APPENDIX S

ARCHAEOLOGY AND CULTURAL HERITAGE TECHNICAL SUPPORT DOCUMENTS

S-1	**Stage 1 Archaeological Assessment (Mine Site)**
S-2	Stage 2 Archaeological Assessment (Mine Site)
S-3	Stage 1 Archaeological Assessment (Transmission)
S-4	Stage 1 Archaeological Assessment (Pipeline/Road)
S-5	Archaeology Chance Find Procedure
S-6	Cultural Heritage Research Report: Built Heritage and Cultural Heritage Landscapes
S-7	Cultural Heritage Evaluation Report Baseline
S-8	Cultural Heritage Evaluation Report CHR1 Travel Route
S-9	Cultural Heritage Evaluation Report CHR3 Cabin
S-10	Cultural Heritage Evaluation Report CHR4 Cabin
S-11	Cultural Heritage Evaluation Report CHR5 Cabin

Northwest Archaeological Assessments

Andrew Hinshelwood, PhD, CAHP Consulting Archaeologist, Northwestern Ontario

Stage 1 Archaeological Assessment. First Mining Gold Corp. Springpole Gold Project, District of Kenora, Ontario.

RFP-NI 43-101 Archaeology – Heritage Studies

Stage 1
Original Report
December 30, 2020

Archaeological Assessment Report
Prepared by Andrew Hinshelwood
Archaeological Licence P236
PIF P236-0141-2020

Prepared for:

First Mining Gold
1800-925 West Georgia Street,
Vancouver, B.C., V6C 3L2

steve@firstmininggold.com

hinshelwoodandrew@gmail.com www.andrewhinshelwood.com 807 252-1251

Executive Summary

First Mining Gold (FMG) proposes the development of a mine at Springpole Lake, District of Kenora, Ontario. As part of the Pre-Feasibility Study for the proposed mine, archaeological studies leading to the preparation of a comprehensive report have been commissioned. The report of the archaeological assessment as a component of the Pre-Feasibility Study will be submitted as a National Instrument 43-101 (NI 43-101) compliant Pre-Feasibility Study and will be used to generate information for Provincial & Federal Environmental Assessments. The proposed Springpole Gold Project is located 110 km northeast of Red Lake, Ontario and 120 km north of Sioux Lookout, Ontario, in unorganized territory within the District of Kenora (Maps 1 and 2).

Planning for the Springpole Gold Project includes completing a comprehensive assessment of the archaeological resources present in the project area, and an evaluation of the potential impacts to these resources from the development, construction, operation and decommissioning of the mine. The first step in this process is the evaluation of archaeological potential and the development of a research plan for compiling and inventory of archaeological resources. In Ontario, archaeological assessment is directed by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) ***Standards and Guidelines for Consultant Archaeologists*** (S&Gs), developed under the ***Ontario Heritage Act*** (RSO 1990, c O.18). The S&Gs allow for a four-stage process for the evaluation, identification and mitigation of impacts to archaeological resources in development.

The report presents the results of a Stage 1 archaeological assessment of the Springpole Gold Project area. This assessment leading to the evaluation of archaeological potential for the project area included a background study and fieldwork. Fieldwork was carried out between July 26 to August 1, 2020 under archaeological licence P236, registered with MHSTCI as PIF P236-0141-2020.

Stage 1 background study identified four archaeological assessment reports completed for an earlier Springpole Lake mine development proposal. The assessments were completed in 2011 and 2012 on behalf of Gold Canyon Resources Inc. when the property was under their control. The previous studies provided recommendations that may overlap with the subject property for this assessment; however, this report constitutes a new Stage 1 archaeological assessment in which previous research has been thoroughly reviewed and incorporated into the analysis of the 2020 fieldwork results.

A Stage 1 archaeological assessment, completed under PIF P307-0019-2011, focussed on specific development footprint areas and arrived at three recommendations. The recommendations, presented in full in the body of this report, recommended no further archaeological assessment (Stage 2) for interior areas, that Stage 2 testing be completed for areas associated with mine operations, and that all work conform to the S&Gs.

A Stage 1 archaeological assessment and report for an earlier form of the Project was carried out under archaeological licence P041 and was based on a desktop study alone.[1] The report resulting from this work is not available, but the recommendations are cited in two Stage 2 reports that followed. Reports for PIF P335-015-2012 and P335-016-2012 summarise these recommendations as requiring Stage 2 testing within 150 metres of all water sources, and that all work conform to the S&Gs.

[1] The report for PIF P335-015-2012 identified the report as bearing PIF P041-158-2011. The MHSTCI database has no record for a report associated with this project number.

Two Stage 2 archaeological assessments were carried out, including for parts of the project area. In these assessments, areas evaluated as holding archaeological potential under the second Stage 1 report (P041) were completed under PIFs P335-015-2012 and P335-016-2012. The report for PIF P335-015-2012 concerned a proposed access road corridor and water crossing at Birch Creek, lying outside of the present subject property. The report for PIF P335-016-2012 includes some areas overlapping the present subject property. The report included three recommendations: for Stage 3 site-specific assessment of ten archaeological sites identified during survey, that the Stage 3 work should conform to the S&Gs, and that all other areas a free of further concern. We note that the MHSTCI database contains only partial records for some of the sites reported, while others remain unregistered.

Fieldwork in support of a new Stage 1 archaeological assessment was completed in 2020, although participation of Indigenous community members was not possible due to Covid-19 restrictions. The purpose of the Stage 1 assessment was to evaluate archaeological potential within the subject property based on background study and landscape characteristics. In most cases, the evaluation was that mixed or complex archaeological potential was present for the project area, with potential removed from parts of the subject property due to extensive and intensive disturbance. As a result of the assessment, including background study and property inspection, the following recommendations are made:

1. The subject property includes extensive areas evaluated as holding mixed or complex archaeological potential. For these areas, Stage 2 property assessment is recommended. The Stage 2 assessment must conform to the direction set out in the *Standards and Guidelines for Consultant Archaeologists,* Section 2.1, 2.1.2, 2.1.3 and 2.1.6.

2. As the property is located on the Canadian Shield and northern Ontario (S&Gs Section 1.3.3, s. 1 and s. 2), it is recommended that fieldwork for the Stage 2 property assessment conform to the direction set out in the *Standards and Guidelines for Consultant Archaeologists,* Section 2.1.5.

3. It is recommended that as part of the Stage 2 fieldwork, the methodologies and results of the Stage 1 evaluation of archaeological potential, and the fieldwork strategies proposed for Stage 2 are reviewed with representatives of the affected First Nations. New information arising from this review should be considered in the fieldwork, and the field crew staffed by First Nation members, wherever possible.

4. It is recommended that archaeological sites registered or reported in earlier assessments to the north and east of the subject property be relocated, registered with MHSTCI, and appropriate recommendations (S&Gs Section 7.8.4, s. 1) and protective buffers (S&Gs Section 7.8.5, s. 1(e)(i)) established.

5. Areas of extensive and intensive disturbance, including the current operations base on Springpole Lake, are considered to hold low archaeological potential and it is recommended that no further archaeological work is required in these areas prior to development.

Table of Contents

Project Personnel

Personnel involved in this project included the licensee (Andrew Hinshelwood, P236), who also acted as field director for this project. Scot Kyle assisted in the field. Heather Hopkins acted as project manager and assisted in the preparation of this report. First Mining Gold staff were instrumental in the completion of fieldwork.

Project Context

First Mining Gold (FMG) proposes the development of a mine at Springpole Lake, District of Kenora, Ontario. As part of the Pre-Feasibility Study for the proposed Springpole Lake Mine, archaeological studies leading to the preparation of a comprehensive report have been commissioned. The report of the archaeological assessment as a component of the Pre-Feasibility Study will be submitted as a National Instrument 43-101 (NI 43-101) compliant Pre-Feasibility Study and will be used to generate information for Provincial & Federal Environmental Assessments. The proposed Springpole Gold Project is located 110 km northeast of Red Lake, Ontario and 120 km north of Sioux Lookout, Ontario, in unorganized territory within the District of Kenora (Maps 1 and 2).

Planning for the mine includes completing a comprehensive assessment of the archaeological resources present in the Project area, and an evaluation of the potential impacts to these resources from the development, construction, operation and decommissioning of the mine. Currently, First Mining Gold Inc. is preparing a synchronized environmental impact statement (EIS) assessment to meet the federal and provincial environmental assessment requirements. An Environmental Assessment report prepared to the requirements of the Ontario Environmental Assessment Act (RSO 1990 c. E.18), and Federal EA legislation will also be completed. This archaeological assessment has been prepared in support of the provincial requirements.

In Ontario, archaeological assessment is directed by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) ***Standards and Guidelines for Consultant Archaeologists*** (S&Gs), developed under the ***Ontario Heritage Act*** (RSO 1990, c O.18). The S&Gs allow for a four-stage process for the evaluation, identification and mitigation of impacts to archaeological resources in development. The report presents the results of a Stage 1 archaeological assessment of the Springpole Gold Project area. This assessment leading to the evaluation of archaeological potential for the Project area included a background study and fieldwork. Fieldwork was carried out between July 26 to August 1, 2020 under PIF P236-0141-2020. Andrew Hinshelwood, operating as Northwest Archaeological Assessments, was retained to complete the archaeological assessment.

This report summarises the results of a Stage 1 archaeological assessment, including a Stage 1 background study and property inspection, conforming to the direction set out in the MHSTCI *Standards and Guidelines for Consultant Archaeologists* (S&Gs), completed for parts of the Project. The Stage 1 assessment was focussed on areas associated with major components of the Project: the open pit, stockpile and crusher, process plant and mine rock storage. The open pit is proposed for the dewatered portion of Springpole Lake in the north basin of Springpole Lake, so shorelines within this basin and the island were reviewed during the property inspection. Mine rock facilities will engage shorelines on the north and west basin, as well as several small water bodies, and the waterway associated with the historic portage east of the current operation centre.

Development Context

The Springpole Gold Project property considered in this report comprises approximately 1,000 hectares of an overall holding of 41,943 hectares by First Mining Gold Inc. The Springpole Gold Project property is currently undeveloped, although mineral exploration and geotechnical work has been ongoing for at least the past 10 years. This recent work builds on a 90-year history of mineral exploration and staking in the area. The Project is located within the Birch-Uchi Greenstone Belt, and presents a large deposit suited to open pit mining.

The subject property is located approximately 120 km north of Sioux Lookout, and 110 km east northeast of Red Lake, Ontario, in unorganized territory within the District of Kenora. The property is centered on a large bay in the northwestern part of Springpole Lake. The bay considerably expands this otherwise long narrow lake north towards Birch Lake (Map 3). The Stage 1 archaeological assessment focussed on those parts of the Project that are centred on the north basin of Springpole Lake. Specifically, desktop study and property inspection were completed for a subject property comprising the open pit, stockpiles, process plant and mine rock areas in 2020 (Map 4). Earlier fieldwork on the subject property (P307-019-2011) addressed some interior areas to be affected by proposed stockpiles and mine rock management areas. Fieldwork related to P335-016-2012 was not mapped with sufficient resolution to allow an understanding of where in the subject property the work was completed. The proposed tailings management facility, transmission line, access road and aggregate sources were not considered as part of the 2020 fieldwork.

Currently, the subject property is forested with mature conifer-dominated stands that vary in size and composition by local soil and moisture conditions. The terrain is variable, but ranges between moderately to steeply sloped bedrock to low, moist sites. A number of areas show strong soil development in areas where glacially deposited soils are relatively deep over bedrock. Apart from areas disturbed by activities related to mineral exploration and mine development, the subject property area has experienced only natural disturbance.

From the late spring and early fall, the subject property is accessible by float plane direct to Springpole Lake or to Birch Lake. During the winter, an ice road approximately 85 km long is typically constructed from the South Bay landing point on Confederation Lake to a point about 1 km from the Springpole camp. During the break-up of ice in the spring and the freeze-up in the fall, access to Springpole is typically by helicopter. A primary forestry road being constructed within the Trout Lake Forest (MU120) connecting to Ear Falls will provide road access to the eastern end of Springpole Lake, reducing overall travel time and supporting reliable access to the mine site.

Historic Context

The subject property lies within the Traditional territories of Cat Lake First Nation, Slate Falls First Nation and Lac Seul First Nation, and is within the Treaty No. 9 area. Treaty No. 9 was signed in 1905 by a number of First Nations. Both Cat Lake and Slate Falls became signatories through Osnaburgh

(Mishkeegogamang) First Nation.[2] Cat Lake were recognized by the Treaty commission in 1906, although annuities may have been paid in 1905 also (Long 2010). It is commonly understood that the Treaty was precipitated by an interest by the Canadian government to expand resource extraction north of the Robinson-Superior 1850 Treaty area. The value of the Treaty to the Crown appears to have been realised when gold was discovered north of Osnaburgh, east of the subject property, in the 1920's. It is interesting to note that the discovery is generally attributed to an unnamed member of Cat Lake First Nation (Long, 2010:159). Lac Seul First Nation is signatory to Treaty No. 3, signed in 1873.

Springpole Lake was a specific focus of Indigenous activity during the early contact period, a condition that continued uninterrupted from the pre-contact. Initial entry into the region by Europeans was for the purpose of trade and exploration. Exploration was an integral part of the project of colonisation, and supported claims of legitimacy by the primarily British colonizers. Exploration was supplied and supported by the fur trade.

Mineral exploration in the Birch Lake – Springpole Lake area began in the 1920s. This initial exploration led to claims staked at the subject property and other areas on Birch and Springpole Lakes.[3] Additional prospecting, documentation and mapping was completed prior to 1936.[4] In the 1930s and 1940s additional prospecting and trenching work was completed at Springpole. Activity at the property was quiet until the 1980s when a series of ventures carried out field testing of the deposit (Appendix I).

Harding (1936), in his report to the Ontario Department of Mines, hints at the extensive network of water-based travel routes in their mapping of a fairly large number of portages within the map sheet.[5] While geological exploration and staking had been underway for under twenty years, the map shows 12 cabins present in the area. A few of these cabins coincide with delimited areas, suggesting an association with mining activity, but the majority do not. We note that five cabins and six portages are located on or near the subject property, including one cabin and two portages where the current operations centre is located.

The cabins and portages mapped in the 1930s may represent a mix of new (geology focussed) and traditional (Anishinaabe) land use and occupancy. The Birch Lake – Springpole Lake area shows a history of traditional land use and economic activity related to the fur trade. This trade was successful in large part because it built on traditional resource management practices, such as fishing and trapping. Springpole Lake is part of a known and well-travelled route east to James Bay by way of Cat River and Lake St. Joseph. This route would have provided local inhabitants access to trade goods in the early fur trade period at Fort Albany. The route also connects Springpole Lake to the English River to the west and south. A route north to the Severn River passes through Cat Lake.

It is generally accepted that although there were no permanent trading posts in the region prior to *circa* 1727, itinerant *couriers des bois* and unlicensed traders would have been working in this area prior to

---

[2] Cat Lake and Slate Falls First Nation have historic ties to Osnaburgh First Nation (Mishkeegogamang). Cat Lake acquired (Indian Act) band status about 1970, while Slate Falls acquired band status in 1985 (Long 2010).

[3] This map set shows progressive staking and is undated. We presume it to be from the initial staking period, and can be accessed at: http://www.geologyontario.mndm.gov.on.ca/mines/lands/historic_claims/pdf/B/Birch%20Lake%20&%20Springpole%20Lake.pdf

[4] Map and report available at: http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=ARV45

[5] The complete map covers an area roughly 24 miles by 24 miles (38.5 x 38.5 kilometers) and includes upwards of 60 portages, include distance measurements, as well as 4 trails, 2 'pull-overs' and 1 winter road. One portage, "Birch Portage" is names. This portage, 40 chains (about 800 metres) in length, connects Keigat lake with the northeastern arm of Birch Lake.

the closing of the French trade in the interior in 1696 (Hinshelwood 1984). The immediate area of the study area is not known to have been a location of importance during the early fur trade, however, and travel to posts on James Bay or the Boundary Water area would be likely (Heidenreich and Noel 1987a; 1987b; Moodie, et al. 1987). A number of trade posts were established along the Albany River from the late 17th century onward. Following the incorporation of the Hudson Bay Co (HBC), posts were established at the mouth of the Moose River (Moose Factory) in 1673 and at the mouth of the Albany River (Fort Albany) in 1679 (Rich 1958; Heidenreich 1987; Heidenreich and Noel 1987b). Inland, Henley House, at the confluence of the Albany and Kenogami Rivers, was established in 1743. As trade competition from New France increased, inland posts became a key strategic element for both the HBC and Montreal traders (Ray 1974, Ray and Freeman 1978). Thus, a number of major and minor posts[6] were established in the upper reaches of the Albany River up until 1821, when the HBC and Northwest Company merged (Moodie, et al. 1987; Rich 1958).

Archaeological Context

Regionally, the archaeological sequence is defined in relation to material culture. From existing archaeological reports, and the author's own knowledge of the collections, it is understood that all pre-contact and post-contact cultures are present in the region. These include:

Late Palaeo (from 9,500 to 7,000 years before present [B.P.])
Archaic (7,500 to 2,000 years B.P.)
Middle Woodland (2,500 to 1,000 years B.P.)
Late Woodland (1,500 to 300 years B.P.)
Contact (including fur trade, Treaty and colonisation period) (post-300 years B.P.)

