

KINROSS

Great Bear

Great Bear Gold Project Impact Statement

Appendix Q-1:

Terrestrial Archaeological Assessments

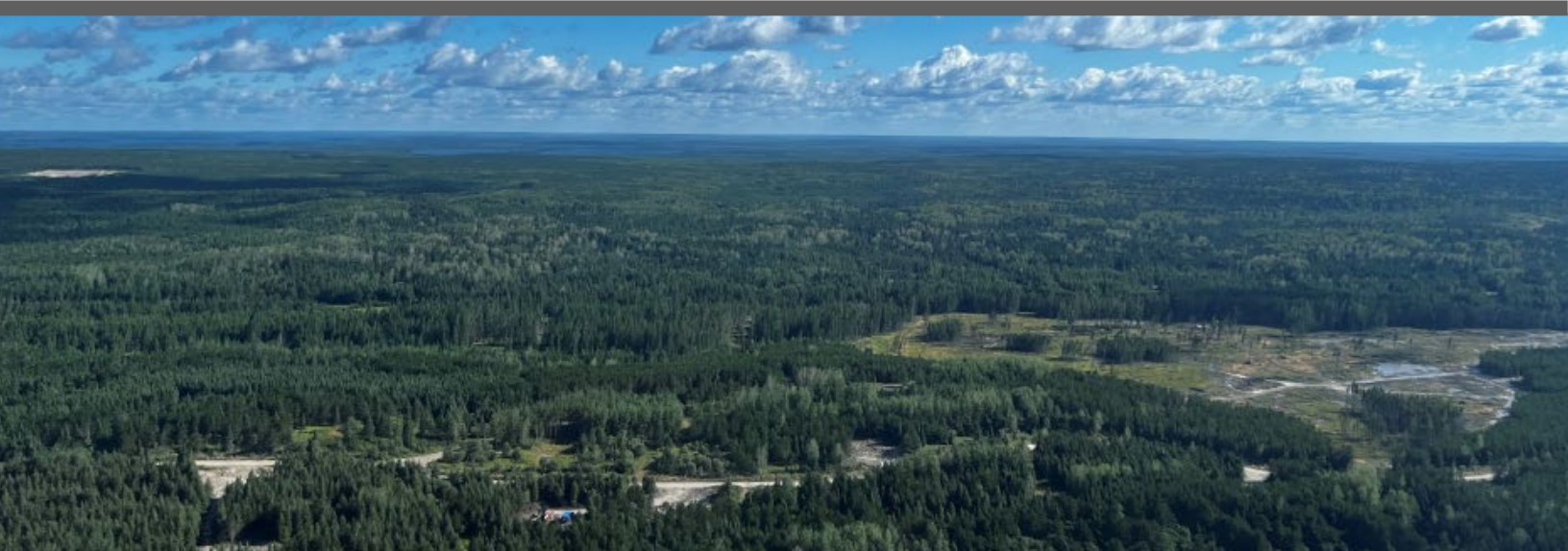


KINROSS

Great Bear

Great Bear Gold Project Impact Statement

Stage 1 Archaeological Assessments



Stage 1 Archaeological Assessment

Proposed Kinross Gold Corporation Great Bear Project, Unorganized Territory,
District of Kenora.

Northwest Archaeological Assessments

Consulting Archaeologists | Cultural Heritage Consultants

Northwest Archaeological Assessments

Andrew Hinshelwood, PhD, CAHP

Stage 1 Archaeological Assessment, Proposed Kinross Gold Corporation Great Bear Project, Unorganized Territory, District of Kenora.

Stage 1
Revised Report
June 12, 2024

Archaeological Assessment Report
Prepared by Andrew Hinshelwood
Archaeological Licence P236
PIF P236-0208-2022

Prepared for:

**Kinross Gold Corporation
Great Bear Resources**

Ashley.Moncrief@Kinross.com

hinshelwoodandrew@gmail.com

www.andrewhinshelwood.com

[807 252-1251](tel:807-252-1251)

Executive Summary

Kinross Gold Corporation propose the development of their Great Bear property (Dixie Lake) property, located in unorganized territory, District of Kenora, Ontario (Map 1). The subject property comprises approximately 9100 hectares and lies approximately 25 kilometres southeast of Red Lake, Ontario (Map 2). The proposed mining activity will be centred on a linear zone showing higher grade gold mineralization (the LP Fault zone) running southeast to northwest through the centre of the property.

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 is a component of the Pre-Feasibility Study and 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.

Planning for the Great Bear Project includes completing a comprehensive evaluation of the potential for archaeological and cultural heritage properties to be present in the project area, an inventory of the archaeological resources present, 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 an inventory of the archaeological resources present.

In Ontario, archaeological assessment is directed by the Ministry of Citizenship and Multiculturalism (MCM) *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 Stage 1 archaeological assessment, including the evaluation of archaeological potential and property inspection was completed in 2022. This report presents the results of the Stage 1 assessment leading to the evaluation of archaeological potential for the subject property. Fieldwork for the assessment was conducted between August 5 to 31, 2022 under archaeological licence P236. The project is registered with MCM as PIF P236-0208-2022.

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

1. Stage 2 archaeological assessment is recommended for portions of the subject property. General direction in the completion of Stage 2 assessment is set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 2.1. Specifically and for all parts of the Stage 2 assessment, fieldwork must be carried out only when weather and lighting conditions provide good visibility. This excludes periods of poor conditions such as snow cover, frozen ground, periods of excessive rain or drought, or heavy fog. Further, a GPS must be used to record the locations of all diagnostic artifacts, a sufficient number of other artifacts to provide an estimate of the extent of the site and all fixed landmarks. GPS will also be used to support detailed mapping of all field activities. Photos must be taken of all field activities and provide examples of all field conditions encountered. All Stage 2 excavation must be conducted using hand tools.
2. 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. Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.
3. Stage 2 testing in areas of irregular terrain or holding mixed or complex archaeological potential may be tested following the direction found in the S&Gs Section 2.1.6. In such areas, the test grid will be maintained to the extent possible, varying from this grid according to professional judgement. The rationale for such judgement will be documented. Further, in areas of mixed or complex archaeological potential, areas showing characteristics of low archaeological potential will not be tested, but will be documented and reported to the greatest degree of precision possible.
4. Further, as the property is located on the Canadian Shield in 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. Specifically, it is recommended that for areas where the identified features of archaeological potential are modern water sources, test pits will be excavated on a five metre grid interval within 50 metres of the feature. Where the feature of archaeological potential is not a modern water source, then testing will be completed on a five metre grid between zero and 50 metres from the feature and at a ten metre grid between 50 and 150 metres from the feature. Testing will not be required beyond 150 metres of the feature of archaeological potential.

5. As small areas of extensive and intensive disturbance are present throughout the subject property, it is recommended that disturbance in or adjacent to areas of archaeological potential be delineated through Stage 2 fieldwork conforming to the direction set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 2.1.8. Specifically, the areas of disturbance will be documented according to the standard described for Stage 1 property inspections, and test pits will be excavated according to professional judgement to confirm the depth and extent of disturbance.
6. Any development is proposed in any part of the subject property within 300 metres of registered archaeological site EeKi-3, must be preceded by Stage 2 archaeological assessment conforming to the direction found in the S&Gs Section 2.1, will be required (S&Gs Section 1.4.1, s. 1(c)). This includes the excavation of test pits conforming to the direction found in Section 2.1.2. Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined, and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.
7. For areas of proposed development within 100 metres of the Chukuni River, a historic transportation route, Stage 2 archaeological assessment conforming to S&Gs Section 2.1, will be required (S&Gs Section 1.4.1, s. 1(d)). Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined, and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.
8. For areas adjacent to modern water sources (Dixie Creek, Rice Lake, Stone Lake, Genesee Lake, Dixie Lake, and Teardrop Lake), Stage 2 archaeological assessment conforming to S&Gs Section 2.1.1, will be required, as modified by Section 2.1.5. Test pitting will be required within the archaeological potential area, defined on the basis of terrain and proximity to the high water mark (S&Gs Section 1.4.1, s. 1(c)). Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined, and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.
9. For areas of elevated topography, including eskers and topographic heights, Stage 2 archaeological assessment conforming to S&Gs Section 2.1.6, will be required (S&Gs Section 1.4.1, s. 1(e)). In these areas, the test grid will be maintained to the extent possible, varying from this grid according to professional judgement. The rationale for such judgement will be documented. Further, in areas of mixed or complex archaeological potential, areas showing characteristics of low archaeological potential will not be tested, but will be documented and reported to the greatest degree of precision possible.
10. For all parts of the subject property evaluated as holding low archaeological potential at Stage 1, and in areas of confirmed disturbance, no further archaeological work is recommended.

11. It is recommended that 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.

Table of Contents

Executive Summary	1
Project Personnel.....	6
Project Context	6
Development Context	6
Historic Context.....	6
Archaeological Potential.....	9
Stage 1 Property Inspection	12
Site Conditions	12
Observations.....	12
Record of Finds	16
Conclusions – Stage 1	17
Recommendations – Stage 1	19
Advice on compliance with legislation	21
Bibliography and Sources	22
Maps	25

Project Personnel

Personnel involved in this project included the licensee (Andrew Hinshelwood, P236), acting as project director and field director. Ted Binguis, Lac Seul First Nation, assisted in the field and provided valuable insight into the archaeological potential evaluation. Heather Hopkins acted as project manager and assisted in the preparation of this report.

