence of previous logging on the property in years past (Photo 14).

Though several small watercourses are present in the vicinity of the study area (Photos 4-5, 7-8), the Stage 1 visual inspection revealed that Mignet Creek is the closest modern potable water source. As previously stated, Mignet Creek crosses the study area on the south access route roughly 500 metres east of the proposed facility fence line, and remains within 50 metres of the study area as it travels parallel to the access for a short distance (Figure 5).

Portions of the study area are steeply sloped or permanently low and wet (Photos 4-5, 7-8, 11, 13, 17), and are therefore considered to have low archaeological potential as per Section 2.1.2 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). There are also portions of the access routes which are existing gravel roads (Photos 1, 6, 22). These areas have been evaluated as having low potential due to deep land alteration that has severely damaged the integrity of archaeological resources as per Section 1.3.2, of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Additionally, there is some evidence of disturbance

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through previous logging or other human activity in the west end of the property in the form of a below grade concrete structure and metal anchors (Photos 18, 19).

3.0 ANALYSIS AND CONCLUSIONS

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Stantec applied archaeological potential criteria commonly used by the Ontario Ministry of Tourism, Culture and Sport (Government of Ontario 2011) to determine areas of archaeological potential within the region under study. Due to the study area's location in northern Ontario and on Canadian Shield terrain, the criteria used by Stantec to determine archaeological potential are those applied specifically to areas of northern Ontario and Canadian Shield terrain, detailed in Sections 1.3.3 and 2.1.5 in the MTCS's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Under these criterion, Stage 2 archaeological survey is only required within 50 metres of a modern water source and 150 metres of any features of archaeological potential other than a modern water source. These features include:

- previously identified archaeological sites
- elevated topography
- pockets of well-drained sandy soil
- distinctive land formations
- resource areas
- areas of Euro-Canadian settlement
- early historical transportation routes
- property listed on a municipal register, designated under the Ontario Heritage Act, or is a federal, provincial, or municipal historic landmark or site,
- property that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Wilson and Horne 1995). As discussed above, distance to water is an essential factor in archaeological potential modeling. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect site location and type to varying degrees. The MTCS categorizes water sources in the following manner:

- Primary water sources: lakes, rivers, streams, creeks;
- Secondary water sources: intermittent streams and creeks, springs, marshes, and swamps;

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- Past water sources: glacial lake shorelines, relic river or stream channels, cobble beaches, shorelines of drained lakes or marshes; and
- Accessible or inaccessible shorelines: high bluffs, swamp or marshy lake edges, sandbars stretching into marsh.

As detailed in Section 1.3.1, the closest potable water source to the study area is Mignet Creek, which crosses the study area at the south access road approximately 500 metres to the east of the LNG station. The creek remains within 50 metres of the study area for a short distance as it travels east, parallel to the access road. The study area is on gently flat to gently rolling or steeply sloped land, with elevation generally increasing toward the north beyond the study area. The study area does not contain any significant areas of generally flat elevated land. (Figure.4).

A review of the Northern Ontario Geography Terrain data shows that within the Glaciolucustrine Plain the study area is situated in soils composed of primarily silt and clay and considered well drained. However, areas of sandy, well drained soil, preferable for human occupation, are present within roughly 150 metres of the portion of the north access route between Highway 11 and the TCPL ROW (Government of Ontario 2018b).

A review of the ASDB has shown that no pre-contact aboriginal or post-contact and Euro-Canadian archaeological sites have been registered within a 1 kilometre radius of the study area. Historically, the closest settlement to the study area was Nipigon, which was not settled until the late 1880s when the Canadian Pacific Railway was being built through the area. Prior to that, the surrounding area remained sparse in settlement. The 1894 survey map of Ledger Township does depict a Hudson's Bay Company transportation route running through the northeast portion of the township, however this transportation route is to the distant north and west of the study area, and therefore does not increase the potential for the recovery of archaeological material within the study area. No other known historical sites or landmarks are present. Though there is evidence of previous logging activity within the study area, it appears to have occurred in the late 20th century.

Generally, when the above listed criteria are applied to the study area, archaeological potential for pre-contact Aboriginal and post-contact Aboriginal, as well as Euro-Canadian archaeological resources throughout the majority of the study area is considered to be low due to distance from any features of archaeological interest, with the exception of two areas. Figure 5 illustrates the location of archaeological potential within the study area. The two areas where archaeological potential is present are: a portion of the northern access route between Highway 11 and the TCPL ROW due to its proximity to well-drained sandy soil; and a portion of the south access route, around Mignet Creek.

Additionally, the property inspection resulted in some portions of the study area being evaluated previously disturbed through the construction of gravel roads. As per Section 2.1 Standard 2b of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) these areas have been evaluated as having low archaeological potential, and do not require further work. In addition, some areas of the study area exhibited areas of steep slope or low and wet conditions. As per Section 2.1 Section 2a, these areas are evaluated as having low archaeological, and do not require further work (Government of Ontario 2011).

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In summary, following Section 1.3.1 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the Stage 1 archaeological assessment has determined that portions of the study area exhibit potential for the identification and recovery of archaeological resources (Figure 5).

4.0 RECOMMENDATIONS

The Stage 1 assessment of Nipigon LNG project resulted in the determination of potential for the identification and recovery of archaeological materials in portions of the study area. **Those portions of the study area which retain archaeological potential are recommended for Stage 2 archaeological assessment prior to construction. It has also been determined that portions of the study area do not retain archaeological potential and no further archaeological assessment is recommended for those areas (Figure 5).**

The objective of the Stage 2 archaeological assessment will be to document archaeological resources within the study area and to determine whether these archaeological resources require further assessment. As the study area consists areas of thick bush or woodland, and narrow (10 metres or less) linear survey corridors that cannot be ploughed, all portions of the study area requiring further assessment will be assessed via Stage 2 test pit survey as per section 2.1.2 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The Stage 2 archaeological assessment of the study area will consist of a systematic test pit survey. If the archaeological field team judges any lands to be low and wet, steeply sloped, or disturbed during the course of the Stage 2 field work, those areas will not require assessment, but will be photographically documented instead in accordance with Section 2.1 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The MTCS is asked to review the results presented and to accept this report into the Ontario Public Register of Archaeological Reports. Additional archaeological assessment is still required for portions of the study area and so these portions recommended for further archaeological fieldwork remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed, except by a person holding an archaeological license.

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5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

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

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

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

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 (Government of Ontario 2002) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

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Closure
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9.0 CLOSURE

This report has been prepared for the sole benefit of Nipigon LNG and may not be used by any third party without the express written consent of Stantec Consulting Ltd. and Nipigon LNG. Any use which a third party makes of this report is the responsibility of such third party.

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

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