Late palaeo archaeological sites contain the earliest material evidence of post- glacial human occupation of the region. The antiquity of the sites, coupled with soil conditions not conducive to preservation, has resulted in sites that contain little more than worked stone artifacts and waste resulting from their manufacture. It is speculated that initial entry into the region was from the south by groups following trails of workable lithic material found in glacial till. During this time, post-glacial lake levels in regional lake basins (Lake Superior, Lac Seul, etc.) were at higher levels due to a combination of increased inflow from glacial meltwater and limited outflow channels, affected by isostatic rebound and free ice in the lake basin. The timing of the deglaciation of this area is outlined in several overview reports (cf. Dyke 2004; Dyke and Prest 1987a; 1987b), and likely dates to about 9,200 years B.P. For an unknown period after deglaciation, the land would have been inundated with meltwater, and later be unstable due to isostatic rebound and surface water events. It is reasonable to assume that the area would have been available to inhabit by about 8,000 years B.P. While pollen records show that for a time the interior of northwestern Ontario was a treeless tundra that would have supported herds of caribou, abundant meltwater also suggests that interior areas were generally less hospitable to occupation. As a result, human populations are believed to have been drawn to occupy shoreline areas initially, at least for much of the year. Consequently, archaeologists have focussed their efforts in locating late palaeo sites on relict shoreline features (cf. Hinshelwood 2004).

[6] Posts include Marten Falls, Gloucester House and Osnaburgh House, on Lake St. Joseph.

The **archaic** period is a poorly known (Wright 1972), but temporally extensive cultural period during which, it is hypothesised, the inhabitants of the region gradually made a cultural transition from an economy based in larger scale caribou hunting of the late palaeo period, to the diverse local game procurement practices of more recent aboriginal culture. Artifacts of the archaic period trend to increased diversity, including ground stone and native Lake Superior drift copper tools. At the same time, the visual quality or refinement of flakes stone tool finishing shows a longer term overall decline. That is, lithic projectile points show less regularity in the final stages of knapping than, for example, late palaeo points. This is somewhat paralleled by a trend from the larger copper artifacts, noted earlier in the archaic, to smaller ones later in the temporal sequence. As the period defined is of such a long duration, it is unlikely that a single trend is being identified; however, the common understanding is that this marks a shift from large game procurement by larger social groupings, to more local pursuit of a wider range of small and large game by extended families or bands (cf. Hamilton 2013). While this is speculative, and should be treated as untested hypotheses, it is expected that during all cultural periods a wide range of subsistence resources, plant and animal, were being procured and used by local populations according to custom.

The primary distinction between the late archaic and the **middle woodland** period (there is no early woodland period in the region), is the addition of ceramic vessels on archaeological sites. Apart from this addition, the stone and copper implements present are virtually indistinguishable from those of the archaic. Unlike copper and lithic artifacts, the earliest expression of ceramic technology shows as much of a refined capacity to produce artifacts of technological refinement, beauty and utility as those of later periods. The middle woodland, also referred to as Laurel after the principle ceramic type present (Wright 1967), shows what many archaeologists view as an influence from the Hopewell culture, centred in the upper Mississippi River. The key cultural traits received from Hopewell include the construction of large funerary structures – burial mounds – reflecting single or multiple episodes of internment. Laurel culture, based on the distribution of mounds, is centred on the Rainy River, but spread at its peak across northern Ontario and into Manitoba (Reid and Rajnovich 1991).

The transition from middle to **late woodland**, in terms of material culture is notable in terms of the construction, shape and decorative motifs of the ceramics (Wright 1995), and for the diminished size of burial mounds. Ceramic styles change, and two prominent forms emerge – Blackduck and Selkirk – which reflect a difference in vessel shape, decorative motifs and methods of application and construction technique (MacNeish 1958). Also during the late woodland period, outside influences begin to be felt from southern Ontario, as some sites on the southern fringe of the region include Iroquoian or Iroquoian-like ceramics (Dawson 1987; Conway 1977). Again, whether this presence is based on a few significant historical events (cf. Hinshelwood 1984), or reflect part of a larger ongoing trade (perhaps based on corn agriculture among the southern Iroquoian groups) is a hypothesis that has not been rigorously tested. Nevertheless, this is the material culture of the indigenous population that first contacted the European traders, missionaries and explorers wandering through the region for purposes of colonisation and profit.

The **contact** period includes the fur trade, which began in Hudson and James Bays with the establishment of the Hudson Bay Company (HBCo) in 1670 (Rich 1958), and in the western Lake Superior area with DuLuht's entry into the northwest *circa* 1680 (Heidenreich and Noel 1987). The fur trade grew during the 18th and 19th centuries into a significant commercial enterprise (Burpee 1927; Rich 1958) and continues to the present, albeit in a markedly different form. Logging, mining and commercial fishing have all occurred to the south of the subject property during the post-Treaty period, recently gaining a

presence closer to Springpole Lake. In the 20th century, recreation has been added to the suite of commercial practices in the region with a number of outpost camps present in the area.

Contemporary and recent occupations of the region are usually not considered 'archaeological' although archaeological techniques can be used to recover material and contextual cultural information from places of past occupation.

Stage 1 Background study

The purpose of the background study is to review available documentary sources of information on the past and present occupation of the subject property and surrounding region, and to use this review as the basis for making a preliminary evaluation of archaeological potential. Documentary sources include archaeological databases and reports, historic documents, including maps and journals, and information on the landscape characteristics of the subject property including surficial or quaternary geology, soils, vegetation and topography.

The subject property is located in an area that is not well known archaeologically.

The property may be considered to be located in northern Ontario and on the Canadian Shield for the purposes of S&Gs Section 2.1.5, *Alternative strategies for special survey conditions: Test pit survey in northern Ontario and on Canadian Shield terrain*. Extensive bedrock exposures occur within the study area and overall the property shows a distinctly "shield" or "northern Ontario" topography.

The property may be considered 'remote' for the purposes of S&Gs Section 1.3.4, *Alternatives for potential evaluation in special conditions: Remote areas*. The property is accessible by float plane only during the field season, and local travel requires the use of boats and motors. Interior areas are generally trackless, apart from machine trails constructed for geotechnical testing. Forest cover is dense and areas of extensive marsh or bog are present adjacent to some water sources.

There are no commemorative plaques on the subject property (Perkins 1989).

Archaeological Potential

The outcome of Stage 1 archaeological assessment is an evaluation of archaeological potential. Archaeological potential represents an informed determination of whether archaeological resources (materials and features) or a certain magnitude are present on a property. The evaluation of archaeological potential does not implicitly or explicitly include all archaeological resources, as artifacts distributed individually or in low density across a property can remain invisible under standard archaeological field techniques.[7] [8] In addition, specific forms of occupation that do not conform to the assumptions for landscape use used in the evaluation of archaeological potential may also be present but not captured in the Stage 1 report.[9]

Archaeological potential is a statement of the likelihood that archaeological resources are present on a specific property; however, it is not a probability statement. Also, archaeological potential is highly dependent on the state of current knowledge of the subject property and its environs, and current understanding of regional archaeological resource distribution. In general terms, potential is evaluated on the basis of current knowledge of the property and of the landscape associations of registered archaeological sites on properties showing similar landscape characteristics.

[7] The 'discoverability' of archaeological deposits has been considered by Krakker, Schott and Welch (1983), among others.

[8] Stage 2 is where these techniques for locating archaeological resources are deployed.

[9] For example, a location selected for a specific reason (a quartz vein, or a place holding specific spiritual value) will not normally be captured.

Archaeological potential is evaluated for properties being proximate to a few key factors. In this assessment, the evaluation of archaeological potential is based on the variables identified in the S&Gs (S&Gs Section 1.3.1). These include registered archaeological sites, modern watercourses, topography or quaternary geology, relict shorelines (former watercourses), and historic settlements or transportation routes.

Registered Archaeological Sites

As part of the Stage 1 archaeological assessment, the *Ontario Archaeological Sites Database* (OASD), maintained by MHSTCI, was consulted. OASD lists 10 registered archaeological sites within 25 kilometres of the subject property (Table 1). Three sites lie within five (5) kilometres of the subject property, and no (0) sites are within one kilometre of the property.

Limited information is available for most of the sites listed, but a brief discussion of the three sites within five kilometres of the subject property is useful. The best known site is EiKc-1, the Potato Island site, investigated by Polly Koezur [10] in the 1970s (Koezur and Wright 1976). The site is located on a small point of land on the northwest shore of an unnamed island in Birch Lake. The location is interesting, as it affords a good view to the southwest through the section of water labelled *Birch Narrows* on the 1936 map of the area (Harding 1936). This fits with a general observation of archaeological site distribution common in diverse northern Ontario settings.

The report of the Potato Island archaeological site is one of the key early references for northern Ontario archaeology. The site was investigated by Polly Koezur, an avocational archaeologist, and the analysis was supported by Dr. J.V. Wright of the Archaeological Survey of Canada, who co-authored the final report. The site is identified in the report as occupying an important location within the network of water-based travel routes, and of being near a significant sturgeon fishery. In terms of the field work, Koezur notes:

> Impetus to begin a search was given when Mr. Conrad Hanson, a local prospector, told us that many years ago he had been given 'several pieces of clay pots' which had been found by Mr. Albert Quedent, a member of the Lac Seul band. We contacted Mr. Quedent, who kindly offered to show us where he had found them. He took us to Potato Island … He had had a cabin there during the 1940's and had dug up a garden east of his home. It was there that he had found the sherds. The outline of the garden, a 10' x 15' plot, was clearly visible, although trees, bushes and various small plants had grown up within it. As the island was uninhabited, we were free to investigate it as we wished (Koezur and Wright 1976, 1). [11]

Four excavation areas in old clearing and a series of test pits in wooded areas recovered a large number of archaeological resources from the archaic to contact cultural periods. The artifacts were mainly

[10] It is of passing interest that Koezur had, as her address during this time, Birch Lake, c/o Slate Falls Airways, Sioux Lookout. Thurston identifies Koezur, and her husband Karl, a prospector, as "permanent residents" of the lake, occupying a cabin "immediately north of the portage to Springpole Lake" (Thurston 1986). Polly Koezur was also involved with the development of mining claim KRL58439 on Birch Lake (http://www.geologyontario.mndmf.gov.on.ca/mndmfiles/afri/data/imaging/52N08NW5088/52N08NW5088.pdf).

[11] This paragraph is interesting in several respects. It supports the understanding that Lac Seul First Nation members actively occupied locations on Birch Lake. It also reminds us that the cabins mapped on the 1936 map (Harding 1936) are likely not be *all* of the cabins on the lake. The 1936 map shows several cabins that are within areas staked and claimed for mineral exploration, and it is tempting to think that all cabins mapped are prospector cabins. However, Mr. Quedent's cabin, although it post-dates the 1936 map, suggests that at least some of the cabins mapped were inhabited by Anishinaabe and that the map is not simply a record of prospector cabins.

ceramic and lithic, although a small amount of copper and taconite were identified. This suggests trade or travel to the south, if we assume copper to be sourced primarily in the Lake Superior area, and taconite to be only available from outcrops near the city of Thunder Bay. Contact period materials were typical of the fur trade, with iron, glass, silver and brass identified.

The archaic material included two lanceolate projectile points, two side-notched points and two stemmed points. In addition, the collection included 17 stone scrapers, 2 unifacial implements and 2 biface fragments. One copper artifact was identified from within the archaic collections. Middle woodland ceramics were not specifically identified, although a number of 'transitional' forms - implicitly transitional between Laurel and Blackduck or Selkirk ceramic types, were noted. Rim sherds representing an estimated 14 Selkirk, 18 Blackduck, 9 transitional and 3 'other' ceramic vessels were recovered. In addition, the woodland occupation was marked by 19 projectile points, 56 complete and fragmentary scrapers, 22 bifaces, 2 ground stone artifacts, and one stone pipe fragment. The latter is of interest because it implies trade with southern and eastern groups but may have arrived at Birch lake via the fur trade or, alternately, may have been manufactured from local stone. If we consider the possibility that the Pipestone River, west of Wunnumin Lake, might be named for material that was used in pipe manufacture, then the material may have come from a more local or regional trade. We note that Wunnumin Lake is only slightly further away (about 280 km), than Lake Nipigon (about 250 km). Regardless, this is entirely speculative at this time.

Fur trade period artifacts from Potato Island include a typical range of items. Among the assemblage were 14 brass kettle fragments, 1 brass tinkle cone, 3 glass seed beads, 2 chert gunflints, 1 silver pendant, 1 silver brooch, 2 iron projectile points, 1 iron awl, 1 iron bracelet, and 1 iron knife. The abundance of game at the location is also attested in the faunal assemblage, which included moose, deer, bear and caribou bone, as well as a range of smaller mammals, loon, duck, heron and eagle bone, and fish, primarily walleye and pike. It is interesting to note the absence of sturgeon, perhaps suggesting seasonality of occupation or other factors.

The archaeological site should be noted as including the areas investigated, the archaeological resources recovered and described by Koezur, and the remains of Mr. Quedent's cabin adjacent.

A second site, EiKb-2 (Lower Springpole 1), was recorded on the north shore of Springpole Lake just to the east of the opening into the north basin where the subject property is located. This site was also recorded by Koezur in the 1970's. The site registration contains little information beyond the location; however, we note with interest that it is in the vicinity of the pictograph site, and just east of the general location of two cabins marked on the 1936 map (Harding 1936). The third site within five kilometres of the subject property is EiKb-1 (Peck's Point), is located within a small bay on the north shore of Birch Lake, immediately north of Johnson Island. As with EiKb-2, there is little information available on this site. The sites registered by Koezur are presented in bold type in Table 1.

It is important to note that the OASD data does not appear to include archaeological site data found in the two assessment reports prepared for the Springpole mine site and the proposed access road in 2012 (P335-015-2012 and P335-016-2012). These reports suggest that there are at least 14 sites on Springpole and Birch Lakes. The archaeological site data contained in the reports is only partially recorded in OASD for the sites that have been registered.

From our reading of the two assessment from 2012, there are no archaeological sites within the subject property. However, one site was identified on Birch Lake in the small bay north of the subject property, and four sites were located in a cluster possibly on the small island in Birch Lake immediately north of the portage. Four sites were also reported from the western end of Dole Lake, east of the subject property. These sites will require relocation so that appropriate buffers can be determined for use in planning.

Table 1: Registered archaeological sites within 25 km of the subject property (OASD).

Borden Number	Site Name	Time Period	Affinity	Site Type	Current Development Review Status
EjJx-1	KAPIKIK LAKE				
EiKd-3	Fox Bay Point				
EiKd-2	Little Shabumeni Lake				
EiKd-1	Shabumeni Rapids 1				
EiKc-1	**POTATO ISLAND**				
EiKb-5	Birch Creek Portage 1				
EiKb-3	Carpenter 1				
EiKb-2	**LOWER SPRINGPOLE 1**				
EiKb-1	**PECK'S POINT**				
EhKd-1	OKANSE LAKE 1				

We also note one earlier observation on the archaeological resources of Springpole and Birch Lakes in Figure 1 (Harding 1936).

Previous Assessment

MHSTCI records indicate that five archaeological assessment reports related to the Springpole Gold Project have been prepared. The reports are summarized below.

P307-0019-2011 (Norris, Western Heritage Services Ltd.). This Stage 1 archaeological assessment report describes the results of a Stage 1 assessment and property inspection completed in June 2011. The property inspection included a review of an area roughly coterminous with the present subject property. Shoreline and select inland areas were examined, and an aerial survey of the wider property was completed. The focus of this assessment was the water control structures as then planned, a proposed airstrip and camp (Figure 2). It is worth noting that the proposed airstrip and camp are in the area currently identified as one of the proposed waste rock facilities.

The recommendations from this Stage 1 assessment report are:

> Applying the criteria set out by the Ministry of Tourism and Culture (Appendix 1), the proposed Springpole Lake Gold Project:
>
> a) is within 200 m of permanent water sources (lakes),
> b) is within 300 m of secondary water sources (streams),
> c) has elevated topography,

d) has pockets of sandy soil.

> Furthermore, the known cultural history of northwestern Ontario indicates that there is a potential for the discovery of heritage resources related to subsistence and habitation of past people.
>
> Inspection of the proposed Springpole Lake Gold project indicate areas of archaeological potential as well as areas with no archaeological potential. The proposed camp location and air strip exhibited areas of low archaeological potential being located inland, on rocky terrain areas inundated with water as a result of poor drainage. Little or no soil deposition suggests that the areas would not have been favourable for any human activities in the past. Similarly, the potential barge launching areas exhibited low archaeological potential. It is recommended that no additional work in these areas.
>
> Potential waste site, as well as the potential dam abutment locations will require additional stage 2 investigations. Although not all potential dam abutment areas exhibited high archaeological potential, of all of the eight areas inspected, two had high archaeological potential. It is recommended that these two areas be investigated with stage 2 archaeological assessments to determine the presence of archaeological materials. As well, the proposed waste site location (as outlined in red in Figure 2 [of the original report]) should undergo additional stage 2 archaeological investigations. Any roads and impacted shoreline should also be subject to archaeological screening as well as First Nations engagement.
>
> It is recommended that testing should adhere to the 2011 Standards and Guidelines for Consultant Archaeologists sections 2.1.2 and 2.1.3 Testing in Eastern and Northern Ontario to ensure that any potential archaeological resources be properly documented, if found.