Project Context

Kinross Gold Corporation propose the development of their Great Bear Project property, located in unorganized territory, District of Kenora, Ontario (Map 1). The subject property comprises approximately 9100 hectares (Map 2). Mining activity will be centred on a linear zone showing higher grade gold mineralization (the LP Fault zone) running southeast to northwest through the centre of the property (Map 3).

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 is a component of the Pre-Feasibility Study and 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.

A comprehensive Stage 1 archaeological assessment of the property, including background study, property inspection, and evaluation of archaeological potential was completed. Fieldwork was completed August 5 to 31, 2022 under PIF P236-0208-2022. The assessment conformed to the Ministry of Citizenship and Multiculturalism (MCM) *Standards and Guidelines for Consultant Archaeologists (S&Gs)*, developed under the *Ontario Heritage Act (RSO 1990, c O.18)*.

Development Context

The subject property is located between the municipalities of Red Lake, approximately 25 kilometres to the northwest, Ear Falls, lying approximately 40 kilometers to the southeast. Both communities are accessible from Highway 105, which also forms the northern boundary of the subject property. The property is located in unorganized territory, District of Kenora, Ontario. The centre of the study area is located at approximately 50.8600N and -93.6111E. Existing development within the subject property is limited to several aggregate sources, a municipal landfill and a small number exploration and forestry access roads and water crossings.

Historic Context

The subject property lies within the Traditional territories of Lac Seul First Nation and Wabauskang First Nation and is within the Treaty No. 3 area. Treaty No. 3 was signed in 1873 at Northwest Angle, placing a large area of what is now northwestern Ontario (primarily the Lake Winnipeg drainage) under Treaty. Lac Seul First Nation is affiliated with the Independent First Nations Alliance. Wabauskang is affiliated with Bimose Tribal Council.

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 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). In response to trade pressures, both companies established a number of major and minor posts and had active trading parties throughout the northwest, until 1821, when the HBC and Northwest Company merged (Moodie, et al. 1987; Rich 1958).

Lac Seul and Red Lake are connected by the Chukuni River, which also runs through Pakwash Lake, Two Island Lake and Gullrock Lake. The Chukuni River lies east and north of the subject property. Wabaskang Lake is also connected to Red Lake

through Cedar River, which runs through Rice Lake and Camping Lake. A juncture between Rice and Camping Lakes provides direct access into the English River system. The English River is a major travel route connecting the areas north of Lac des Milles Lacs to the Winnipeg River. East of Milles Lac, access into Lakes Nipigon and Superior is relatively straightforward. To the west, The English River affords access into Lake of the Woods and Rainy Lake (Map 1). During the fur trade period, from at least 1790, posts had been established at Red Lake (Red Lake House), Lac Seul (Pine Ridge Post), and the juncture of the Chukuni and English Rivers (Mattawa Post).

Historic travel and trade routes were mapped onto the interconnecting waterways. Euro-Canadian travellers learned routes from Indigenous communities in the region who had used these routes for millennia. These routes served as the basis for early geological exploration that led to the discovery of the gold in the Red Lake mining district in the 1920s. By 1940, most of the Red Lake area had been staked, and several significant mining operations were in place and producing. The Dixie Lake area was not staked or developed during this early period and is generally seen as a blank area on the early survey maps.

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).

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 archaeological record of the Red Lake area is reasonably well known through a series of archaeological surveys conducted through the former MCM regional archaeology offices at Kenora and Thunder Bay. These surveys, plus a small number of commercial archaeological surveys, have contributed a considerable amount of data on archaeological resources in the region. Larger sites at a distance from the subject property are known from Red Lake and Lac Seul. The distribution of registered sites follows the pattern of past survey efforts, augmented by a few sites reported by members of the public. Some sites containing dense deposits of cultural material are known from the larger lakes, but again, the definition of large, dense deposits appears to be derived from research effort, not a statistical basis. Sites are reported from all cultural periods.

There have been no previous archaeological assessments completed for the subject property, and no recommendations have been made regarding archaeological resources on the property.

The property is located in northern Ontario. The terrain is irregular with variable amounts of exposed bedrock, bedrock covered with a thin veneer of till, and moist, organic soils. Overall, the subject property shows a distinctly "shield" or "northern Ontario" topography. Topographic relief is low to moderate, with elevation across the subject property ranging between 340 and 420 asl. High points on the property are bedrock controlled rises and lower elevations lie within extensive areas of marshy terrain.

Two commemorative plaques are located in Red Lake (Perkins 1989). The first celebrates the discovery of the Red Lake mining area and is located at the junction of Highway 105 and 125. The second addresses the Hudson Bay Company post at Red Lake (Red Lake House), established in 1790. This plaque is located in front of the municipal offices. Of the two, the plaque concerning Red Lake House is of greater interest to the archaeological assessment, as the trading post would have served as a focal point in the early regional travel routes on the English and Chukuni Rivers.

Archaeological Potential

This Stage 1 background study includes a review of the landscape conditions that may support an evaluation of archaeological potential for the subject property.

Archaeological potential is a statement of the likelihood that archaeological resources are present on a specific property. Potential is not a probability statement, rather it is the application of the current understanding of archaeological resource distribution to an area not previously examined. In most cases, potential is evaluated based on current knowledge of the property and of the landscape associations of registered sites on properties showing similar landscape characteristics. In the present assessment, archaeological potential is evaluated on the basis of whether the property, or sections of the property, are proximate to a few key factors. Specifically, these are: registered archaeological sites, modern watercourses, topography or quaternary geology, relict shorelines (former watercourses), and historic settlements or transportation routes. A number of other factors are also considered (S&Gs Section 1.3.1). In addition, areas showing clear evidence of extensive and intensive ground disturbance may be evaluated as holding low or no archaeological potential based on (S&Gs Section 1.3.2).

Registered Archaeological Sites and Previous Assessment

As part of the Stage 1 archaeological assessment, the *Ontario Archaeological Sites Database (OASD)*, maintained by MHSTCI, was consulted.

There is one registered archaeological site within one kilometer of the property (Table 1). The site, EeKi-3, was reported from the tourist camp on the east bank of the Chukuni River at Snake Falls. No further information is available regarding the site in the available OASD files. Further, there are 20 sites within 25 kilometres of the property, with the nearest sites located on Red Lake, the north shore of Gullrock Lake and the east shore of Pakwash Lake, within the Provincial Park boundary.

From the available mapping, EeKi-3 does not appear to lie within 300 metres of the subject property, however, this should be confirmed through fieldwork.

No archaeological reports have been prepared, and no assessment report recommendations, made concerning the subject property.

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

<u>Borden Number</u>	<u>Site Name</u>	<u>Time Period</u>	<u>Affinity</u>	<u>Site Type</u>	<u>Current Development Review Status</u>
EgKI-9	Sandy Cove	Pre-Contact	Aboriginal	Othercamp/campsite	
EgKI-4	Cut Thumb	Other		Othercamp/campsite	
EgKI-2	SOOKUM BAY				
EgKI-14	Keesic Site	Woodland, Middle	Aboriginal	camp / campsite	Further CHVI
EgKI-13	Gustafson	Pre-Contact	Aboriginal	Othercamp/campsite	
EgKI-1	Forestry Point	Woodland, Middle	Aboriginal	camp / campsite, habitation	Further CHVI
EgKk-7	Hell's Acres	Pre-Contact	Aboriginal	Unknown	
EgKk-2		Woodland, Late	Aboriginal, Blackduck	Othercamp/campsite	
EgKj-1	GULLROCK LAKE				
EeKi-3	Snake Falls				
EeKi-2	Pakwash	Pre-Contact	Aboriginal	Othercamp/campsite	
EeKi-1	Chukuni River	Woodland	Aboriginal	Othercamp/campsite	
EdKi-1	Mattawan I	Post-Contact, Pre-Contact	Aboriginal, Euro-Canadian	Othercamp/campsite	
EdKh-14	EdKh-14	Post-Contact	Euro-Canadian	railway	
EdKh-13	Ear Falls Historic Railway-Southside	Post-Contact	Euro-Canadian	railway	
EdKh-12	Ear Falls Prehistoric Campsite	Post-Contact, Pre-Contact	Aboriginal, Euro-Canadian	Othercamp/campsite	
EdKh-11	Ear Falls Tailrace Prehistoric Campsite	Post-Contact, Pre-Contact	Aboriginal	Othercamp/campsite	
EaKI-4	P3				
EaKI-3	P2	Other		Othercamp/campsite	
EaKI-2	Keesic I	Woodland, Late	Aboriginal	Othercamp/campsite	

Modern watercourses

Several modern water sources are noted within the subject property (Map 2). The Chukuni River runs through the eastern part of the property, and the northern boundary of the lease area touches on two small bays on the south shore of Gullrock Lake. Within the property, notable water sources include Rice Lake and much of Dixie Creek. The property also includes parts of Stone Lake, Genesee Lake and Dixie Lake on the western end of the property. Smaller lakes, ponds and streams are also present within the property.

The S&Gs require Stage 2 assessment of all areas within 50m of modern water sources (S&Gs Section 2.1.5).