We note that the reference made to the MHSTCI S&Gs is to an earlier version and does not align with the current version.

P041-158-2011 (Slattery, Horizon Archaeology Ltd.). The Stage 2 archaeological assessment reports prepared by Elder (Horizon Archaeology Ltd.), identify a Stage 1 report prepared by this firm / archaeologist. MHSTCI staff have indicated that the Stage 1 report has been submitted but requires extensive revisions to conform to the ministry requirements. The licensee subsequently did not renew their licence and the report revisions are not expected to be completed. At this point the report is not available for review. However, a summary of the Stage 1 report recommendations is provided in two Stage 2 reports that flowed from this effort.

The report for P335-015-2012 presents the recommendations of the Stage 1 assessment as:

- … the access corridor was classified as high archaeological potential, as it travels along high ground that divides bodies of water of varying sizes, and there were three areas that are located within 150 m of a water source. It was recommended the entire corridor undergo a Stage 2 Test Pit Survey, based upon the Standards and Guidelines for Consultant Archaeologists Standard 2.1.5: Alternative strategies for special survey conditions: Test pit survey in northern Ontario and on Canadian Shield terrain.

The Stage 2 report for PIF P335-016-2012 summarises the work undertaken for the Stage 1 assessment as:

> A Stage 1 Archaeological Assessment was undertaken … for the entirety of the project Area (Slattery 2012). No site visit was undertaken. Any territory within 150 metres of a source of waterways classified as high-potential [sic] based upon the Standards and Guidelines for Consultant Archaeologists Standard 2.1.5.2c (2010:17).

The report also summarises the recommendations as follows:

- [In the report for PIF P041-158-2011], any territory within 150 metres of a source of water was classified as high potential, based upon the Standards and Guidelines for Consultant Archaeologists Standard 2.1.5.2c (2010: 17) … [Therefore, it was] recommended that the parts of the project area identified as being of high archeological potential would require a Stage 2 Test Pit Survey, based upon the Standards and Guidelines for Consultant Archaeologists Standard 2.1.5: Alternative strategies for special survey conditions: Test pit survey in northern Ontario and on Canadian Shield terrain (2010: 16).

The criteria used in evaluating archaeological potential may rest on a misinterpretation of the S&Gs, to identify a larger than required area as holding potential, perhaps as a way of applying a precautionary approach. Map 3 in the report for PIF P335-016-2012 shows areas of archaeological potential (Figure 3). These areas may be the potential areas defined by the Stage 1 assessment.

P335-015-2012 (Elder, Horizon Archaeology Ltd.). A report entitled Stage 2 Archaeological Assessment of Springpole Mine Access Corridor, Unorganized Red Lake Mining District Casummit Lake Area within Trout Lake Forest Management Plan District of Kenora, has been submitted to MTCS and accepted. The study area for this assessment was focussed on an area south and east of the eastern end of Birch Lake on the alignment of a proposed winter or all-season road.

Recommendations from this Stage 2 assessment report are:

1. The Caprenter [sic] Site (EiKb-3) is of cultural heritage value or interest and undergo a Stage 3 Archaeological Assessment.

2. This Stage 3 Archaeological Assessment should follow the methodology outlined in Table 3.1 "Intact sites found in undisturbed contexts" of the Standards and Guidelines for Consultant Archaeologists (2010:30).

3. All other parts of the project area require no further assessment.

The report also notes that the identification of an archaeological site at or near the Birch River crossing resulted in the realignment of the roadway further from Springpole Lake to ensure the protection of the site. The assessment area for this work is not near the subject property for the present assessment (Figure 4).

P335-016-2012 (Elder, Horizon Archaeology Ltd.). A report entitled Stage 2 Archaeological Assessment of Gold Canyon Mine Phase 1 - Unorganized Red Lake Mining District Casummit Lake Area within Trout Lake Forest Management Plan District of Kenora, has been submitted to MTCS and accepted. The report contains recommendations for additional work on 10 sites identified within the study area. This recommendation represents an existing obligation to the proponent. There is no record of any Stage 3 work being completed on the sites identified. The assessment area is centred on the current Springpole Gold Project area, as well as areas beyond the present subject property (Figure 5).

Recommendations from this Stage 2 assessment report are:

1. The following archaeological sites have cultural heritage value or interest and require further Stage 3 Site-Specific Assessment:

Twin Lakes I	Dole Lake 3
Twin Lakes II	Dole Lake 8
Birch Creek Portage I (EiKb-5)	Birch Lake 2
Birch Creek Portage II	Birch Lake 4
Dole Lake 1 (EiKb-8)	Birch Lake 8

2. The Stage 3 Assessment should follow the Standards and Guidelines Table 3.1: Standards for determining the location and number of test units: Small pre-contact and post-contact sites where it is not yet evident that the level of cultrual [sic] heritage value or intrest [sic] will result in a recommendation to proceed to Stage 4.

3. All other areas assessed in 2012 should be cleared of any further archaeological concerns

Of the sites recommended for additional Stage 3 assessment only the site named Twin Lakes II appears to be in proximity to the proposed development. Depending on the detailed plans for the development, a few of the other sites may be involved and require additional archaeological work. As noted, the report is unclear regarding the extent and intensity of the Stage 2 archaeological assessment within the area currently proposed for development at the Springpole Gold Project.

P236-0153-2020 (Hinshelwood, Northwest Archaeological Assessments). A report titled Stage 1 – 2 Archaeological Assessment of the Proposed Birch River Crossing, Wenesaga Road, Springpole Lake, District of Kenora, Ontario, has been submitted to MHSTCI, and review is pending. The report assessed a planned alignment for the Wenesaga Road within an area evaluated as holding archaeological potential by the GIS-based archaeological predictive model developed by MNRF for application to forest management planning areas (Figure 6). The proposed road and crossing passed close to one archaeological site, EiKb-3. Fieldwork within the alignment did not identify any archaeological resources, and it was inferred that the site was at least 20 metres to the north and separated from the proposed road by a steep bedrock step of about two metres.

As a result of the archaeological assessment, including background study and property inspection, the following recommendation were made:

1. On the basis of the inspection and assessment completed for the subject property, no archaeological resources have been identified and no further archaeological assessment work is required.

2. One registered archaeological site lies to the north of the crossing, on the east side of the Birch River. A 20-metre buffer from the site boundary has been flagged. No operations involving soil disturbance, including vegetation removal, should be carried out north of this line.

3. Should disturbance or construction activity require an encroachment into the 20-metre buffer area, the requirement for Stage 3 site-specific assessment, as recommended in the report for the site (P335-015- 2012) must be addressed prior to carrying out this work.

This assessment raised awareness of the assessment and sites reported under PIF P335-015-2012 which were not available to MNRF when preparing the archaeological potential model output for inclusion in the FMP.

Proximity to water

The subject property is centred on a large bay at the western end of Springpole Lake (Map 4).[12] In addition, a number of mapped watercourses are indicated draining into Springpole, and a number of smaller waterbodies are present inland from the lake. As directed by the S&Gs, Sections 1.3 and 1.4, the subject property holds archaeological potential based on proximity to water.

Section 1.4.1 notes that areas within 300 metres of water cannot be exempted from a requirement for Stage 2 assessment. This distance constitutes a 'broad brush' evaluation of archaeological potential which serves properties in some parts of the province well. In acknowledgement of regional conditions, Section 2.1.5 of the S&Gs permit the reduction of the area requiring Stage 2 assessment to 50 metres from an existing water source in northern Ontario. This acknowledges terrain conditions, the extensive network of waterways in northern Ontario, and the challenges sometimes faced in more remote locations. The focus of occupation on water lead to the area evaluated as holding archaeological potential for a property being reduced; however, it is important to note that testing must extend beyond this 50-metre zone if local conditions, local knowledge, or background research suggest that testing should extend further inland from the shoreline.

Archaeological potential may also be evaluated for areas where former water bodies are reported. Background research did not identify any sources indicating that relict water features (post-glacial lakes, etc.) leading to the creation of habitable locations are present. The terrain of the subject property area is an area of thin ground moraine veneer over bedrock, interspersed with areas of exposed bedrock and areas of irregular drainage.

Elevation and slope

As noted above, the 'height of land' between the James Bay and Lake Winnipeg drainages is relatively level. The topographic position of the subject property has created complex drainage conditions. Topographic relief is low, with elevation on the subject property varying less than 30 metres across the property. Elevations range between approximately 385 and 400 m asl.

The S&Gs identify a number of landforms that may contribute to archaeological potential such as drumlins, eskers, cliffs or plateaux. Drumlins and eskers are absent from the subject property. Topographic mapping, aerial imagery and property inspection noted that many shoreline areas are characterised by steep slopes, either sloping smooth bedrock with or without moss or forest cover. These steeply sloped areas hold low archaeological potential. Plateaux and level areas within otherwise sloped terrain may, especially where pockets of well-drained soil are present, hold archaeological potential.

As the S&Gs note, steep to near-vertical rock faces hold potential for pictographs to be present. Areas adjacent to shorelines, and inland from shore that are low and continuously wet hold low potential, while level areas of well-drained soil hold potential.

[12] This report assumes that Springpole Lake is the long, narrow east to west trending water body, and that the subject property occupies a northern bay to this lake. It is reasonable to assume that the lake is, in fact, the bay and that the long narrow section is an eastern bay or arm.

Quaternary and surficial geology

Quaternary geology of the general area is an area of undifferentiated till overlying bedrock to variable depths. (Map 5). This terrain unit is surrounded by an extensive area of exposed bedrock with thin to no soil cover. Surficial geology of the area shows the subject property lying within an area of differentiated and undifferentiated ground moraine, with a notable esker ridge to the northeast (Map 6). The area is broadly bounded by the Sioux Lookout moraine (circa 10,000 years B.P.) to the west and the Arguta moraine (undated, but approximately 9,200 BP) to the east. The dates of these moraines suggest that the area would have been ice covered until about 9,500 years B.P, and likely unavailable for occupation until perhaps 8,000 years B.P.

This part of northern Ontario would have been deglaciated fairly rapidly *circa* 9,000 years B.P. (Zoltai 1965; Dyke 2004). The depression of the relatively level terrain in the area would have supported the development of long-lived pro-glacial lakes along the margin of the ablating ice sheet suggesting that no archaeological resources dating to before perhaps 8,000 years B.P. would be expected in archaeological survey.

The subject property is situated in a broad area of bedrock overlain by a till veneer of varying depth (Maps 5 and 6). Eskers are not noted in the subject property, but are relatively common to the east, toward Cat Lake. DeGeer moraines are mapped north and south of the subject property. Thin till veneer has been washed from underlying bedrock leaving extensive areas of exposed bedrock with occasional boulder erratics and lightly sorted soils in topographic lows.

Historic Land Use

The S&Gs allow for consideration of early transportation routes and habitation sites in the evaluation of archaeological potential. In northern Ontario, this consideration must look beyond the usual considerations of farmsteads, forts, roads and railways to consider patterns of land use that might inform the evaluation of potential.

The subject property occupies a position on a significant travel route traversing this part of northwestern Ontario. Travel on the route would have been conducted to address traditional interests, such as hunting, trapping, gathering and social and cultural interaction. The significance of the route may be inferred from the location of a pictograph on Springpole Lake in addition of the interconnectivity to the route provides between the Lake Winnipeg drainage basin and the Albany River route to James Bay. North to south connectivity is also supported through various waterways, including a route through Cat Lake to the Severn River. The fur trade and related commercial activity during the contact period is unlikely to have led to a significant change in the use of the waterways as travel routes. Following the signing of the 1905 Treaty No. 9, exploration related to economic minerals would have also relied on existing waterways. This is specifically described in an early geological report by Thurston (1986).

Beginning in the 1730s, following the lead of LaVerendrye, who obtained a licence to trade west beyond Lake Superior, a range of itinerant traders began to operate in the northern Ontario interior. Lytwyn (1986) notes a number of passing mentions by traders who maintained journals of posts, or relic of old posts encountered during their travels through the area. Initially, the "Little North" as the region was called, was the trading hinterland for Fort Albany, on James Bay, and the Montreal posts situated on Lake Superior and Lake Nipigon. However, in the mid-18th Century the competing groups began to

move inland to set up a series of small posts to either trade directly with or encourage trading parties to continue travelling to their main posts. The early inland posts of Henley House (1743) and Gloucester House (1777) were established, in part, to recapture trade that had been diverted to Montreal by Northwest Company traders at Osnaburgh. The 'Canadian' traders had a different pattern of inland trade than the HBCo, relying on a larger number of "often temporary" posts in the interior, positioned to intercept trading parties destined for the Bay (Rich 1958). The success of these posts is described by HBCo officials as trading almost the same volume as the bayside posts, a serious challenge to the Company (Rich 1958; cf. Ray 1974; Ray and Freeman 1978). In his journal, Umfreville (1784: Douglas 1929) describes a route between Pays Plat on Lake Superior, through Lake Nipigon and Lac Seul, terminating at Lake Winnipeg. While passing through Lac Seul, Umfreville mentions several abandoned trading posts, and traders travelling from the area to Fort Albany. The route would have taken them through Lake St. Joseph to the Albany River and James Bay. While Umfreville's route passed south of the study area, traders from Slate Falls and Cat Lake would likely have also used this route.

By 1784 travel to Fort Albany may not have been required. James Sutherland, a Hudson's Bay Co. trader noted that 'Canadians', or Montreal traders, had already established wintering posts at Pashkokogan, Nipigon and Springpole Lakes to capture Fort Albany trade (Lytwyn 1986). The route between Lake Nipigon, Pashkokogan and Springpole was referred to as the "Canadian route," and was a significant threat to the Albany trade. In 1785 it was noted that the Canadian traders had abandoned their post at Pashkokogan Lake to consolidate their efforts at Springpole Lake, and in 1786 Osnaburgh House was opened on Lake St. Joseph. By 1788 interior trade was growing and a post was established at Cat Lake to capture trade that may have been directed towards Fort Albany or other competitors. It is interesting to note that while Springpole Lake was a key location in the Canadian trader's competition with the HBCo, the route to Cat Lake from Lake St. Joseph was not well known. Cat Lake trade was generally conducted at Fort Severn, further north. During this period the trade posts were not permanent establishments. In 1792 Canadian traders are reported as 'reopening' their wintering posts at Springpole and Cat Lakes. Overall, the Canadian post at Springpole Lake operated before between 5 and 15 years. This was later followed by a short-lived (<5 years) HBC post sometime after 1806. Both Canadian traders and HBC had posts at Cat Lake for over five years in the 1780s, and Montreal traders resumed trading there for a time after 1806. In addition, a post was constructed by the HBC sometime after 1815 and before 1856, and the post was still operating in the 1920s (Voorhis 1930). Other posts in the region include posts at Red Lake (1786), Lac Seul (1815 and 1872), Trout Lake (before 1869) (Voorhis 1930).

Contemporary knowledge of the interior trade posts and travel routes can be seen in Alexander Mackenzie's map, published 1801[13] and based on his voyages of 1789 and 1793. Mackenzie passed through the area along the north shore of Lake Superior and then to Lake Winnipeg through the Boundary Waters. The map to accompany his book on his travels holds a few interesting features of interest to the present report. First, he clearly sets out the three key travel routes from the area to the Albany and Severn Rivers, as well as the route through Lac Seul to the English River. Second, the map marks the height of land running between Lac Seul on the west, and Lake St. Joseph and "Catt Lake" on the east. The map does not include Trout Lake to the west which makes it seem as though the height of land was an area where the traders, at least, did not travel. The third interesting feature of the map is the inclusion of regional fur trade posts. Regional posts include Cat Lake House, Osnaburgh House, Red Lake House (Figure 7).

[13] Mackenzie, A. 1801. Voyages from Montreal Through the Continent of North America to the Frozen and Pacific Oceans in 1789 and 1793.

Based on the position of Springpole Lake as a key location in the 18th century fur trade in northwestern Ontario, the subject property holds a higher than normal potential for fur trade related archaeological resources to be present. It is important to note that the locations of the wintering posts and other minor facilities on the lake are not known.

Given that the fur trade travel routes were built on traditional travel routes long used by Indigenous people, it is important to remain aware that a diversity of archaeological resources may be present. Springpole Lake presents as part of a significant travel route connected to Lake St Joseph, the English River, and the Severn River.

Cabins and Portages

Several cabin and portage locations are marked on an early 20th century map of Springpole and Birch Lakes (Figure 8; Harding 1936). The cabins and portages represent built heritage (where cabins survive) resources and elements of the cultural landscape. The cabins (where they are no longer standing) and portages also mark locations of potential archaeological value. Stage 1 property inspection did not include a comprehensive survey of the cabin and portage locations due to time limitations; however, recommendations to carry out additional investigation of these important locations are made in this report.

Five cabin locations are shown on the 1936 map of Springpole Lake that are located within seven (7) kilometres, measured from the current operations base, of the Project. One, located at the operations base, lies within the subject property and is associated with a named claim (Dunkin). This cabin is associated with two portages, east and west of the cabin, leading north into Birch Lake. Two cabins are mapped on Springpole Lake, seven kilometres southeast. They are on the main channel of Springpole Lake, and relatively close to the proposed tailings facility. The cabin on the north shore is associated with a named claim (Dole). A cabin is also mapped at the inlet to Springpole Lake from Cromarty Lake and a portage, about seven kilometres to the southwest. This cabin was mentioned by First Mining Gold field staff as a property that had been occupied by a long-term resident at the lake. Additional information will be sought as part of the cultural landscape report for the Project. The fifth cabin is located at the southern end of Wagner Bay in Birch Lake, associated with a named claim (Wagner Melanson). This cabin is about five kilometres from the current operations base. It is of interest as it is mapped in association with two portages between Springpole and Birch Lakes, and a trail leading south.

Other criteria

The S&Gs Section 1.1, guideline 1 notes that the background study may also include information from other relevant sources, including:

- Aboriginal communities, for information on possible traditional use areas and sacred and other sites on or around the property (see the draft bulletin on *Engaging Aboriginal Communities in Archaeology* for guidance in effectively engaging Aboriginal communities), [and];

- Individuals with oral or written information about the land use of the property and area (e.g., the proponent, professional and avocational archaeologists, municipal heritage planners, local residents). [14]

We note that the background study as originally proposed was to include engagement during the 2020 field season with Cat Lake First Nation, Slate Falls First Nation and Lac Seul First Nation for the purpose of reviewing the purpose and methodology of the Stage 1 assessment, and to discuss how community knowledge of the subject property and environs might inform or refine the evaluation of archaeological potential. Meetings with community representatives, either at the Project site or the communities was envisioned as a means of developing lines of communication and for gathering information of value to the archaeological assessment.

Unfortunately, the Covid-19 pandemic led to strict controls on travel to the communities by non-residents, and for travel from the communities for non-essential purposes. Remote engagement and data gathering were not pursued for a variety of reasons. Primary among these was the limitations presented by existing technology, and the relatively low priority of archaeological assessment in the face of a significant health emergency.

With regard to the other criteria listed in the S&Gs, there are no additional features that might indicate archaeological potential in the subject property. There has only been limited ground disturbance or other factors removing archaeological potential (S&Gs Section 1.3.2). Specifically, archaeological potential has been removed at the current operations centre (Map 7).

Archaeological potential

Areas evaluated as holding archaeological potential will require Stage 2 property assessment, unless Stage 1 property inspection shows them to hold low archaeological potential. On the basis of the background information available, a preliminary evaluation of archaeological potential is made for much of the subject property on the basis of landscape characteristics and historic conditions.

Preliminary areas of archaeological potential include all areas within:

- 300 metres of modern water sources within the subject property (S&Gs Section 1.4.1, s. 1(c));
- 300 metres of previously identified archaeological sites (S&Gs Section 1.4.1, s. 1(c));
- 300 metres of areas of early Euro-Canadian settlement, and;
- 100 metres of early historic transportation routes (S&Gs Section 1.4.1, s. 1(d)).

At Stage 2, assessment of these areas can be modified where a property inspection has identified conditions that do not support the evaluation of potential. As the subject property is located in northern Ontario and on the Canadian Shield, reductions are also permitted by S&Gs Section 2.5.1, s. 1. Under this direction, areas evaluated as holding archaeological potential and requiring Stage 2 testing based on proximity to water may be reduced to 50 metres from water, rather than the 300 metres prescribed in Section 1.4.1.

[14] It is generally accepted that *First Nation* communities hold extensive knowledge of Traditional territories that includes sacred sites, resource and traditional use areas, and archaeological and historical sites. This knowledge is contextualised within an understanding of the wider landscape. The knowledge may be held at the community level or by specific individuals.

Stage 1 Property Inspection

The Stage 1 archaeological assessment included a property inspection centred on a review of the landscape conditions to determine if any features are present that would support an evaluation of archaeological potential for the subject property. In consideration of the direction found in the S&Gs, Section 2.1.5, Stage 1 property inspection was centred on the first 50 metres from water features, specifically the lake and any streams identified. The inspection considered both the local terrain conditions (i.e. slope), the nature of any ground disturbance resulting from historic fire/windthrow events, and the presence of soil sufficient to excavate a test pit (a consideration for recommendations for Stage 2 assessment).

Property inspection was conducted on July 26 to August 1, 2020 under PIF P236-0141-2020. The inspection included a visual review of most of the shoreline areas within the subject property. The inspection was sufficient to confirm the distribution of disturbance at the property, and the nature of the soils and local terrain. Property inspection proceeded by boat and on foot for the entire subject property (Map 7). Permission to enter was provided by the proponent. Photographs were taken as part of the inspection (Map 8).

Weather during the inspection was pleasant, with light overcast skies and temperatures of around 28° Celsius. Weather and lighting conditions did not have an adverse effect on the property inspection.

Site Conditions

The Stage 1 assessment was focussed on areas associated with major components of the Project: the open pit, stockpile and crusher, process plant and mine rock storage. The open pit is proposed for the dewatered portion of Springpole Lake in the north bay of Springpole Lake, so shorelines within this bay and the island were reviewed during the property inspection. Mine rock facilities will engage shorelines on the north bay, as well as several small water bodies, and the waterway associated with the historic portage east of the current operation centre. The proposed tailings management facility, transmission line, access road and aggregate sources were not considered as part of the 2020 fieldwork.

The Stage 1 assessment area is approximately 1,000 hectares. The Stage 1 archaeological assessment focussed on those parts of the Project that are centred on the north basin of Springpole Lake. Specifically, desktop study and property inspection were completed for the open pit, stockpiles, process plant and mine rock areas in 2020 (Map 4). The proposed tailings management facility is located at a generally inland area that includes several small waterbodies. The proposed transmission line, access road and aggregate sources were not considered as part of the 2020 fieldwork.

The property is accessible from the late spring and early fall by floatplane direct to Springpole Lake from Sioux Lookout. A primary forestry road being constructed within the Trout Lake Forest (MU120) will provide road access to the eastern end of Springpole Lake, reducing travel time and supporting reliable access. Access to the property during the assessment was by boat.

Currently, the subject property is forested with mature conifer-dominated stands that vary in size and composition based on local soil and moisture conditions. The terrain generally shows low relief, but is

variable at the site level, ranging between moderate to steeply sloped bedrock to low, moist to wet sites. Strong soil development in present in dispersed locations where glacial deposits are relatively thick over bedrock.

Disturbance is limited to areas of past or current exploration and development activity. Disturbance is present at the operations centre at the northern end of the bay (Map 7), and at locations around the bay where machine trails and drill sites have been constructed. A small number of locations on the bay have been subject to light development where outpost camps have been built. These generally consist of small buildings, trails and shoreline facilities.

Observations

Terrain at the subject property is of a few general types, and each type relates to the archaeological potential of locales within. The surface expression of the underlying bedrock varies between three types: areas with massive, uniform bedrock, areas with fragmented, laminated bedrock, and areas where bedrock was buried beneath post-glacial materials. Soils are generally thin to absent. Interior sites are normally dry, although some areas are low and wet. While the overall relief within the subject property is relatively low, local terrain shows variation between moderately to steeply sloped, to relatively level. Given that the evaluation of potential is largely oriented towards water, shoreline form is important. While a small number of sand beaches were noted, shorelines were mostly sloped bedrock, or low slope approaches thick with fragmented bedrock.

Areas with massive, uniform bedrock were noted along the shores of Springpole Lake in several areas. There are two aspects to this that influence the evaluation of archaeological potential. At the shore, bedrock may present a difficult landing for watercraft due to slope (Figures 9 and 10), or its association with rock hazards in the water near the shore (Figure 11). Low slope bedrock may allow for watercraft landing (Figure 12). The second aspect is the terrain behind the shore. In many instances, the steeply sloped shore continues inland, and is coupled with thin to absent soil (Figures 13 and 14). In other instances, the steeply sloped shore yields to level terrain a short distance inland (Figure 15). It is worth noting that areas that appeared to level off inland, were often small and domed, dropping away further from shore (Figure 16).

Low and rocky shorelines were noted at various locations, backed by one of two types of terrain. Low slope shorelines are seen as intermediate between the bedrock shorelines and low sandy or swampy shorelines. Low slope shorelines were noted in combination, or adjacent to bedrock shorelines (Figure 17). In places, topographic lows inland areas marked by rocky, weed-choked bays between smooth bedrock outcrops (Figure 18), with the sloping bedrock continuing inland around the rear of the small bays. In other cases, the transition from bedrock to low shore is abrupt (Figure 19). A south-facing shoreline on the west side of the lake is marked by a complex of steep bedrock rising from the water, and stretches of low, shallow bedrock and fragmented rock in shallow water (Figure 20). In low-slope shoreline areas, minor sand beaches generally end in fractured bedrock (Figure 21) with or without boulders (Figure 22). These level but rocky, sections are possibly the predominant form, and often support dense shrub and grass growth within the first 25 metres from shore (Figures 23 and 24). Low and rocky shorelines are not free of navigation hazards, with the stoniness continuing into the water at the shore (Figure 25).

Sand beaches were uncommon on the lake and, not surprisingly, often associated with contemporary outpost camps (Figure 26). Beaches were generally narrow (under 25 metres), with varying density of boulder or exposed bedrock present. Some beaches were essentially bar formations, with the beaches forming the lakeward edge of broader marsh areas (Figure 27). Others were backed by extensive cobble beds with silty-sand or clay-rich soil (Figure 28) before rising to typical interior conditions (Figure 29).

Some low slope shorelines were neither rock nor sand but marked the embouchure of small streams. At the shore, these outlets were indistinct (Figure 30) where the stream drained into a flat area of cobbles and bedrock. There are few streams, each marking quite small watersheds, and they are small, rarely in excess of one metre in width (Figure 31). For many streams, the streams do not flow through erosional valleys, but simply convenient low areas in the bedrock (Figure 32).

The configuration of interior areas varies between low or irregular and wet (Figure 33), level (Figure 34), and moderately to steeply sloped (Figure 35). It was not always immediately apparent what lay beneath forest vegetation, although it could be assumed from the overall forest cover of an area. For the most part, the underlying material is either bedrock (Figures 36 and 37) or variable depths of glacially derived soils (Figure 38). In addition, the presence, density and distribution of cobbles or fractured bedrock has an impact on how level or hummocky the ground surface will be (Figures 39 and 40). Some interior areas reveal relatively level terrain formed on post-glacial materials, some of which appear to have been water sorted.

Disturbance in the subject property is limited. Areas around the operations base (Figures 41 and 42) show extensive and intensive disturbance. It is unlikely that any archaeological resources that may have been present remain intact at the base. Throughout the subject property, small patches of local disturbance related to geotechnical drilling (Figure 43) and machine trails (Figure 44) are present. Disturbance in these areas is localised and only affects archaeological potential in the immediate area of the disturbance. Slightly larger areas of disturbance were noted in areas of earlier geotechnical drilling associated with sand pits (Figure 45). Further disturbance was noted where contemporary outpost camps have been built. These camps typically consist of a main building serving as a bunkhouse and kitchen, with an assortment of outbuildings, such as sheds, cleaning stations, outhouses and docks. Minor disturbance would also have occurred where boats were pulled onto land at the end of each season.

In summary, the subject property is generally undisturbed, except at the Project operations centre. The operations centre has been extensively and intensively disturbed. Areas adjacent to water, that are undisturbed, appear to hold variable potential for archaeological resources to be present. The basis for this variability is the terrain, ranging from level to steeply sloped, soil, ranging from exposed bedrock to deep silt-sand soils, and site moisture and other variables. There are few areas of any size characterised by level, well drained soils near water sources.

Record of Finds

Stage 1 assessment included a desktop review of available resources and property inspection. No test pits were excavated, and the work did not result in the recovery of archaeological materials. A number of documentary materials were acquired, as noted below. As there were no finds, an artifact catalogue was not prepared. Documentary records for this assessment include the following:

Table 2: Documentary records associated with P236-0141-2020.

Documentation	*N*	*Description*	*Location*
Photographs	379	digital images	digital storage
GPS readings	107	property, context	digital storage
Notes	5	page of notes	digital storage
Report	1	copy (.pdf)	digital storage

Surface finds made during the Stage 1 property inspection include the pictograph site on Springpole Lake (see Supplementary Documentation) and a survey or boundary marker made using an old drill (Figure 46). Property inspection also examined one portage location within the subject property where a variety of mid-20th century refuse was noted on the surface (Figures 47 to 50). While these features contribute to the overall evaluation of archaeological potential, they are considered aspects of the cultural landscape of the Project area and are reported more completely in a cultural heritage report prepared separately.

Analysis

Stage 1 archaeological assessment was carried out for the subject property, including background study and property inspection (Map 7). Background study reviewed the areas assessed and results of assessment under the previous archaeological assessments, identifying areas of overlap between those studies and the present subject property. The results of these previous assessments were considered in developing the field program for the property inspection, and in the analysis of the results of this Stage 1 assessment. The Ontario Archaeological Sites Database (OASD) was also reviewed to gather additional information on archaeological sites registered as a result of these assessments, or earlier work. This review indicates that the small amount of archaeological research on Birch and Springpole Lakes has resulted in a very small number of sites being registered; however, the sites that have been registered, in particular the Potato Island site (EiKc-1), suggest that archaeological resources dating to at least the archaic period are present.

The background study also reviewed documentary resources with a specific or general focus on the subject property, Birch or Springpole Lakes. The historical documentation available for review indicated several features of the landscape that factor into the analysis, conclusions and recommendations arising from this assessment. These include information on activity in the area during the early fur trade, and the importance of Birch and Springpole Lakes in regional travel. Travel to the north and the Severn River, to the east and the Albany River, south to Lac Seul and west by way of the English River is relatively straightforward from the subject property.

Stage 1 property inspection noted that the landscape characteristics of the subject property were of a few general types. In some areas, soil was thin or absent and bedrock exposures extensive. Bedrock varied between smooth (massive) and fractured (laminated). In bedrock areas, the terrain was generally sloping, often steeply in areas of smooth bedrock, and in a more stepped fashion in areas of fractured bedrock. Where it met the lake, the nature of the bedrock determined nature of the shoreline, with most of the smooth bedrock marked by steep shores, and fractured bedrock resulting in low, often jagged landings. Inland, bedrock also contributed to the local terrain and forest cover, with areas of sloping terrain, or highly irregular, hummocky terrain common. These conditions often extended beyond 50 metres from the lake's edge.

In other parts of the subject property, glacially derived soils cover bedrock to varying depths. Where the soils form a thin mantle over bedrock, the local terrain mimics the configuration of the bedrock. Thicker soils, noted especially on the eastern side of the subject property, are generally level inland, although frequently hummocky. These areas have also experienced greater levels of local disturbance where borrow pits have been operated. Shoreline areas are often marked by abundant boulders, released from the till by waves and erosion.

Archaeological potential is also influenced by registered or reported archaeological resources on or near the project area. Additional Stage 2 work will be required to relocate and accurately delineate archaeological resources that may be adversely impacted by the developments proposed for the Springpole Project.

Stage 1 archaeological assessment conformed to the direction in the S&Gs. The Stage 1 property inspection was informed by the S&G direction in Section 2.1, s. 2, and Section 2.1.5.

The Stage 1 archaeological assessment, including background study and property inspection indicates that parts of the subject property include areas of archaeological potential. Of an approximate area of 1,000 hectares, 99.9% of the terrestrial area within 50 metres of water is evaluated as holding mixed or complex archaeological potential (cf. S&Gs Section 2.1.5).[15] In addition, under three (3) hectares (0.3%) is noted as being extensively and intensively disturbed with all archaeological potential removed (S&Gs Section 1.3.4). We note that the evaluation of archaeological potential may be revised in Stage 2 with Indigenous engagement.

[15] The portion of the subject property lying beyond 50 metres inland from water bodies, and the portion of the subject property that is water has not been calculated for this report. Implicit in the work reported here, no recommendations concerning marine archaeological resources are being made.

Conclusions – Stage 1

From the review of background information and property inspection completed, the following marks the baseline for archaeological resources within the Springpole Gold Project area:

- There are currently no registered archaeological sites within the project area,
- A small number of registered or reported archaeological sites are adjacent to the project area,
- Only limited information is available on these sites from normal sources,
- Mixed or complex archaeological potential is evaluated for areas within 50 metres of water,
- Higher archaeological potential exists in area of level terrain, finer grained soils, and at portages,
- Low archaeological potential exists in areas of intensive and extensive soils disturbance.

As the subject property is centred on north basin of Springpole Lake, areas adjacent to the lake hold mixed or complex archaeological potential; however, within these areas, low potential may be ascribed to areas of steeply sloped terrain, low and wet terrain, exposed bedrock, or extensive and intensive disturbance. Smaller water sources inland from Springpole Lake may hold archaeological potential.