Topography or Quaternary Geology

Quaternary geology of the subject property (Map 4) shows a complex overburden of ground moraine, glaciofluvial and glaciolacustrine deposits (Neilsen 1989). The terrain through the property shows low to moderate relief, although a number of small topographic high points are noted rising from the otherwise level area. Three eskers are mapped crossing the subject property in a north to south orientation, with two other eskers approaching the property from the north, above Rice Lake. An end moraine feature, defined by elevated topography, is also noted near Snake Falls. Few bedrock exposures are present on the property, with many of these exposed through erosion on harvested or otherwise developed areas. Organic terrain is common in lower areas, especially around Rice Lake, where higher ground impedes has restricted drainage from the lake basin.

Areas of glaciolacustrine terrain hold the potential for relict shoreline features to be present and is a consideration in property inspection. Elevated terrain, specifically esker ridges and the end moraine in the eastern end of the property, also contribute to an evaluation of archaeological potential.

Former water courses

Post-glacial water bodies near the subject property include higher level stands in the Pakwash Lake basin, represented by glaciolacustrine deposits in parts of the subject property. The complex interactions of glacial ice, meltwater, and isostatic rebound, particularly where the damming and subsequent opening of southerly drainage suggest that the area may have been an attractive margin for habitation or procurement during this early post-glacial period. However, the soils associated with the glaciolacustrine deposits and adjacent ground moraine deposits are clay rich, however, areas of glaciolacustrine terrain hold the potential for relict shoreline features to be present and this is a consideration in property inspection.

Historic settlement and transportation routes

The subject property was not formerly settled in the sense that permanent habitations were established. Some historic sources do reflect occupation by fur trade posts and 'cabins.' The latter may be Indigenous occupations, or cabins constructed by prospectors to support their ongoing fieldwork at or adjacent to the Red Lake gold deposits.

Early maps of the region do not provide enough detail to locate specific features. John Best's 1792 map of the route between Osnaburgh House and Red Lake shows a location for Red Lake House on the east shore of the lake, just west of the outlet to the Chukuni River (HBC B177-A-2). From the map, it is possible that the house stood at the head of McNeely Bay, near Balmertown. It is interesting to note that the map references "Mr. Cameron's Old House" on the south side of the Chukuni River at Red Lake, as well as identifying "Paquaish Lake" as "Mr. McKay's Track", suggesting that a McKay had some responsibility for, or control over, the fur trade at Pakwash Lake at this time. Fort Mattawa was a trade post established at the juncture of the Chukuni and English Rivers around 1879. This post was later relocated to the western end of Lac Seul and renamed Pine Ridge Post in 1923 (Voorhis 1930).

A 1923 map of the geological exposures along the Chukuni River (Bruce 1924) show cabins on the NE shore of Gullrock Lake, cabins at the east entrance to Two Island Lake, and one cabin on the east side of Pakwash Lake. A HBCo post ("Pine Ridge") is shown at Lac Seul, along with a "W.P." (waterpower) reserves at Ear Falls, Manitou, and Lower Manitou Falls on the English River (Bruce 1924 ARM 33f). The subject property is blank in this map. A more detailed, and later map (Norwood 1940) shows the claims and leases of the Red Lake mining district. The map area is immediately north of the area depicted in the 1924 map (Bruce 1924). This map includes the part of the subject area lying south of Gullrock Lake and a portion of the transmission line from Ear Falls. The map depicts two cabins on the Chukuni River east of Two Island Lake, and it is possible that these are the same cabins as those shown on the Bruce map. Although north of the subject property, the map also shows the "Snowshoe Portage" around a rapid on the Chukuni River.

The S&Gs group several types of transportation routes together for consideration in Stage 1. Specifically, transportation routes include any early transportation route, including trails, passes, roads, railways, and portage routes. There are no established travel routes beyond the canoe routes through the area. Of the possible and known routes, the Chukuni River is the principal route in the region.

Background study raised no concerns that early Euro-Canadian settlement had taken place within the subject property, and no special consideration is given. The S&Gs require Stage 2 for all areas within 100 metres of early historic transportation routes (S&Gs Section 1.4.1, 1(d)).

Existing disturbance

Extensive and intensive disturbance removes most archaeological potential from a property. Within the subject property limited disturbance has occurred. We note that the activities associated with forest management, aggregate extraction and mineral exploration have created limited, intensive disturbances within the property, although most of the disturbance reflects previously permitted activities beyond the scope of this assessment.

The S&Gs do not require Stage 2 in areas where extensive and intensive disturbance is documented through property inspection (S&Gs Section 1.3.2).

Stage 1 Property Inspection

The Stage 1 archaeological assessment, including the evaluation of archaeological potential and property inspection was completed in 2022. Fieldwork for the assessment was conducted between August 5 to 31, 2022 under archaeological licence P236. The project is registered with MCM as PIF P236-0208-2022.

The property inspection included a visual review of the project area. The inspection was sufficient to confirm the nature of the soils and local terrain, and the presence of any areas of significant disturbance. Property inspection proceeded on foot or, where necessary, by boat and reviewed all of the accessible parts of the subject property (Map 5). Permission to enter onto the property was provided by the proponent. Photographs were taken as part of the inspection (Map 7).

Weather during the inspection was generally pleasant, varying between clear and overcast skies, with temperatures ranging from around 15° to 25° Celsius. Weather and lighting conditions did not have an adverse effect on the property inspection.

Site Conditions

The subject property includes 1900 hectares of mostly undeveloped, forested terrain. Access to the interior of the property is by way of network of roads and trails constructed to service aggregate sources, forest harvesting areas or mineral exploration. Overall relief is low, with elevations generally between 340 and 380 m asl. However higher elevations of up to 420 and 440 m asl are also present, mostly in the northern part of the property. Lower elevations generally support second growth, conifer dominated mixedwood forest cover trending to open, marshy areas dominated by shrubs and grasses. Marsh areas in the lower reaches of Dixie Creek are extensive and show evidence of seasonal flooding, with areas of higher ground supporting mature conifer growth. Higher elevations support a conifer dominant second growth mixedwood forest, typically with a closed canopy. Soils also vary with elevation, with clay-silt soils dominant at lower elevations and sandy soils at higher elevations. At higher elevations, bedrock exposures are common. Disturbance was noted across the property at roadways, aggregate extraction areas and in advance exploration areas. In each case, the extent of disturbance is spatially restricted and limited. While forest harvesting has occurred at locations across the property, no evidence of intensive disturbance as a result of forestry was noted.

Observations

The property inspection proceeded in a systematic manner across the subject property. For the purposes of this discussion, the subject property is divided into general areas of investigation.

- Chukuni River
- Dixie Creek
- Rice Lake
- Western Lakes (Stone, Genesee and Dixie)
- Teardrop Lake
- Higher elevations and interior areas.

Chukuni River

As noted in the historic review, the Chukuni River forms a major travel route into the Petite Nord during the fur trade period. This was a period of exploration and expansion of trade by Euro-Canadian traders who made use of the extensive and detailed knowledge of the land, resources and travel routes held by Indigenous people. The key elements of the fur trade era travel in the area were trading posts at Red Lake (Red Lake House), Wenesaga (Pine Ridge House), and at the junction of the Chukuni and English Rivers (Mattawa Post). Historic maps also show a number of 'cabins' on the river marking additional inhabitation.

The Chukuni River runs from north to south through the eastern part of the subject property. This section of the river has a relatively gentle gradient, with a significant rapid upstream (Figure 1) and a smaller rapid downstream. The smaller rapid is labelled "Snake Falls" at the outlet to Pakwash Lake (Figure 2). While the existing rapid is a small area of fast water, increased by the piers of a small bridge, the name suggests that there may have been a more significant chute previously, and that the level in Pakwash Lake is elevated from historic normal. The sole registered site proximate to the subject

property is located in this area. EeKi-3 is represented by a small collection of artifacts recovered from the Snake Falls Camp property. Limited information is available on the site, and it was likely recovered from disturbed context. The absence of a report in the ministry database suggests that it may have been registered on the basis of a report from the property owner, rather than a detailed field survey.

The shores of the Chukuni River through the subject property present low banks. Sections of the riverbank are separated from the navigable part of the river by broad reed beds, while other places show slightly higher terraces one or two metres above the level of the river (Figure 3). Low bank areas show evidence of being overwashed during the spring floods, and the water table appears to have a strong influence on the forest canopy composition. Northern parts of the river section support black spruce forest (Figure 4), while deciduous species increase to the south (Figure 5). More commonly, the banks are crowded with low shrubs (Figure 6).

From the property inspection completed, it appears that the Chukuni River within the subject property holds mixed archaeological potential. There are a number of local areas where low banks appear to be far enough above the summer water level to support the potential for habitation. These areas hold archaeological potential for small, seasonal sites. Other areas, especially where the river margin is obscured by extensive marsh areas or stands of shrub were observed to be quite low and wet leading to a lower potential for habitation and therefore archaeological potential. Overall, the archaeological potential for this area is evaluated as mixed.

Dixie Creek

Dixie Creek represents a major watercourse through the southern part of the subject property. The creek is throughout its length a low-energy stream that meanders markedly. The mouth of the creek at the junction with Chukuni River is set in an extensive area of marsh and low shrub (Figure 7). The lower part of the creek flows through a poorly defined channel flanked by extensive marsh (Figure 8). Despite this general condition, locations along the lower part of the creek show indications of slightly higher elevations supporting mature forest cover (Figure 9). The role of the spring flood on the landscape is visible in some of these areas where flow has exposed underlying soil (Figure 10). Elevated water levels appear to have killed off more mature stands, suggesting that the local soil moisture conditions may be recent and temporary.