We feel that the analysis leading to this conclusion satisfies the conditions set out in S&Gs Section 1.3, and Section 1.4.1. The results of the property inspection and background study are presented in Map 7. Areas of archaeological potential for which Stage 2 property assessment is recommended are shown in Map 9.

For areas of mixed or complex archaeological potential, and areas proximate to registered or reported archaeological sites, Stage 2 property assessment will be required to verify the evaluation of potential and to locate any significant archaeological resources that may be present. In our evaluation of archaeological potential, we have included areas adjacent to the major water sources (Springpole Lake), as well as the smaller, mapped streams and ponds inland from the large lake. Stage 2 will determine the nature of the water source at the time of fieldwork and test any areas of potential that are associated. Archaeological potential is also evaluated for the historic portage and cabin location at the Birch River mouth, a possible location for the early trade post on Springpole Lake. Local areas inland from water sources may have seen use for seasonal hunting, trapping or plant collection elevating archaeological potential in these areas, but archaeological field techniques may be insufficient to identify resources under normal circumstances.

Fieldwork in support of this Stage 1 archaeological assessment was completed in 2020. Participation of Indigenous community members was not possible due to Covid-19 restrictions on travel. Therefore, the conclusions and recommendations made in this report may change once the assessment results have been reviewed with affected Indigenous communities. Information gained through engagement will be incorporated into Stage 2 and subsequent work.

Recommendations

As a result of the archaeological assessment, including background study and property inspection, the following recommendation is made:

1. The subject property includes extensive areas evaluated as holding mixed or complex archaeological potential. For these areas, Stage 2 property assessment is recommended. The Stage 2 assessment must conform to the direction set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 2.1, 2.1.2, 2.1.3 and 2.1.6.

2. As the property is located on the Canadian Shield and northern Ontario (S&Gs Section 1.3.3, s. 1 and s. 2), it is recommended that fieldwork for the Stage 2 property assessment conform to the direction set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 2.1.5.

3. It is recommended that as part of the Stage 2 fieldwork, the methodologies and results of the Stage 1 evaluation of archaeological potential, and the fieldwork strategies proposed for Stage 2 are reviewed with representatives of the affected First Nations. New information arising from this review should be considered in the fieldwork, and the field crew staffed by First Nation members, wherever possible.

4. It is recommended that archaeological sites registered or reported in earlier assessments to the north and east of the subject property be relocated, registered with MHSTCI, and appropriate recommendations (S&Gs Section 7.8.4, s. 1) and protective buffers (S&Gs Section 7.8.5, s. 1(e)(i)) established.

5. Areas of extensive and intensive disturbance, specifically the current operations base on Springpole Lake, are considered to hold low archaeological potential and it is recommended that no further archaeological work is required in these areas prior to development.

Advice on compliance with legislation

Advice on compliance with legislation is not part of the archaeological record. However, for the benefit of the proponent and approval authority in the land use planning and development process, the report must include the following standard statements:

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. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

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

Should previously undocumented 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 require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Reports recommending further archaeological fieldwork or protection for one or more archaeological sites must include the following standard statement:

> "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 licence."

Bibliography and Sources

Barnett, P.J., A.P. Henry and D. Baubin. 1991. Quaternary Geology of Ontario, West-Central Sheet. Ontario Geological Survey, Map 2554, scale 1:1 000 000.

Burpee, L.J. 1927. Journals and Letters of LaVerendrye and his Sons. Champlain Society, Toronto.

Conway, T.A. 1977. Whitefish Island - A Remarkable Archaeological Site At Sault Ste. Marie, Ontario. Ontario Ministry of Culture and Recreation, Research Manuscript Series, Data Box 310.

Dawson, K.C.A. 1976. Albany River Survey: Patricia District, Ontario. National Museum of Man, Mercury Series, Archaeological Survey of Canada, Paper 51:52-106.

Dawson, K.C.A. 1987. The Martin Bird Site. Ontario Archaeology 47: 33-57. Ontario Archaeological Society, Toronto.

Dyke, A.S. 2004. An outline of North American Deglaciation with emphasis on central and northern Canada. pp. 373 – 424 in Ehlers, J. and P.H. Gibbard, editors, Quaternary Glaciations Extent and Chronology. Elsevier, Amsterdam.

Dyke, A.S. & Prest, V.K. 1987a. The Late Wisconsinan and Holocene history of the Laurentide Ice Sheet. Geographie physique et Quaternaire, **41,** 237-263.

Dyke, A.S. and Prest, V.K. 1987b. Palaeogeography of Northern North America, 11 400 to 8 400 years ago. Geological Survey of Canada, Map 1703A, scale 1:12 500 000.

Fulton, R.J., compiler. 1995. Surficial Materials of Canada. Geological Survey of Canada, Map 1880A, scale 1:5 000 000.

Hamilton, S. 2004. Early Holocene human burials at Wapakeka (FlJj-1), northern Ontario. *In* L. J. Jackson and A. Hinshelwood, editors, The Late Palaeoindian Great Lakes: Geological and Archaeological Investigations of Late Pleistocene and Early Holocene Environments. Mercury Series, Archaeology Paper 165. Canadian Museum of Civilization, Gatineau, Quebec.

Hamilton, S.J. 2013. A World Apart? Ontario's Canadian Shield. Ch. 5 in Munson, M.K. and S.M. Jamieson, eds., Before Ontario: The archaeology of a province. McGill University Press, Montreal.

Harding, W.D. 1936. Geology of the Birch – Springpole Lakes Area. Ontario Department of Mines, 45th Annual Report Vol. XLV, Part IV. Accompanied by Map No. 45C, Birch – Springpole Lakes Area, District of Kenora, Patricia Portion. Scale 1:63,360.

Harris, R.C. and G.J. Matthews (editors). Historical Atlas of Canada, Volume 1: From the Beginning. University of Toronto Press, Toronto.

Heidenreich, C.E. 1987. Re-Establishment of Trade: 1654 – 1666. Plate 37 *in* R.C. Harris and G.J. Matthews, eds, Historical Atlas of Canada, Volume 1: From the Beginning. University of Toronto Press, Toronto.

Heidenreich, C.E. and F. Noel. 1987a. Trade and Empire, 1697 – 1739. Plate 39 *in* R.C. Harris and G.J. Matthews, eds, Historical Atlas of Canada, Volume 1: From the Beginning. University of Toronto Press, Toronto.

Heidenreich, C.E. and F. Noel. 1987b. France Secures the Interior, 1740 – 1755. Plate 40 *in* R.C. Harris and G.J. Matthews, eds, Historical Atlas of Canada, Volume 1: From the Beginning. University of Toronto Press, Toronto.

Hinshelwood, A. 1984. The Occupation of the Boundary Waters to 1775. MA Thesis, Department of Geography, York University, Toronto.

Hinshelwood, A. 1996. Boreal Forest Fire Ecology and Archaeological Site Formation: An Example form Northern Ontario. Ontario Archaeology 62:63-92.

Hinshelwood, A. 2004. Archaic Reoccupation of Late Paleoindian Sites in Northwestern Ontario. *In* Jackson, L.J. and A. Hinshelwood, eds. The Late Paleoindian Great Lakes: Geological and Archaeological Investigations of Late Pleistocene and Early Holocene Environments. Mercury Series Paper 165, Canadian Museum of Civilization, Gatineau, Quebec.

Koezur, P. and J.V. Wright. 1976. The Potato Island Site, District of Kenora, Ontario. Mercury Series, Archaeological Survey of Canada Paper No. 51. National Museum of Man, Ottawa.

Long, J. 2010. Treaty No. 9: Making the Agreement to Share the Land in Far Northern Ontario in 1905. McGill-Queen's University Press, Montreal.

MacKenzie, A. and W. Coombe. 1801. Voyages from Montreal, on the River St. Laurence, Through the Continent of North America, to the Frozen and Pacific Oceans, in the Years 1789 and 1793, with a Preliminary Account of the Rise, Progress and Present State of the Fur Trade of that Country. T. Cadell, Jnr. And W. Davies, London.

Mason, R. 1981. Great Lakes Archaeology. Academic Press, New York.

Moodie, D.W., V.P. Lytwyn and B. Kaye. 1987. Trading Posts, 1774 – 1821. Plate 62 *in* R.C. Harris and G.J. Matthews, eds, Historical Atlas of Canada, Volume 1: From the Beginning. University of Toronto Press, Toronto.

Perkins, M.E. 1987. Discover Your Heritage: A guide to provincial plaques in Ontario. Published by Natural Heritage/Natural History Inc. for the Ontario Heritage Foundation and Ontario Ministry of Culture and Communications, Toronto.

Pilon, J-L. 1987 Washahoe Inninou Dahtsuounoaou: Ecological and Cultural Adaptation Along the Severn River in the Hudson Bay Lowlands of Ontario. Conservation Archaeology Report 10. 20 Ontario Archaeology No. 74, 2002 Ministry of Citizenship and Culture, Northwest Region, Kenora.

Pilon, J-L and L. Dalla Bona. 2004. Insights into the early peopling of northwestern Ontario as documented at the Allen Site (EcJs-1), Sioux Lookout District, Ontario. *In* L. J. Jackson and A. Hinshelwood, editors, The Late Palaeoindian Great Lakes: Geological and Archaeological Investigations of Late Pleistocene and Early Holocene Environments. Mercury Series, Archaeology Paper 165. Canadian Museum of Civilization, Gatineau, Quebec.

Ray, A.J. 1974. Indians in the Fur Trade: Their role as trappers, hunters and middlemen in the lands southwest of Hudson's Bay, 1660-1870. University of Toronto Press, Toronto.

Ray, A.J. and D. Freeman. 1978. Give Us Good Measure: An economic analysis of the relations between the Indians and the Hudson's Bay Company before 1763. University of Toronto Press, Toronto.

Reid, C.S. 'Paddy', and G. Rajnovich. 1991. Laurel: A Reevaluation of the Spatial, Social and Temporal Paradigms. Canadian Journal of Archaeology 15: 193-234.

Rich, E.E. 1958. The History of the Hudson's Bay Company (2 volumes). Hudson's Bay Record Society, London.

Ross, W. A., A. Hinshelwood and P. Campbell. 1995. The Wolf River Burial (DeJc-2): A Preliminary Report. Annual Archaeological Report Ontario. Volume 6 (New Series): 25-31.

Thurston, P.C. 1986. Geology of the Birch Lake Area, Patricia Portion, Kenora District. Ontario Geological Survey, Open File Report 5607. Ministry of Northern Development and Mines, Toronto.

Voorhis, E. 1930. Historic Forts and Trading Posts of the French Regime and of the English Fur Trading Companies. Department of the Interior, Ottawa.

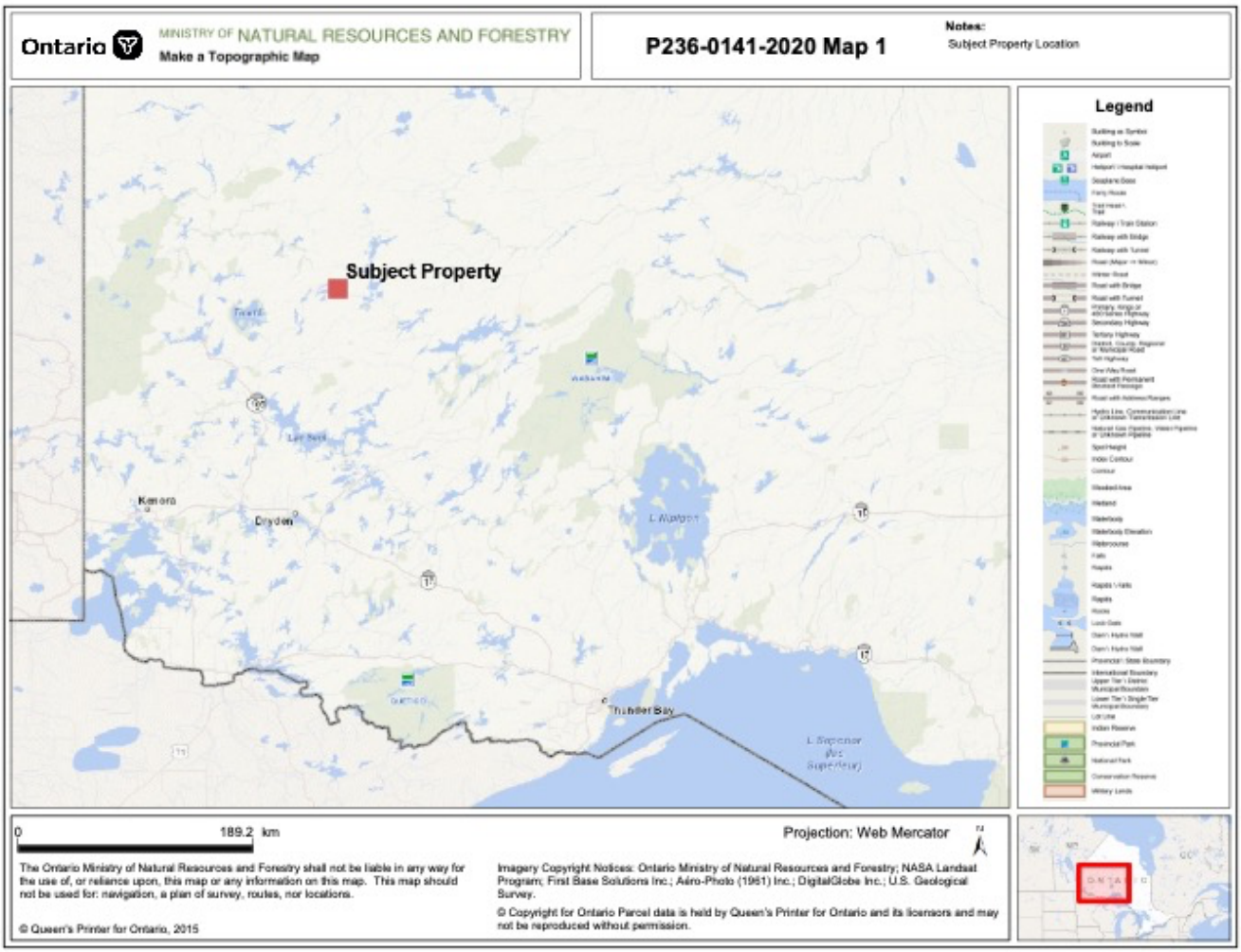
Wright, J.V. 1967. The Laurel Tradition and The Middle Woodland Period. National Museum of Canada Bulletin 217.

Wright, J.V. 1972. The Shield Archaic. National Museum of Canada, Publications in Archaeology 3.

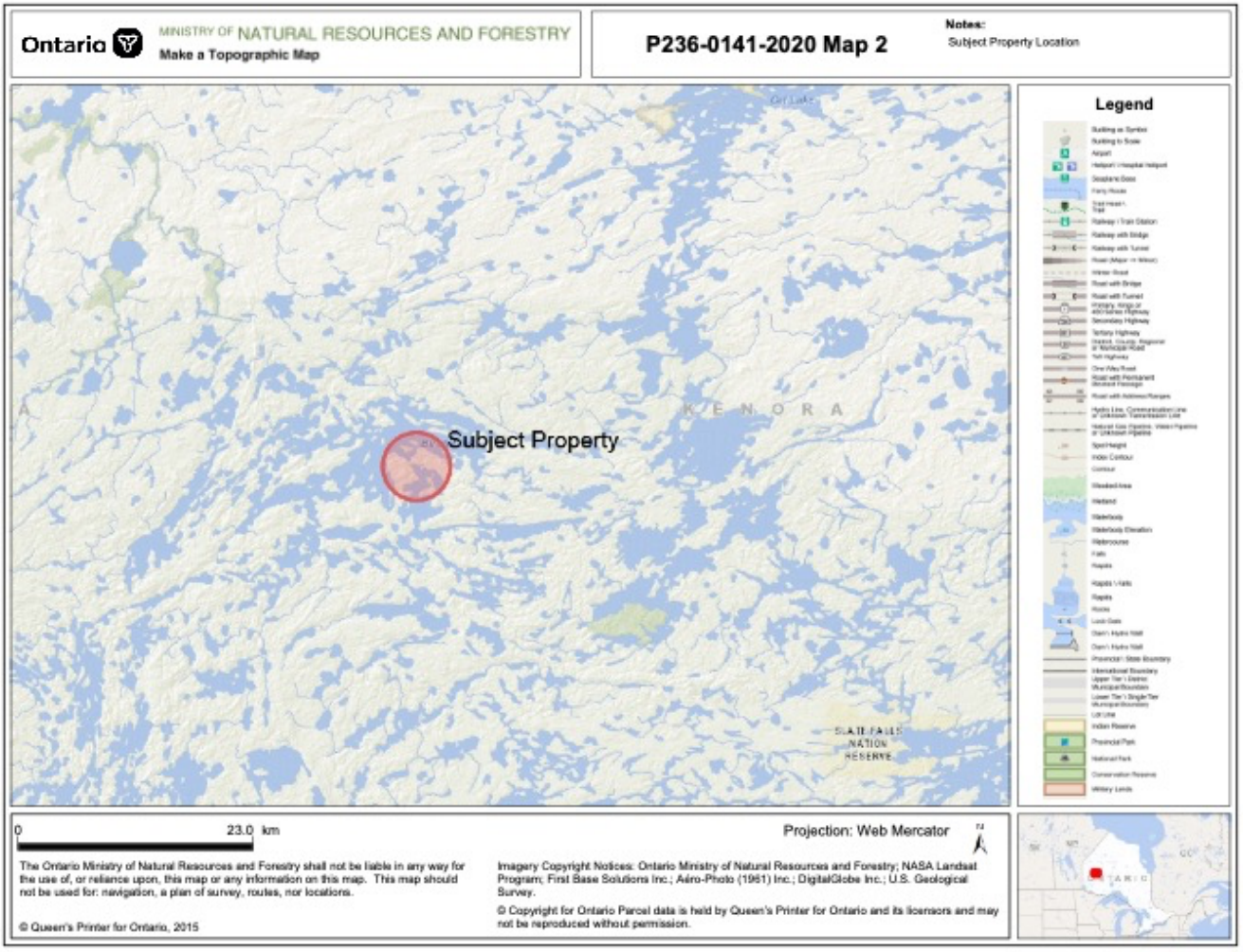
Wright, J.V. 1995. A History of the Native People of Canada, Volume I (10,000–1,000 B.C.). Mercury Series Archaeology Paper 152. Canadian Museum of Civilization, Gatineau.

Zoltai, S.C. 1965. Glacial Features of the Quetico – Nipigon Area. Canadian Journal of Earth Sciences 2: 247-269.

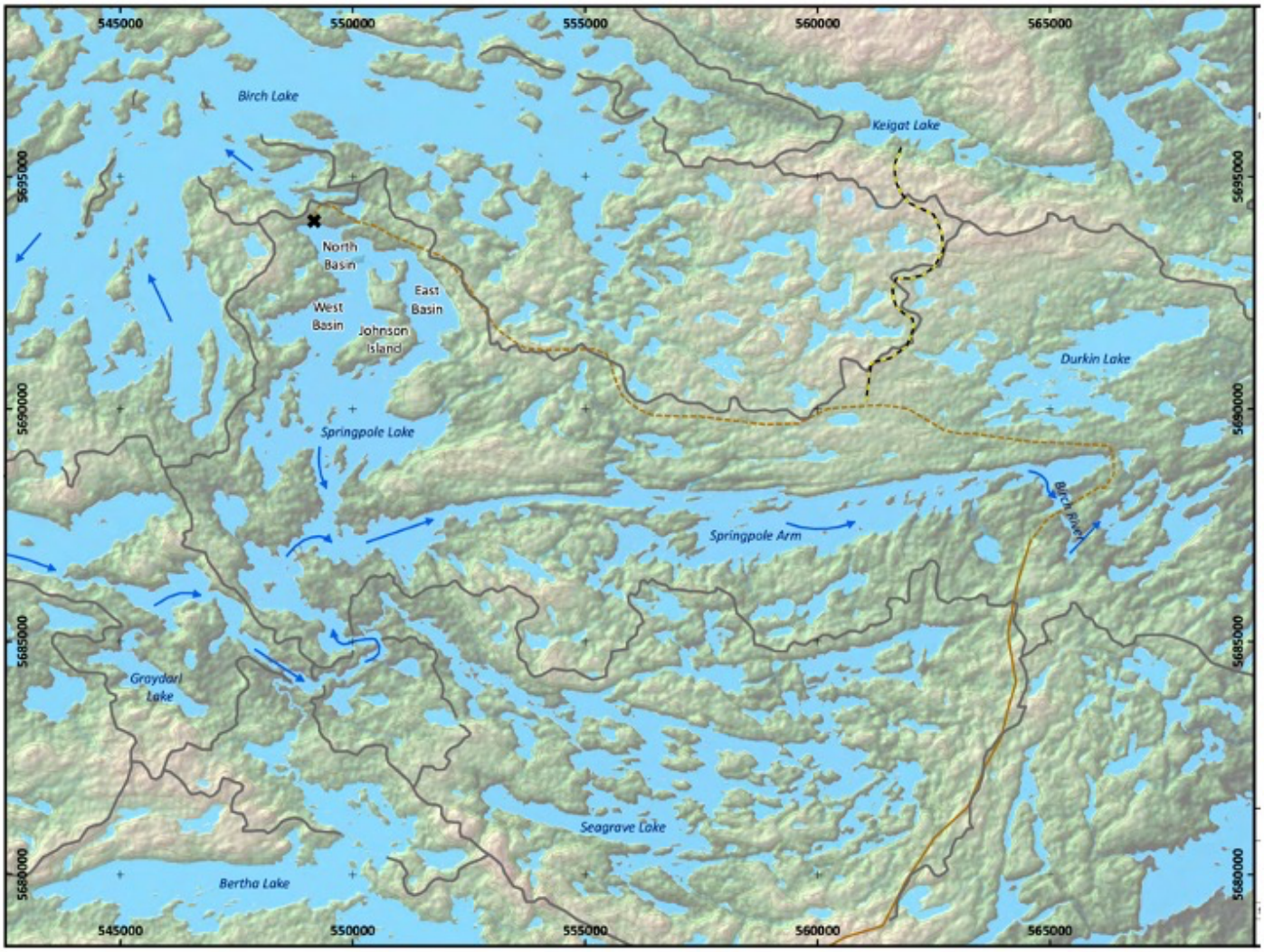
Maps



Map 1: Regional location of project area.

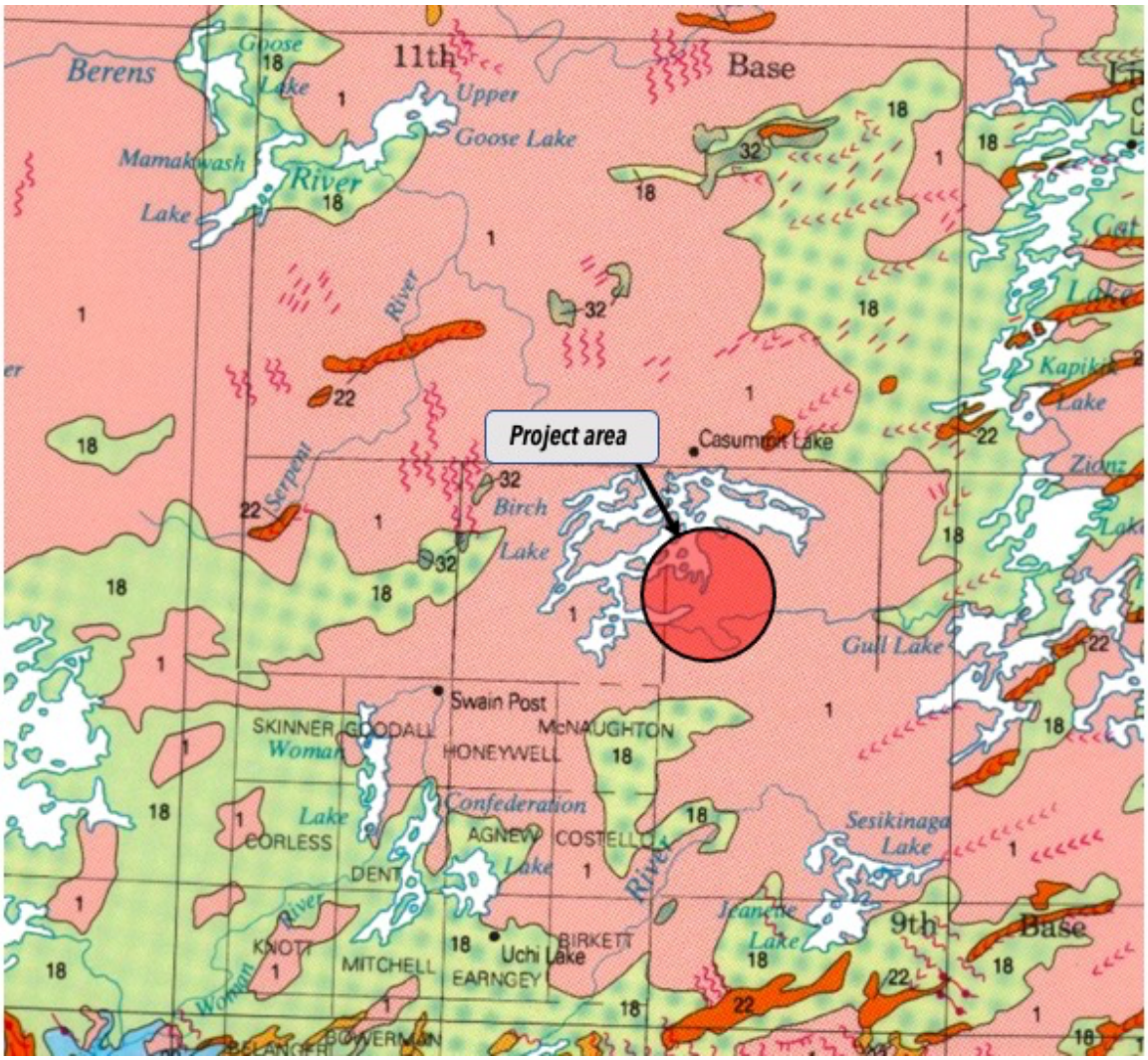


Map 2: General location of the subject property is located on Springpole Lake. Note that the tailings management facility is proposed to be located to the southeast of the area indicated with the red circle.

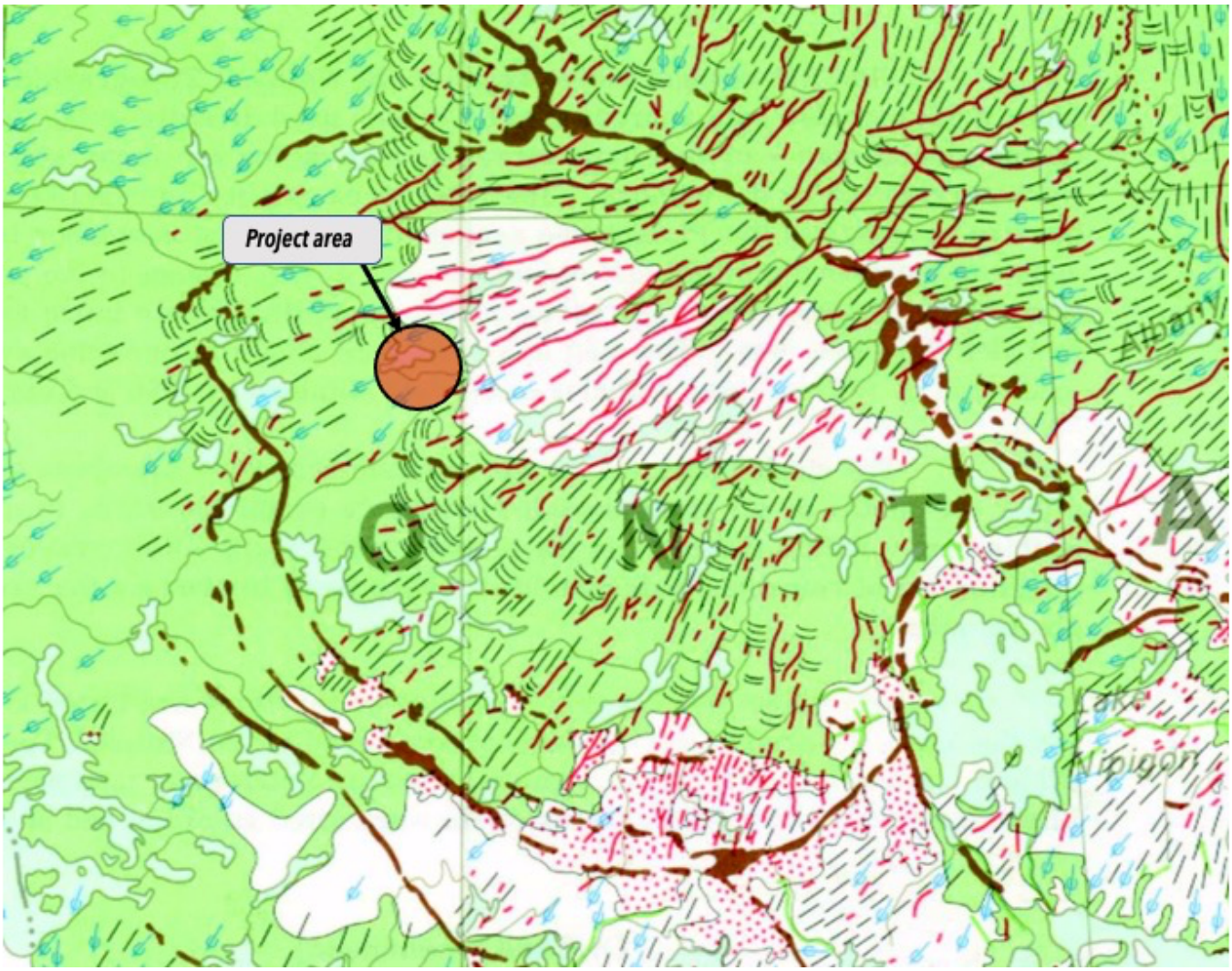


Map 3: Overview of Springpole Lake, showing topography, watersheds and direction of flow in water bodies (source: First Mining Gold). Note that an island named Johnson Island is also mapped in Birch Lake to the north.

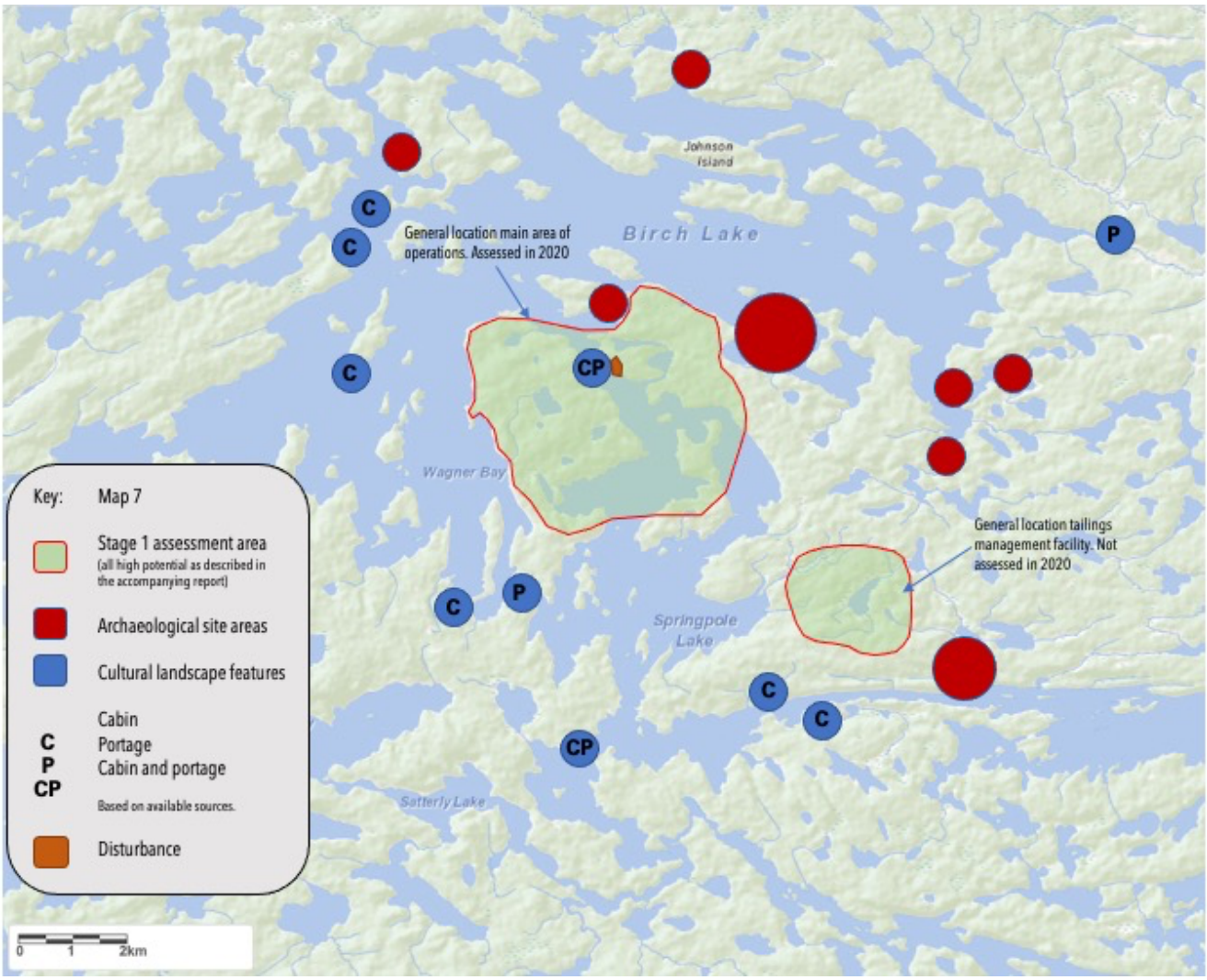
Map 4: Proposed layout of the Springpole Gold Project. The white polygons represent, from left to right, mine rock storage, open pit and stockpiles, process plant and waste rock storage. The map also shows the location of two coffer dams (brown and green), and mine road (source: First Mining Gold).