Further upstream, the creek intersects one of the eskers running north to south through the subject property. Here, the banks of the creek are noticeably higher, about 2 to 3 metres above the summer water level and rising steeply from the water's edge (Figure 11). It is interesting to note that the location shown in the figure was the site of a trapper's camp in recent use. The esker also serves as the base for a forest access road (Figure 12). Seasonally high flows are suggested by the sand bank formed on the downstream side of the crossing. Above the first crossing, the creek runs to the south of Rice Lake. The banks of the creek are generally low and marshy, with the marshy section separated from this lake by a strong sand/gravel ridge (Figure 13). Within the stream channel, local areas of higher elevation continue to hold archaeological potential where the ground adjacent to the stream rises above the seasonal water level to provide better drained soils that support mature forest cover (Figure 14). In addition, some areas suggesting either that water levels were once lower, or that small areas of higher ground are present are suggested by isolated jackpine, a species that typically prefers drier, well drained locations (Figure 15). We note that Dixie Creek and the northerly tributary were unnavigable beyond a certain point, with the stream narrowing to the form consistent with those areas observed in the interior area (Figure 16).

From the property inspection completed, it is clear that the Dixie Creek valley is a significant wetland. The creek and surrounding area show very low topographic relief and extensive areas of marsh. Areas of low elevation above the normal water level are generally evaluated as holding low archaeological potential. Within the Dixie Creek area, these areas of low relief are interspersed with local areas of somewhat higher elevation, including the location where the easterly of three esker ridges cross the subject property. This includes areas that appear to have been over washed by recent spring runoff, and areas that are sufficiently above the summer water level to suggest that overbank flooding is uncommon. These areas hold potential for small, seasonal sites. Overall, the archaeological potential for this area is evaluated as mixed.

Rice Lake

Surrounded by higher ground formed on a complex of glaciofluvial delta and outwash, ground moraine and glaciolacustrine deposits, Rice Lake is positioned in a basin. At about 350 m asl, with the surrounding terrain rising to about 360 m asl, the lake is isolated on the landscape with a small watershed, primarily surface runoff from the north. Drainage is to the east through a small stream. The name Rice Lake suggests that the water levels in the lake are generally constant, supporting wild

rice (*Zizania* spp.) stands. At the time of fieldwork, however, very few rice plants were observed, although it was generally understood by local residents familiar with the lake that water levels had unusually high, leading to a low survival rate for the plants.

The north shore of Rice Lake is generally rocky and shows low slope between the water and interior (Figure 17). Typically for this type of shoreline, the nearshore areas are often cobbles or boulders with a dense shrub cover which yields, further from the active shore to a forested area with smaller trees and thin, organic soil. Small streams entering the lake from the north do so through indistinct channels in areas of sedge and cattail (Figure 18). At the western end of the lake, where a few *Zizania* were observed, the entrance to another small tributary was obscured by sedge and other marsh plants, and the elevated terrain of the interior could be observed (Figure 19). The south shore shows significantly steeper slopes and higher elevations of terrain adjacent to the lake. Some areas of well-drained, level terrain lying about two metres above the level of the lake were noted in the southwest corner of the lake (Figure 20). Behind this area, the ground rose sharply for 8 – 10 metres to the top of a distinct ridge affording a good view of the lake and elevated access to the north and west (Figure 21). The outlet to the lake is through a small, low energy stream running through a broad area of marsh (Figure 22). The stream was generally unnavigable due to vegetation more than 100 metres from the lake.

From the property inspection completed and the understanding that the lake has, historically, had abundant wild rice stands, the shoreline areas are evaluated as holding mixed archaeological potential. Many parts of the shore are extensive wetlands, and the expected low rate of fluctuation in water levels suggests that these are more or less permanent. Low slope shoreline areas on the north shore and extensive marsh areas all around the lake are evaluated as holding low archaeological potential. Higher terrain on the south shore, and a few locations on the north shore do hold archaeological potential. Overall, the archaeological potential for this area is evaluated as mixed.

Western Lakes (Stone, Genesee, and Dixie)

Three small lakes are aligned at or near the western boundary of the subject property. Specifically, the eastern parts of Stone and Genesee Lakes straddle the boundary, while Dixie Lake lies immediately to the west of the line. Stone Lake drains into Gullrock Lake through a small, low-energy stream flanked by marsh (Figure 23). The lake itself reflects a low slope shoreline that is marshy in only a few areas (Figure 24). Stone and Genesee Lakes are separated by the western most esker ridge on the subject property. Genesee Lake drains southward into Dixie Lake (Figure 25) and shows varied relief along the shore (Figure 26). Dixie Lake is similar in these regards to Genesee and Stone Lakes; however, the eastern margin of Dixie Lake is defined by contact with an esker ridge at the outlet to the lake. The location of the esker relative to the outlet may modulate the lake level as well as providing for a well-drained, habitable location.

From the property inspection completed, it is unlikely that these small lakes were part of a travel network although they may have been used seasonally for resource procurement. Streams leading into and draining these lakes are small but would be navigable in light watercraft. From the property inspection it appears that the shores of the lakes vary and include both low slope shore areas that are wet or predominantly cobbles and boulders, or higher, well-drained ridges more suitable for habitation. At the outlet to Dixie Lake, the outlet stream crosses an esker ridge, raising the potential for habitable locations to be present. Overall, the archaeological potential for this area is evaluated as mixed.

Teardrop Lake

This pair of small, interior lake occupies an area of mapped organic terrain set in a broader area of ground moraine (Map 4). The lake is isolated on the landscape with a small watershed, primarily surface runoff from the north. Drainage is to the south to Dixie Creek near Dixie Lake. Property inspection noted remarkably dense wild rice within the shallow margins of the lake (Figure 27). At the time of fieldwork, the rice nearly obscured all of the visible water, suggesting that the lake itself is shallow.

The northern of the two lakes is ringed by a broad area (approximately 50m) of marsh plants, which felt as though it was floating in some areas and was sparse and very wet closer to the lake (Figure 28). Beyond this, an area of between 100 and 250 metres comprised an area of open shrub-dominated forest with some larger, mature trees. Beyond this distance there were some areas of higher ground on which mature forest had developed (Figure 29). The southern lake is a small pond with a sand-gravel shore. The terrain adjacent to the lake is moderately sloped, with some visible bedrock and areas of level well drained soil (Figure 30). At the outlet, a ridge of sandy soil had been used by wolves to build an underground den. The outlet creek was noted as being about one metre in width.

From the property inspection completed, Teardrop Lake is presently an excellent source of wild rice presently, and likely has been for many years. It is difficult to determine from a visual review of the lake how long the conditions have been suitable for rice production. Habitation to support rice gathering and processing would require occupation of locations above the high water mark. In turn, the area evaluated as holding archaeological potential must be considered relative to 'dry ground' rather than the edge of the adjacent water. A number of areas suited to this were noted at distances ranging from 100 to 250 metres from the northern water body, and closer to the water's edge in the south. Overall, the archaeological potential for this area is evaluated as mixed.

Higher elevations and interior areas

The subject property is primarily positioned away from larger water sources and can be described as an inland area bisected by a few small streams. Property inspection of the interior areas was directed toward identifying locations related to glaciofluvial and glaciolacustrine sediments, and to examine the mapped streams to determine how they might contribute to an evaluation of archaeological potential. Glaciofluvial deposits include both extensive areas of sand and gravel and esker ridges. Sand deposits are visible in the northern part of the property, where relief is notably higher than in the south (Figure 31). These deposits are widespread and are being utilized for sand and aggregate production in locations on the subject property (Figure 32).

Eskers, linear ridges of water sorted gravels, are commonly attractive to industrial development as a source of aggregate and as the base for roads. In archaeological assessment, areas of higher ground, including specifically eskers, contribute to the evaluation of potential. Three eskers run from north to south cross the subject property. In the east, an esker crosses the property east of Rice Lake, terminating at Toteroad Lake. As the name suggests, this esker forms the base of a primary forestry road used to access stands on the west side of Pakwash Lake. This road crosses Dixie Creek in an area of archaeological potential (Figure 12, above). The central esker underlies much of Tuczyc's Road, the main access road to the subject property and exploration operation sites. Through this area, mature or second growth stands dominated by jackpine are present, indicating an underlying well drained, sand soil. The road provides access to Teardrop Lake. It is interesting to note that along the flanks of the esker, glaciofluvial action from moving meltwater appears to have resulted in short-term high-water events, raising the levels of the present-day and much lower water sources. For example, at Teardrop Lake, a notable break in slope well back from the lake has been formed in the underlying sediments (Figure 33). These features appear to indicate relict water features, such as channels and shorelines. The third esker lies near the western boundary of the subject property and also forms the base of an existing forest access and haul road. This esker forms a topographic boundary between Stone Lake, which drains north into Gullrock, and Genesee, ultimately draining to the east through Dixie Creek.