Map 5: Quaternary geology of the project area (source: Barnett, et al. 1991).

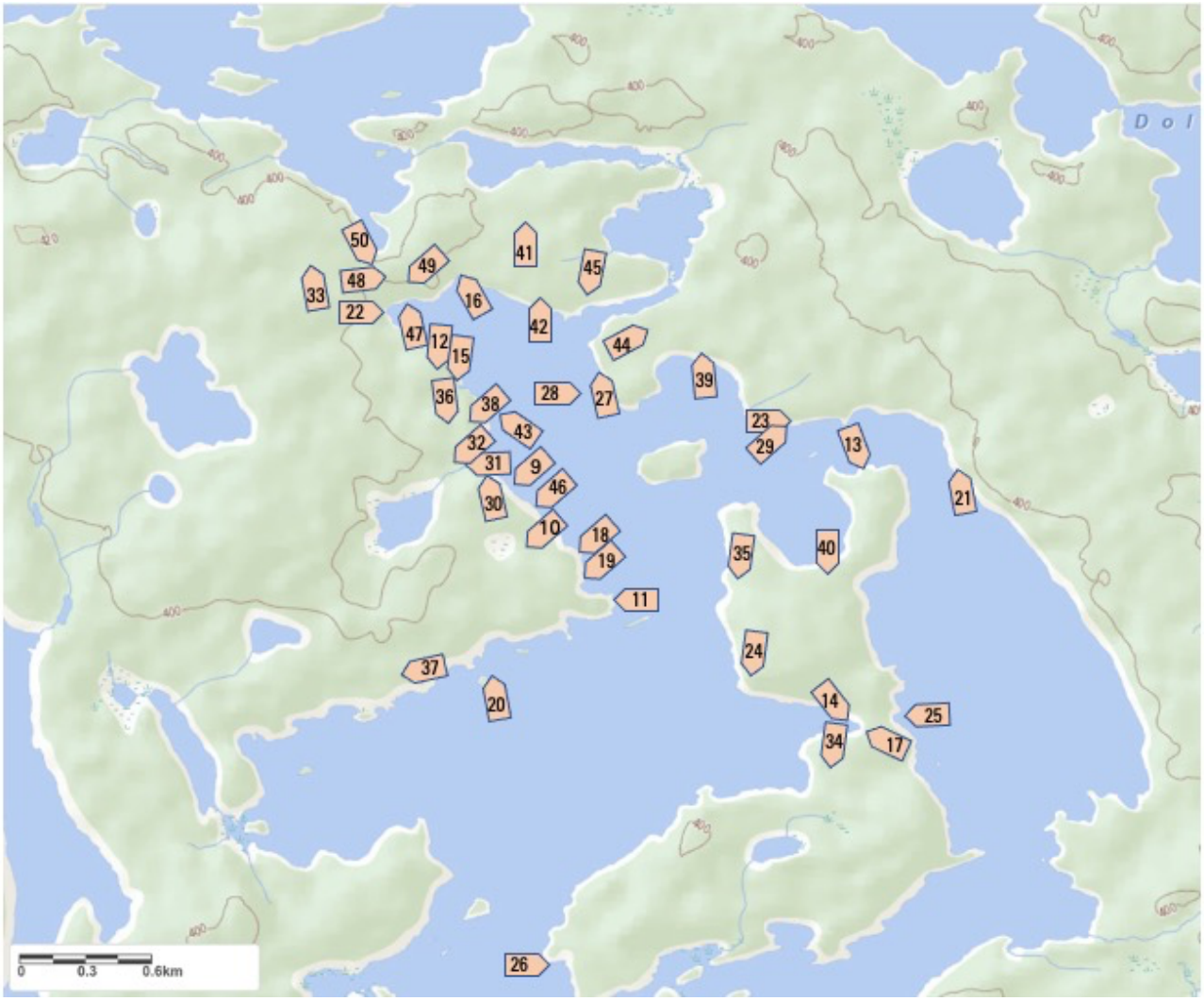


Map 6: Surficial geology of the project area (source: Fulton 1995).

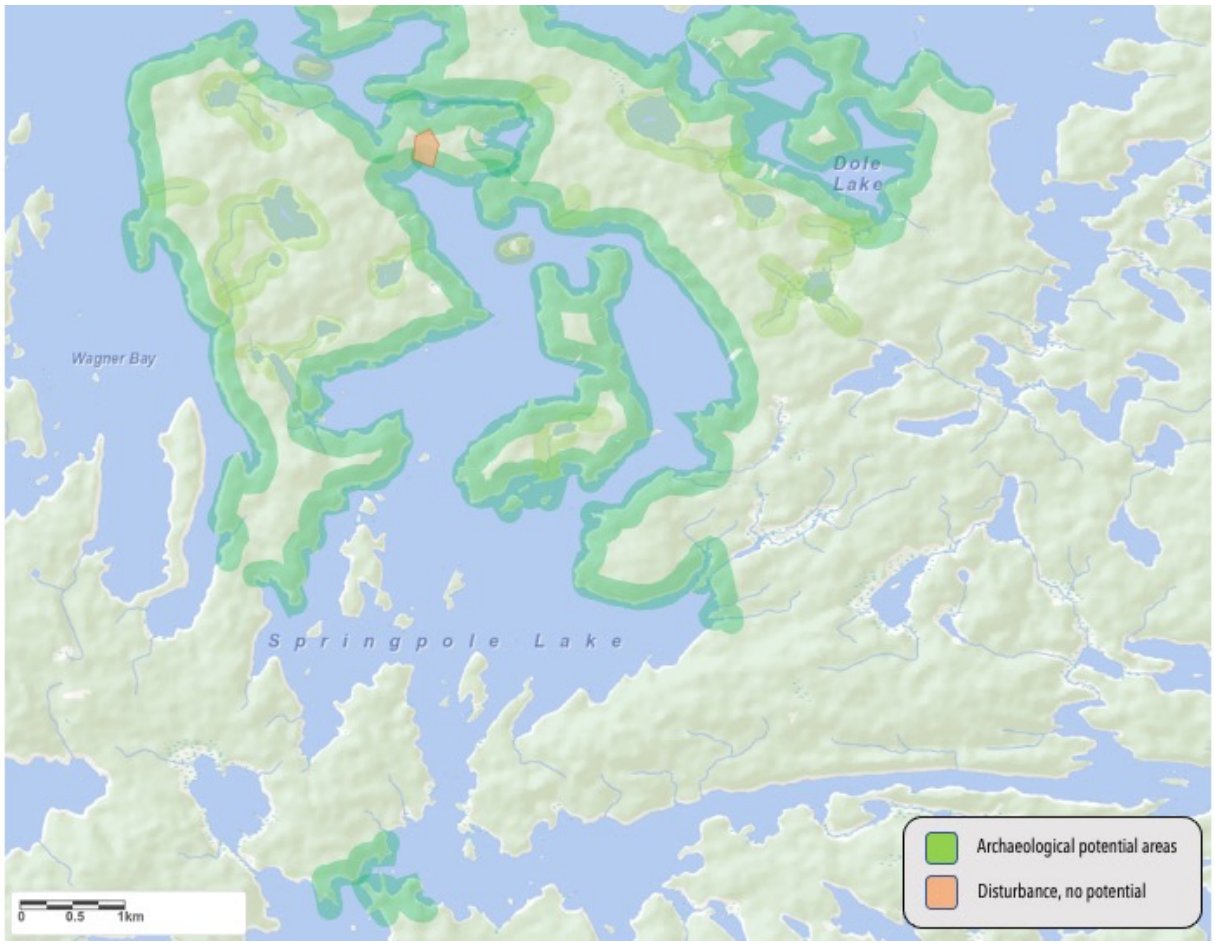


Map 7: Overview of Stage 1 archaeological assessment and outcomes. This map shows generalised locations for archaeological sites reported and registered within the map area and generalised locations for portage and cabin (historic) locations. Specific direction pertaining to appropriate setbacks for archaeological sites will follow from Stage 2 and Stage 3 assessment, as applicable. A small area of disturbance is indicated at the present operations centre. Stage 1 assessment was not completed for the tailings management facility.

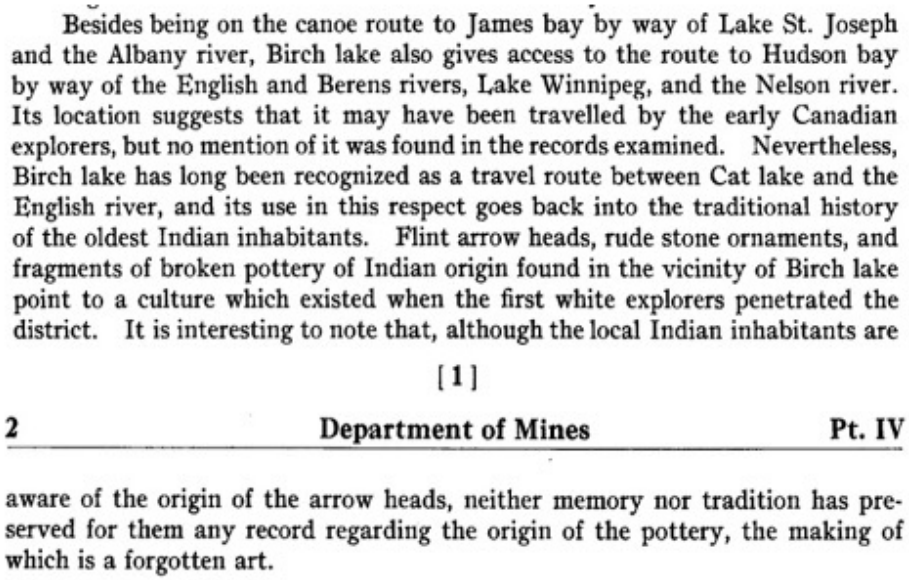
Archaeological potential is evaluated for all areas within the main area of operations as described in the report. Generally, all areas within 50 metres of water within this polygon are evaluated as holding mixed or complex archaeological potential and will require Stage 2 archaeological assessment.



Map 8: Location and direction of photographs used in the report.



Map 9: Areas of archaeological potential. Note that different terrain will necessitate different approaches to Stage 2 property assessment. Interior water sources will need to be assessed to determine local potential and tested accordingly. The location at the mouth of the Birch River may include archaeological resources related to the fur trade at Springpole Lake.



Besides being on the canoe route to James bay by way of Lake St. Joseph and the Albany river, Birch lake also gives access to the route to Hudson bay by way of the English and Berens rivers, Lake Winnipeg, and the Nelson river. Its location suggests that it may have been travelled by the early Canadian explorers, but no mention of it was found in the records examined. Nevertheless, Birch lake has long been recognized as a travel route between Cat lake and the English river, and its use in this respect goes back into the traditional history of the oldest Indian inhabitants. Flint arrow heads, rude stone ornaments, and fragments of broken pottery of Indian origin found in the vicinity of Birch lake point to a culture which existed when the first white explorers penetrated the district. It is interesting to note that, although the local Indian inhabitants are

[1]

2 Department of Mines Pt. IV

aware of the origin of the arrow heads, neither memory nor tradition has preserved for them any record regarding the origin of the pottery, the making of which is a forgotten art.

Figure 1: Excerpt from Harding (1936, 1-2). Note that, apart from the condescending tone of the comment, typical of the time, Harding appears to suggest ongoing Anishinaabe habitation on Birch Lake.

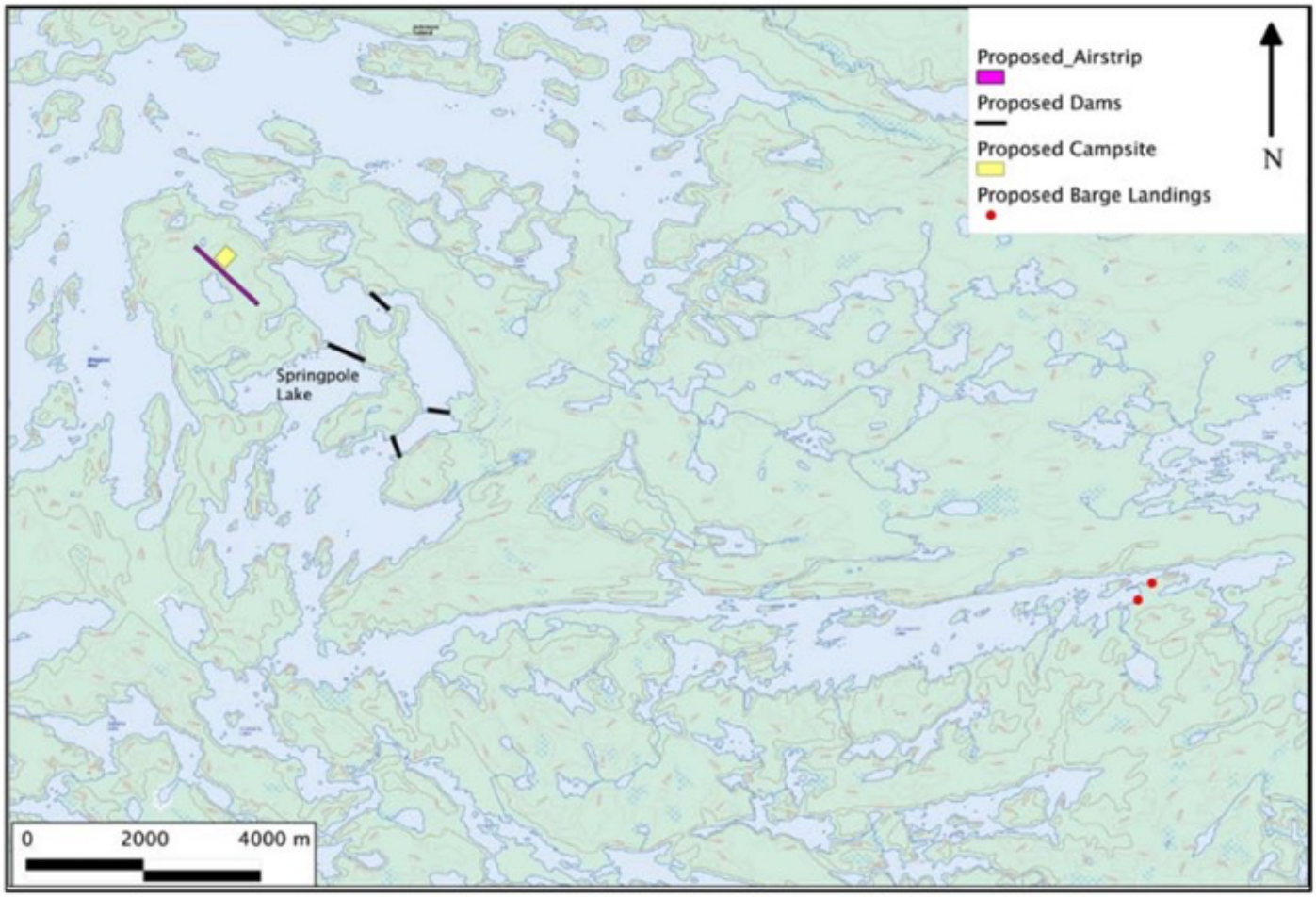


Figure 2: Assessment area, P307-0019-2011.