Watercourses, beyond those discussed previously, were identified in the first instance from topographic mapping. These 'mapped streams', particularly first order, or headwater, streams are often artifacts of map creation, in that topographic low areas where surface runoff would be expected to accumulate may be associated with a change in vegetation. This change, visible in aerial photographs, form the basis of an interpreted stream route and are mapped as streams. On the ground, they often remain invisible, seasonal, or small and unnavigable. Archaeological potential is associated with streams that would normally be attractive to habitation or resource procurement. Seasonal or ephemeral streams would not provide this attraction unless dammed by beaver, or as a source of, for example, specific plant species.

In the northern part of the subject property, the nature of the terrain has led to the formation of a number of small ponds or areas of open marsh (Figure 31). These areas, primarily draining south to Dixie Creek, may hold some limited attraction for seasonal resource procurement and habitation. In property inspection, small creeks presented on topographic mapping were examined (Figure 34). They were accessed from existing trails across the property, and, once encountered, were examined up and down their length to evaluate the nature of each (Figure 35). The expression of these small streams varied, but no streams of any size were encountered. Stream size was estimated based on the size of culvert used at the trail (Figure 36), as culvert size is determined by estimated peak seasonal flow. Many culverts were dry, and several mapped streams presented as swales that crossed trails without culverts present (Figure 37). In these cases, recent rainfall had pooled in the trail where traffic had made a local depression.

Non-navigable streams the southern part of the subject property were noted as being somewhat larger than the headwater streams to the north. This reflects the southerly trend to drainage, converging on Dixie Creek. The southern part of the property, apart from esker ridges and a notable sand and gravel ridge running to the south of Rice Lake, is low and relatively level (Figure 38). Examination of streams in this part of the property included examination of those sections of

Dixie Creek that were not accessible by boat. In the upper reaches, Dixie Creek continues as a low-energy stream of 4 to 7 metres width (Figure 39), that meanders markedly within a broader valley. The wider valley of the stream is defined by a moderately steep slope rising two to five metres above the level of the creek (Figure 40). The channel of the stream is generally choked with shrubs at the margins, with cobble and boulder predominant at the banks, with the vegetation cover transitioning to a closed, spruce-dominated forest on the higher elevations (Figure 41). Soils beyond the valley are clay-rich resulting on relatively poor drainage (Figure 42).

As part of the property inspection, careful consideration was made of all changes in elevation within the glaciolacustrine deposit areas to determine if any shoreline features or other landscape conditions supporting an evaluation of archaeological potential were present. The property inspection did not identify any relict shoreline features within the property.

Disturbance

Disturbance within the subject property is noted as being intensive, but localised. Disturbance is sourced in three industrial activities. Aggregate extraction and haul roads for aggregate and forestry have created a number of pits on the property, most of which are adjacent to the esker ridges as well as the major, established roads. Disturbance resulting from geological activities is restricted to machine trails and drill sites. Machine trails create disturbance by necessity, although the disturbance is restricted to the width of the trail, under ten metres. Drill sites area small areas of disturbance measuring about 10 by 15 metres and are again, restricted in size. Finally, extensive areas of limited disturbance were noted in areas that have been operated for forest harvesting and are now subject to geological investigation. The forestry work has created minimal disturbance beyond removing the forest cover, and exploration related disturbance remains restricted to small areas of trail and drill sites, with some additional development of equipment yards. Most of the disturbance lies well back from any significant water course.

Record of Finds

Stage 1 assessment included a desktop review and property inspection. This 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 project include the following:

Table 4: Documentary records associated with P236-0208-2022.

Documentation	N	Description	Location
Photographs	279	digital images	digital storage
GPS readings	42	property, context	digital storage
Notes	4	page of notes	digital storage
Report	1	copy (.pdf)	digital storage

Analysis – Stage 1

Archaeological potential can be evaluated for the subject property based on a number of criteria (S&Gs Section 1.3.1). Specifically, these include:

- proximity to registered archaeological sites,
- proximity to modern water sources,
- elevated topography (eskers),
- early historical transportation routes.

One archaeological site is registered near Snake Falls on the Chukuni River. There is no information available on the nature of this site, and it is likely that it represents a surface collection of artifacts from disturbed context at the existing camp property. The S&Gs require that an area of *at least* 300m from the site is evaluated as holding archaeological potential.

Modern water sources include primary and secondary sources that are presently occurring on the subject property. The property inspection examined all of the larger and smaller water sources in order to establish how they contributed to an evaluation of archaeological potential. Several larger lakes and streams are present on the property. Terrain conditions adjacent to these features included low, wet, and rocky conditions that are not suited to habitation or site discovery using standard archaeological techniques, as well as shoreline areas of relatively level, well-drained terrain suited to occupation. It was noted that some water sources, such as Teardrop Lake and Dixie Creek, had indistinct margins. In these instances, the water's edge was noted being set back from 'dry land' with this transition marked by moderate to steep slopes. At Teardrop Lake, the water margin is marked by a transition from open water to marsh, while Dixie Creek was noted meandering through a wide valley marked by an elevation change of a few metres to level, interior terrain. While the S&Gs (Section 1.4.1 and 2.1.5) require that an area of 50m from the edge of the feature is evaluated as holding archaeological potential, we feel that this distance should be considered from the crest of the transition slope to the overall forested terrain.

Elevated topography was noted at the subject property in two forms: high points on the landscape and eskers. Areas of generally elevated terrain were noted as being (possibly) bedrock-controlled rises between low areas of marsh or moist forest soils. In the northern part of the property, sandy areas were noted on the flanks of some of these slopes, and this sandy soil continues in areas of jackpine dominated forest. Three major eskers are noted from available quaternary geology mapping running north to south across the property. The expression of the eskers on the landscape is clear, and they were noted during property inspection. The easternmost esker crosses Dixie Creek at the forestry road leading to Toterod Lake. Generally, the inclusion of elevated terrain in the evaluation of archaeological potential addresses questions of traversing otherwise low, wet terrain, or where high points on the landscape provide for views. In the subject property, elevated terrain is expected to hold some level of potential related to traverses of often low and wet terrain, but the potential is elevated where the higher ground is in proximity to modern or former water sources. Section 1.4.1 of the S&Gs requires archaeological potential to be evaluated for areas of elevated terrain but does not specify a buffer for the evaluation.

Early historic transportation in the region includes the Chukuni River, which historical research has shown has been a significant route for Euro-Canadian exploration and commerce since the 18th century. The location of Red Lake House, a Hudson's Bay Company trading post, to the north on Red Lake, plus an overland portage to Trout Lake east, combined with the location of other posts and travel routes incorporating the English River, south of Pakwash Lake, centres the Chukuni River in terms of regional travel and trade. S&Gs Section 1.4.1 requires that the area within 100m of early historic transportation routes is evaluated as holding archaeological potential.

Archaeological potential is indicated on Map 6.

Conclusions – Stage 1

From the review of background information and a property inspection, portions of the property are evaluated as holding archaeological potential.

The area within 300 metres of the registered archaeological site at Snake Falls that overlap the subject property are evaluated as holding archaeological potential. Stage 2 archaeological assessment will be required for the areas of overlap between the site buffer and subject property if development is proposed within this area.

Areas within 100 metres of the highwater mark along the Chukuni River are evaluated as holding archaeological potential. Stage 2 archaeological assessment will be required for these areas if development within this area is proposed.

Areas within 50 metres of Dixie Creek, Rice Lake, Stone Lake, Genesee Lake, and Dixie Lake are evaluated as holding mixed archaeological potential. The area defining the archaeological potential area is based on the high water mark of the creek or lakes, and includes a setback from the top of the ridge marking the valley, channel, or basin of the water source. For Dixie Creek, potential may be present in local areas adjacent to the current route of the stream as well as areas further from the creek where the larger valley is defined. Stage 2 archaeological assessment will be required for these areas of potential within the project development area.

Areas within 50 metres of Teardrop Lake are also evaluated as holding mixed archaeological potential. Within this area, the area of potential should be defined based on terrain considerations, such as the high water mark as well as consideration of where ricing camps may be suitably located in lower elevation areas.

Areas of elevated topography are evaluated as holding mixed archaeological potential. Stage 2 archaeological assessment will be required for all of the esker ridges crossing the subject property. The area evaluated as holding archaeological potential is not defined within the S&Gs, and Stage 2 fieldwork should focus on locations along the eskers where terrain features suggest elevated potential, for example, where the esker crosses Dixie Creek.

Other areas of elevated terrain are evaluated as holding mixed archaeological potential; however, the extent of the area for consideration at Stage 2 is not set out in the S&Gs. For the purposes of ensuring that areas of potential are not overlooked, Stage 2 investigations should be completed for areas of sand soil on the flanks of high points, particularly where they are adjacent to water sources.

Areas of disturbance were noted throughout the subject property. Most of these areas were limited in extent but were generally intensive (excavated areas). Archaeological potential is considered removed from areas of intensive disturbance. In this continuously evolving industrial landscape, where additional and changing local disturbance effects are ongoing, additional Stage 2 work for areas of archaeological potential should be considered primarily for impacts from development of the major mine components.

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 observations made during the property inspection and background study are represented in Map 5. The evaluated archaeological potential is shown on Map 6.

Recommendations – Stage 1

Stage 1 evaluation of archaeological potential, including background study and property inspection was completed for all parts of the subject property.