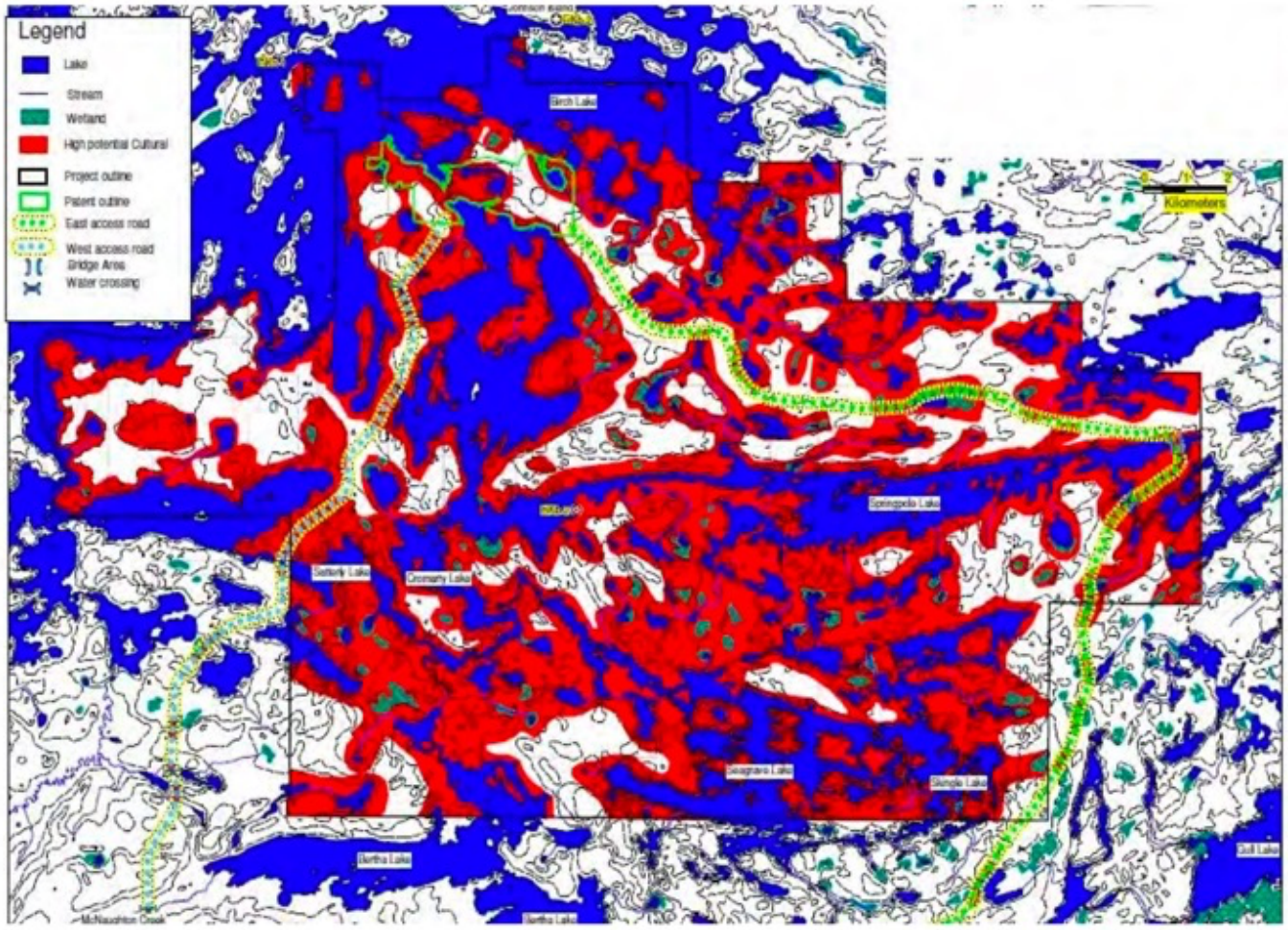


Figure 3: Areas evaluated as holding archaeological potential, possibly from P041-158-2011. From Map 3, report for PIF P335-016-2012.

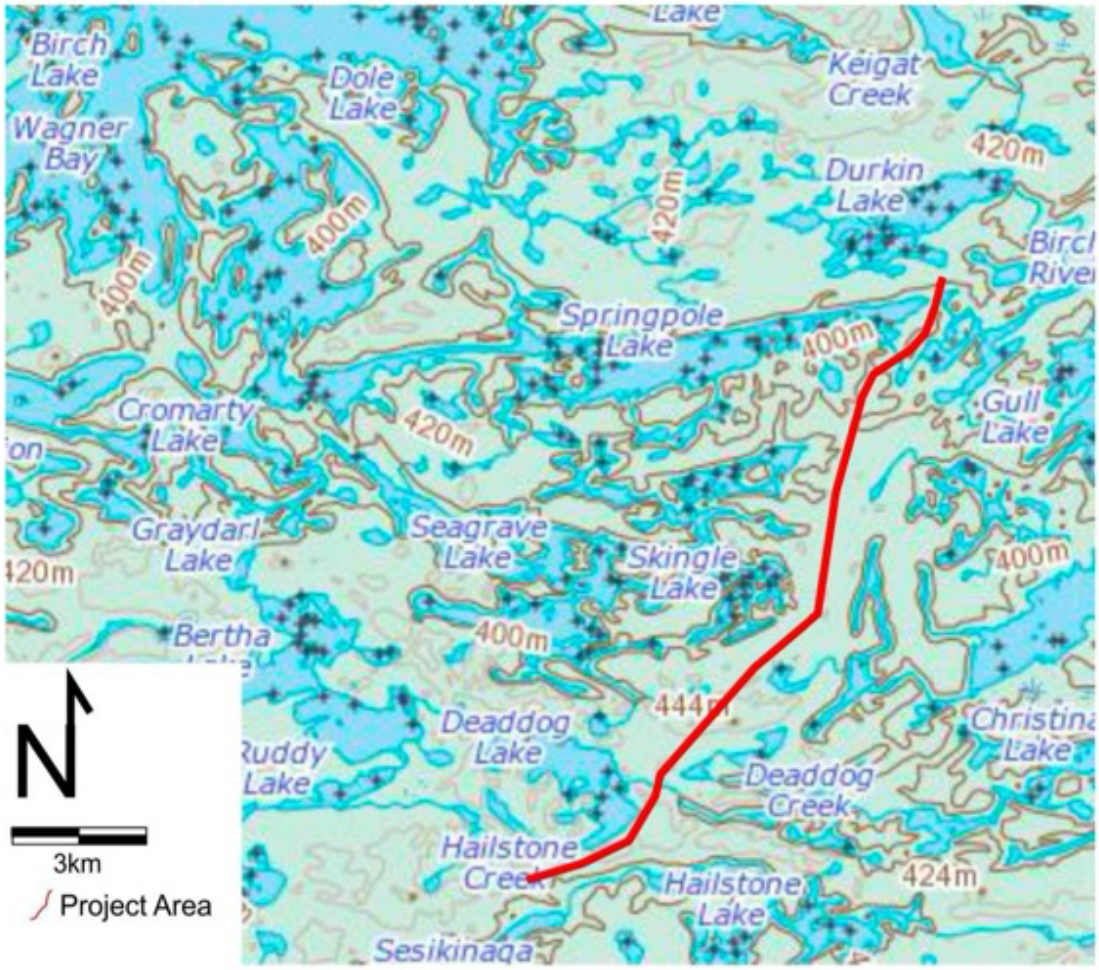


Figure 4: Assessment area P335-015-2012.

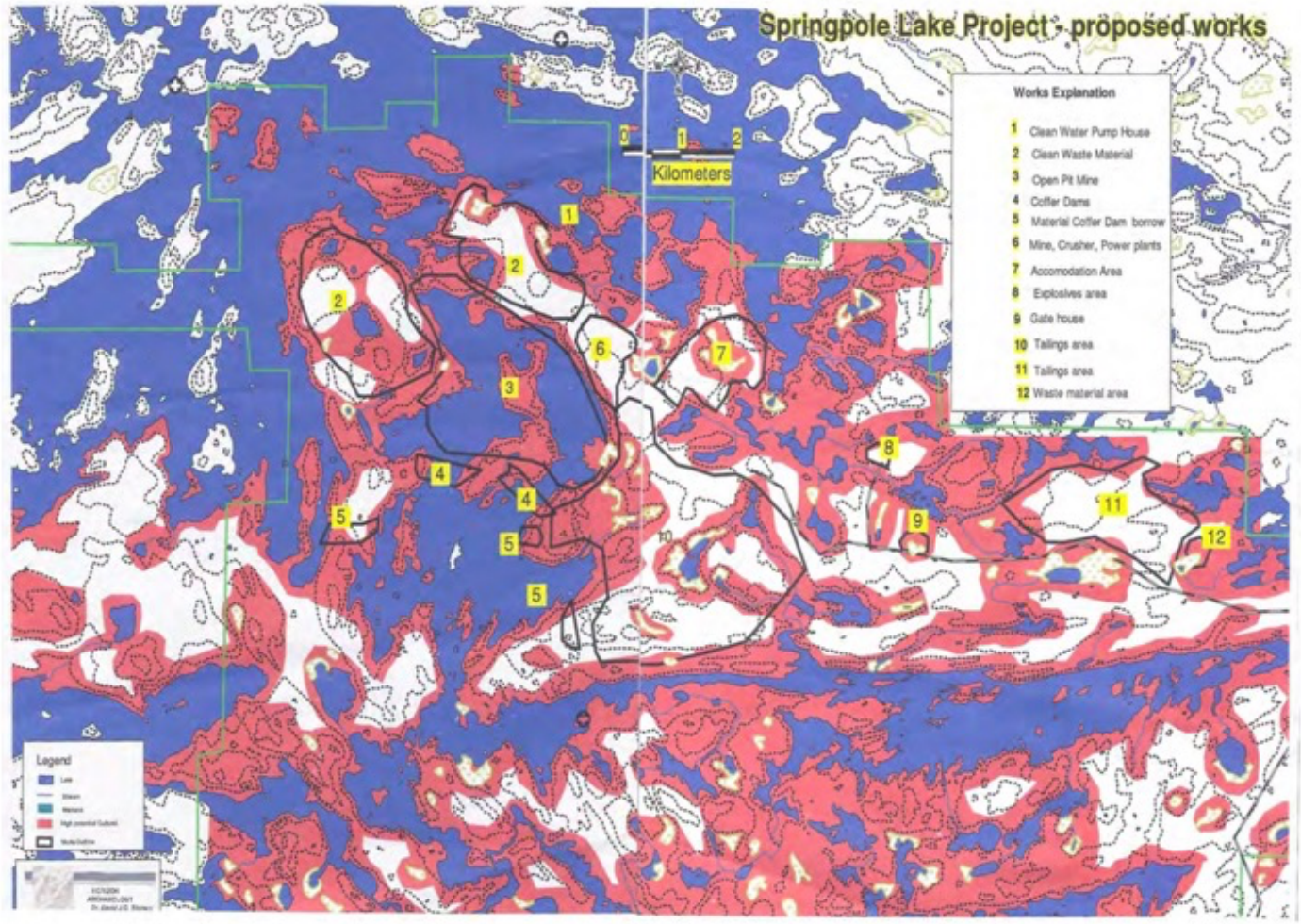


Figure 5: Assessment area P335-016-2012.

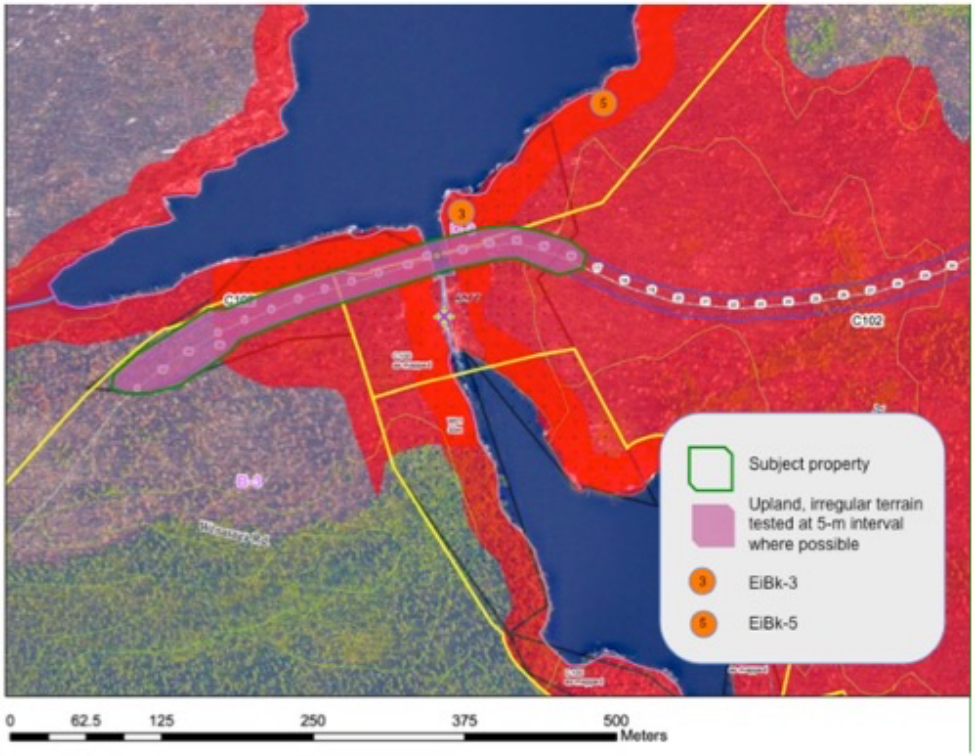


Figure 6: Assessment area P236-0153-2020.

Figure 7: Section of Alexander Mackenzie's 1801 map. The subject property is located approximately where the word 'house' in the label for Red Lake House. Note the connections between the subject property and Hudson's Bay by way of the Severn River, James Bay by way of the Albany River and the Boundary Waters, through Lake Nipigon and the English River.

Figure 8: Section of Map No. 45C, from Harding (1936).

Figure 9: Steeply sloped bedrock at shore.

Figure 12: Low to moderately sloped bedrock at shore.

Figure 10: Steeply sloped bedrock at shore.

Figure 13: Steeply sloped bedrock continues inland with thin to absent soil.

Figure 11: Low slope shore with rock hazards.

Figure 14: Steeply sloped bedrock continues inland.

Figure 15: Low to moderately sloped bedrock above steep shore.

Figure 16: Bedrock dome, rising from water, and falling away inland.

Figure 17: Low shoreline and nearby steep shoreline.

Figure 18: Weed-choked bay with bedrock adjacent.

Figure 19: Abrupt change in slope at shore.

Figure 20: Complex shore of shallow water and fragmented bedrock near surface.

Figure 21: Small sand beaches terminate in fractured bedrock.

Figure 24: Shoreline of fractured bedrock yields to dense shrub before transitioning to forest.

Figure 22: Small sand beaches often associated with boulders and fractured bedrock.

Figure 25: Low slope shoreline, rocks on lakebed.

Figure 23: Dense shrub and grass growth in low slope shoreline areas.

Figure 26: Sand beaches were commonly associated with outpost camps.

Figure 27: Beach / bar formations with marsh behind.

Figure 30: Outlets to small streams were indistinct.

Figure 28: Cobble beds behind beaches supported grass and small shrub growth between cobbles.

Figure 31: Streams were generally small (>1m).

Figure 29: Sand beach with grass and shrub behind, rising to forest.

Figure 32: Streams ran through bedrock-controlled valleys.

Figure 33: Typical interior – level, moist to wet.

Figure 36: Typical soils – smooth bedrock.

Figure 34: Typical interior – level, on bedrock, dry.

Figure 37: Typical soils – irregular bedrock.

Figure 35: Typical interior – moderate to steep slope.

Figure 38: Typical soils – glacially derived.

Figure 39: Typical soils – glacial soils, level

Figure 42: Disturbance at operations base, landing.

Figure 40: Typical soils – cobble-rich, hummocky.

Figure 43: Disturbance, typical geotechnical drill site.

Figure 41: Disturbance at operations base, interior.

Figure 44: Disturbance – typical machine trail.

Figure 45: Disturbance – sand pit. Note clay-rich soils in foreground (light) and sandier soil (dark) to rear.

Figure 46: Survey or boundary markers of rebar (rear) and old drill bit (foreground)

Figure 47: Steep southern approach to portage between Springpole and Birch Lakes.

Figure 48: Portage trail.

Figure 49: Slash mark on portage trail.

Figure 50: Oil drum and hummocky ground at north end of portage.

Appendix I: Geological work at Springpole Lake, 1928 - 2017

The Mineral Deposit Inventory for Ontario summarises work at Springpole Lake as follows:

1928: Northern Aerial Mineral Exploration Ltd. discovered the showing.

1933-36: Windigokan Sturgeon Mining Syndicate carried out trenching, prospecting, DD-1504 ft.

1945: Springpole Mines Ltd. carried out trenching, prospecting.

1985-89: Gold Fields Canadian Mining Ltd.: property optioned, geophysics (air and ground), mapping, geochemistry, DD-118-125,816 ft

1989-1992: Noranda: ground geophysics, stripping, DD-18-20,323 ft.

1993-94: Akiko-Lori/Akiko Gold drilled 15 DDH totalling 15,913 ft.

1995: Akiko Gold reorganized into Gold Canyon Resources Inc. Santa Fe Mining and Gold Canyon agreed joint venture.

1995-96: Santa Fe drilled 69 DDH totalling 49,492 ft.

1996: Santa Fe was acquired by Newmont Gold Company and their interest in the property was sold to Gold Canyon.

1997-98: Gold Canyon drilled 51 DDH totalling 5642 m and conducted a lake bottom sediment sampling program.

1999: Paso Rico drilled 12 DDH totalling 2779 m.

2000: Paso Rico withdrew from the project, leaving Gold Canyon with 100% interest.

2004: Gold Canyon drilled 25 DDH totalling 2152 m.

2005: Gold Canyon drilled 19 DDH totalling 2983.

2006: Gold Canyon drilled 21 DDH totalling 2752 m.

2007: Gold Canyon conducted sampling and drilled 11 DDH totalling 2122 m.

2008: Gold Canyon drilled 7 DDH totalling 2452 m.

2009: Gold Canyon relogged and resampled core.

2010: Gold Canyon drilled 6 DDH totalling 1774.5 m.

2011: Gold Canyon drilled 80 DDH totalling 28,750 m, and conducted airborne EM and radiometric surveys.

2012: Gold Canyon drilled 87 DDH totalling 38,069 m and released a resource estimate.

2013: Gold Canyon drilled 24 DDH totalling 5394.5 m and 18 holes to sample the very upper portion between the lake bottom and bedrock, totalling 720.8 m, as well as geological mapping.

2015: First Mining Finance Corp. acquired the property from Gold Canyon.

2016: First Mining completed a 4-DDH program totalling 1712 m.

2017: First Mining filed a Preliminary Economic Assessment report. [16]

[16] http://www.geologyontario.mndm.gov.on.ca/mndmfiles/mdi/data/records/MDI52N08NW00008.html