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

1. Stage 2 archaeological assessment is recommended for portions of the subject property. General direction in the completion of Stage 2 assessment is set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 2.1. Specifically and for all parts of the Stage 2 assessment, fieldwork must be carried out only when weather and lighting conditions provide good visibility. This excludes periods of poor conditions such as snow cover, frozen ground, periods of excessive rain or drought, or heavy fog. Further, a GPS must be used to record the locations of all diagnostic artifacts, a sufficient number of other artifacts to provide an estimate of the extent of the site and all fixed landmarks. GPS and will also be used to support detailed mapping of all field activities. Photos must be taken of all field activities and provide examples of all field conditions encountered. All Stage 2 excavation must be conducted using hand tools.
2. 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. Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.
3. Stage 2 testing in areas of irregular terrain or holding mixed or complex archaeological potential may be tested following the direction found in the S&Gs Section 2.1.6. In such areas, the test grid will be maintained to the extent possible, varying from this grid according to professional judgement. The rationale for such judgement will be documented. Further, in areas of mixed or complex archaeological potential, areas showing characteristics of low archaeological potential will not be tested, but will be documented and reported to the greatest degree of precision possible.
4. Further, as the property is located on the Canadian Shield in 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. Specifically, it is recommended that for areas where the identified features of archaeological potential are modern water sources, test pits will be excavated on a five metre grid interval within 50 metres of the feature. Where the feature of archaeological potential is not a modern water source, then testing will be completed on a five metre grid between zero and 50 metres from the feature and at a ten metre grid between 50 and 150 metres from the feature. Testing will not be required beyond 150 metres of the feature of archaeological potential.
5. As small areas of extensive and intensive disturbance are present throughout the subject property, it is recommended that disturbance in or adjacent to areas of archaeological potential be delineated through Stage 2 fieldwork conforming to the direction set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 2.1.8. Specifically, the areas of disturbance will be documented according to the standard described for Stage 1 property inspections, and test pits will be excavated according to professional judgement to confirm the depth and extent of disturbance.
6. Any development is proposed in any part of the subject property within 300 metres of registered archaeological site EeKi-3, must be preceded by Stage 2 archaeological assessment conforming to the direction found in the S&Gs

Section 2.1, will be required (S&Gs Section 1.4.1, s. 1(c)). This includes the excavation of test pits conforming to the direction found in Section 2.1.2. Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined, and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.

7. For areas of proposed development within 100 metres of the Chukuni River, a historic transportation route, Stage 2 archaeological assessment conforming to S&Gs Section 2.1, will be required (S&Gs Section 1.4.1, s. 1(d)). Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined, and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.
8. For areas adjacent to modern water sources (Dixie Creek, Rice Lake, Stone Lake, Genesee Lake, Dixie Lake, and Teardrop Lake), Stage 2 archaeological assessment conforming to S&Gs Section 2.1.1, will be required, as modified by Section 2.1.5. Test pitting will be required within the archaeological potential area, defined on the basis of terrain and proximity to the high water mark (S&Gs Section 1.4.1, s. 1(c)). Specifically, the Stage 2 assessment must conform to the directions found in Section 2.1.2 which stipulates that test pits are excavated on a five metre grid interval for all areas of archaeological potential, up to within one metre of existing structures, that the test pits are at least 30 centimetres on each side and are excavated by hand into the first five centimetres of subsoil. Further, all soil removed from the test pits will be screened through screen of not more than six centimetre mesh, the walls of the test pit will be examined, and all test pits will be backfilled. All associated artifacts will be collected. Where positive test pits are encountered, intensification conforming to the direction found in Section 2.1.3, including the excavation of an additional eight test pits and one or more one metre square unit will be excavated, including one on top of the positive test pit.
9. For areas of elevated topography, including eskers and topographic heights, Stage 2 archaeological assessment conforming to S&Gs Section 2.1.6, will be required (S&Gs Section 1.4.1, s. 1(e)). In these areas, the test grid will be maintained to the extent possible, varying from this grid according to professional judgement. The rationale for such judgement will be documented. Further, in areas of mixed or complex archaeological potential, areas showing characteristics of low archaeological potential will not be tested, but will be documented and reported to the greatest degree of precision possible.
10. For all parts of the subject property evaluated as holding low archaeological potential at Stage 1, and in areas of confirmed disturbance, no further archaeological work is recommended.
11. It is recommended that 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.

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

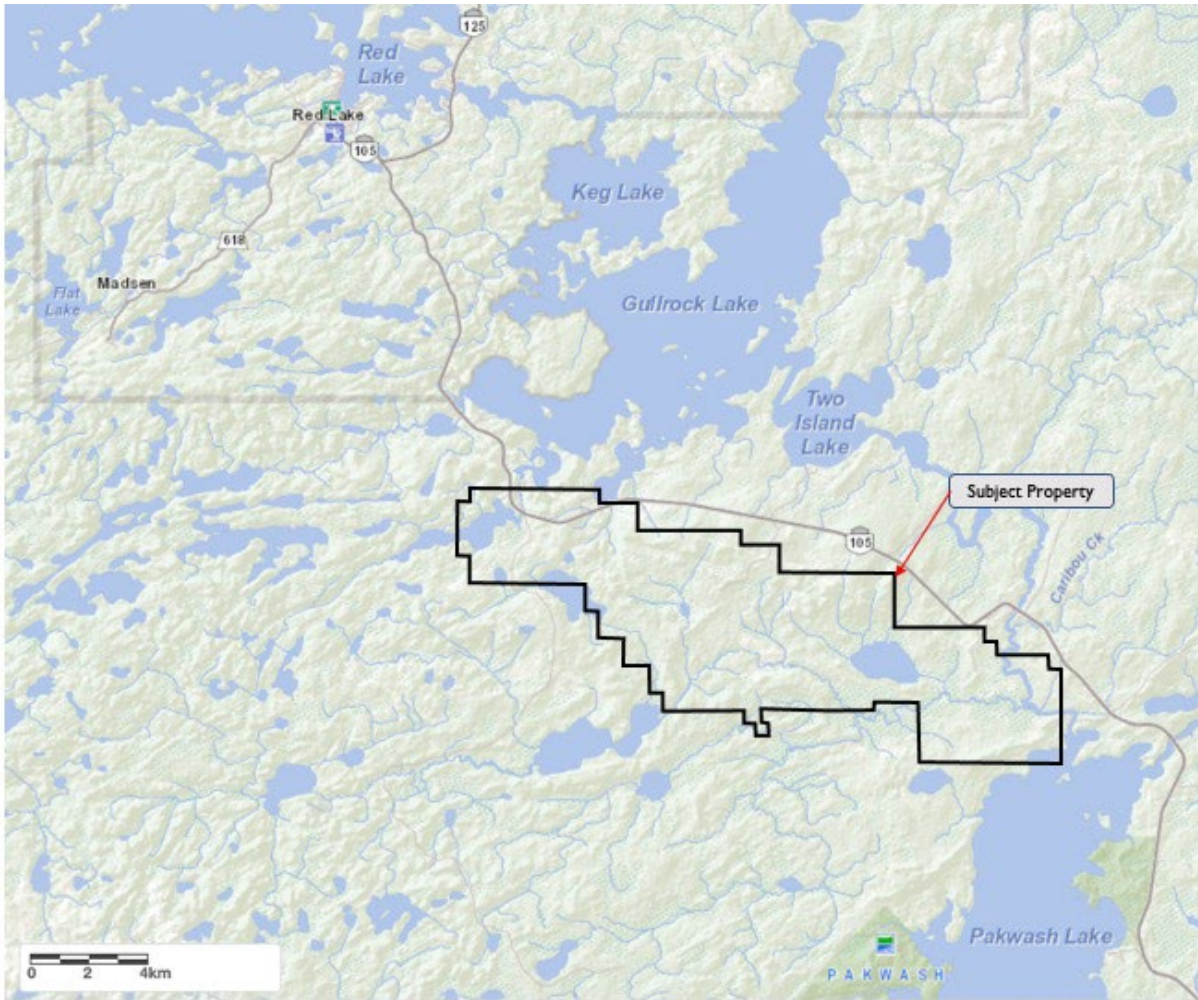
- Beukens, R.P., L.A. Pavlish, R.G.V. Hancock, R.M. Farquhar, G.C. Wilson, P.J. Julig and W.A. Ross. 1992. Radiocarbon dating of copper-preserved organics. *Radiocarbon* 34(3): 890-897.
- Burpee, L.J. 1927. *Journals and Letters of LaVerendrye and his Sons*. Champlain Society, Toronto.
- Conway, T.A. 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.
- Hamilton, S. 2004. Early Holocene human burials at Wapakeka (FIJj-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.
- 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 from 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.
- Julig, P.J. 2003. *The Sheguiandah Site: Archaeological, Geological and Paleobotanical Studies on Manitoulin Island, Ontario*. Canadian Museum of History, Gatineau.
- 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.
- Neilsen, J.M. 1989. Northern Ontario Engineering Geology Terrain Study, Data Base Map, Pakwash Lake. Ontario Geological Survey. Map 5107, Scale 1:100 000.

- 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.
- 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.
- 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



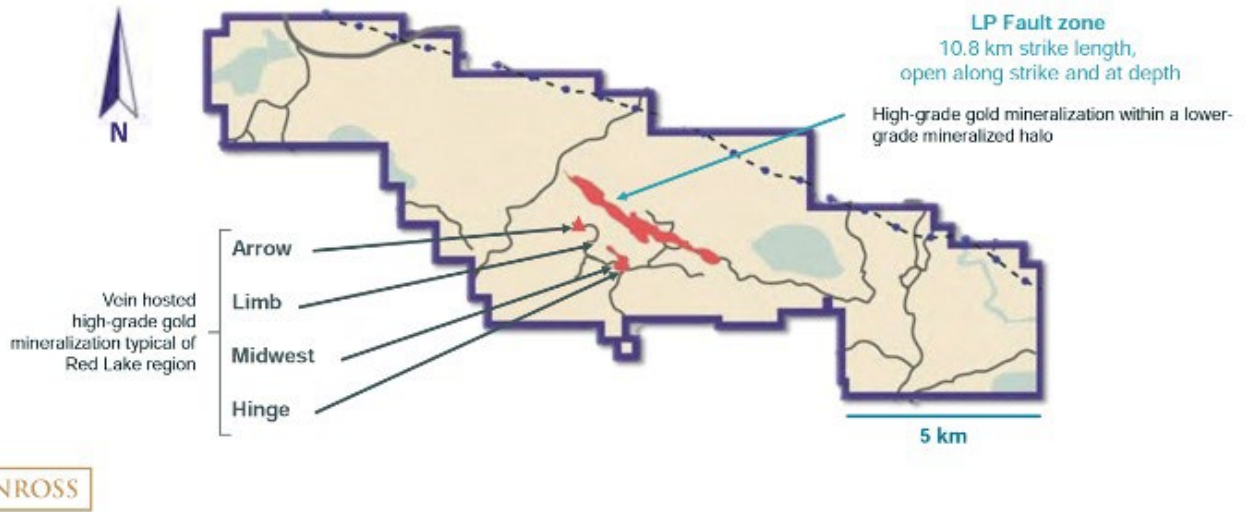
Map 1: Regional location of subject property.



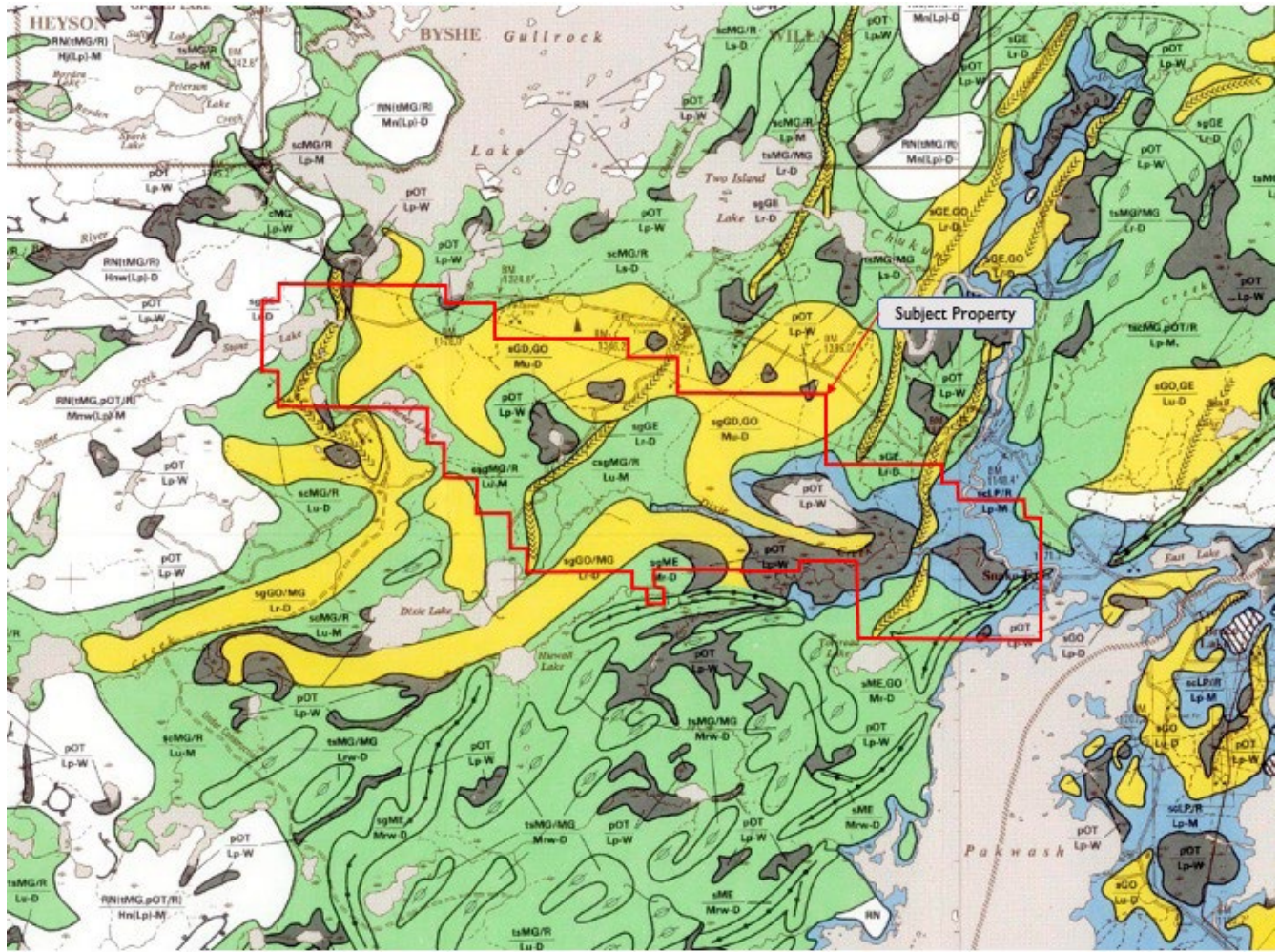
Map 2: The subject property is located east of the Chukuni River and south of Highway 105, southeast of Red Lake, Ontario.

Property Overview

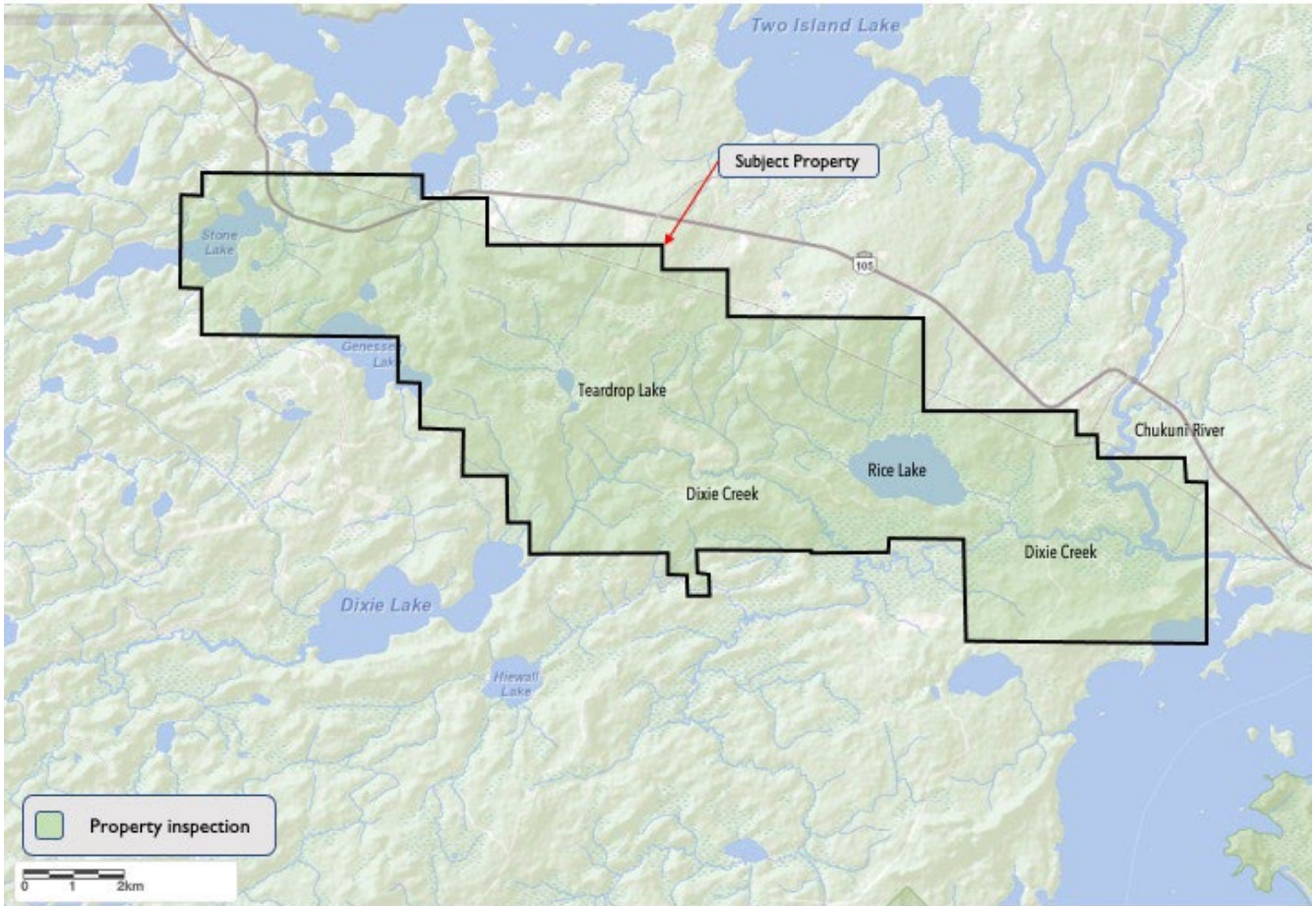
Multiple zones of high grade mineralization across property



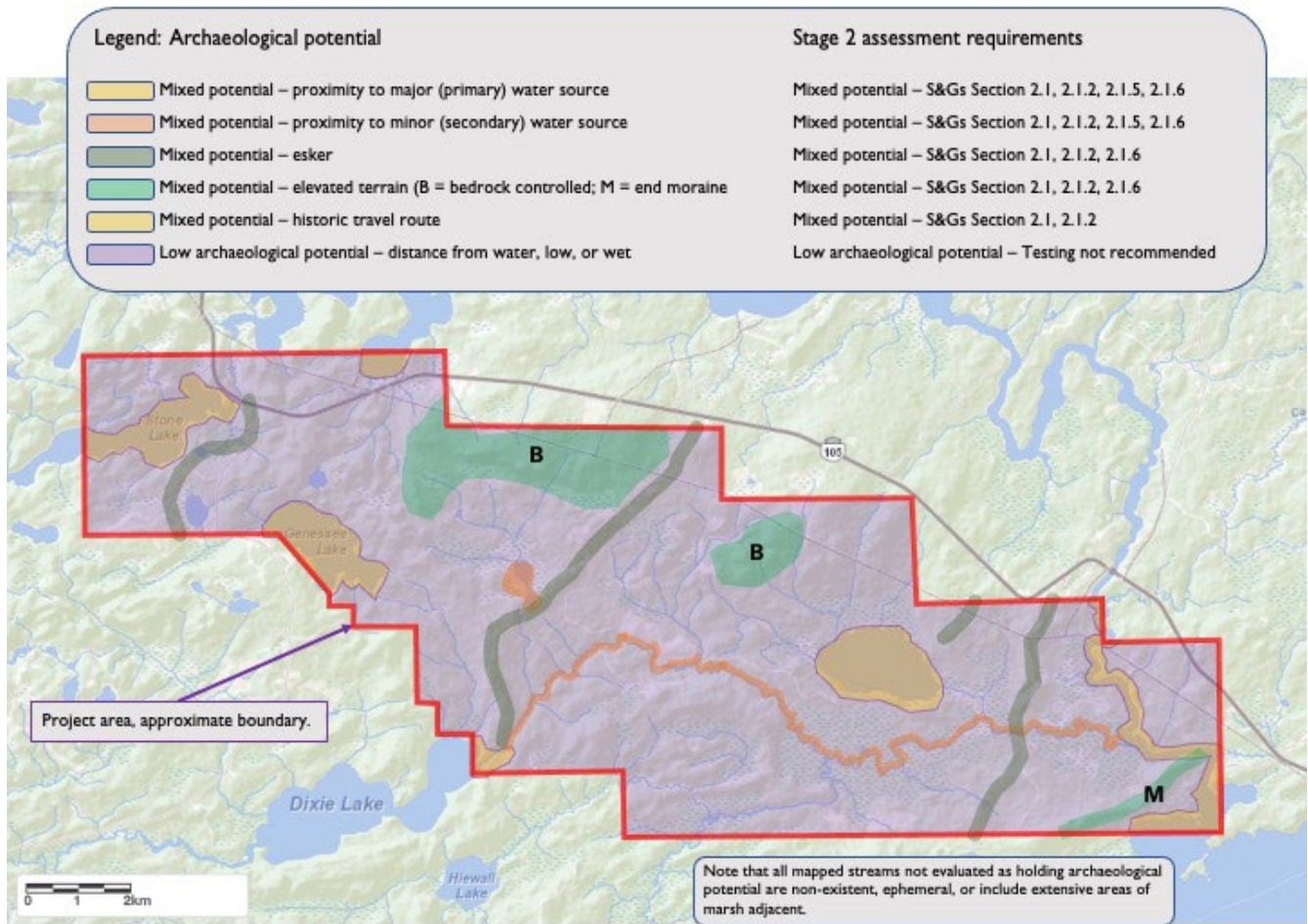
Map 3: Development plan (property overview) for subject property.



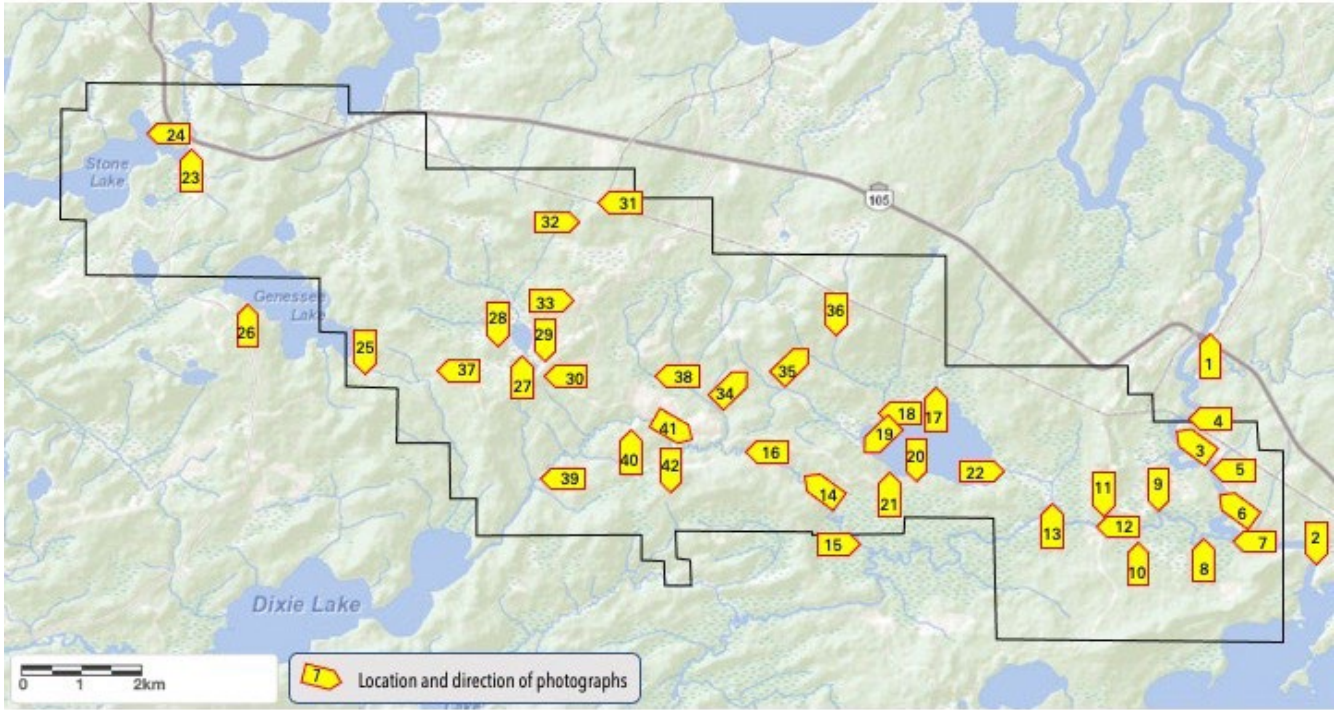
Map 4: Quaternary geology of the study area (Source Neilsen 1989). Note that the glaciolacustrine and ground moraine deposits have a high clay content. Shoreline features were not identified at the margins of the mapped glaciolacustrine deposits during property inspection.



Map 5: Subject property showing area evaluated. Property inspection was completed on foot, assisted where required by boat or ATV. Access was by water or existing road and trail network.



Map 6: Archaeological potential evaluated at Stage 1. All areas of archaeological potential are mixed or complex archaeological potential. Note that actual archaeological potential areas along Dixie Creek and Rice Lake is based on the distance from the high water mark or at the transition from marsh to dry forest. This will include a number of isolated areas.



Map 7: Location and direction of photographs used in this report.

Figures



Figure 1: View north showing Hwy 105 bridge and rapids in distance, Chukuni River.



Figure 3: View northwest showing hydro-electric transmission corridor crossing, Chukuni River.



Figure 2: View south to Snake Falls (at bridge).



Figure 4: View west of open black spruce / shrub stand reflecting low elevation above Chukuni River.



Figure 5: View west from Chukuni River showing moist to fresh bank area supporting poplar-spruce-fir mixedwood forest cover.



Figure 6: View northwest from Chukuni River showing open spruce / shrub cover in foreground and an area of high ground in distance.



Figure 7: View west showing mouth of Dixie Creek. The open channel is flanked by extensive sedge and reed beds with local areas of higher terrain supporting shrub and tree cover.



Figure 8: View north from Dixie Creek showing typical bank conditions with grass-sedge-shrub cover in varying combinations with patches of open water.



Figure 9: View south from Dixie Creek showing slight elevation rise supporting mature conifer growth.



Figure 10: View north showing low clay / sand bank supporting sparse mixed forest cover. Note evidence of seasonal overwash during Spring freshet.



Figure 11: View south showing high bank supporting mature conifer stand with closed canopy. Bank is between 2 and 3 metres above water, possible esker.



Figure 12: View west (upstream) showing forestry operations bridge crossing Dixie Creek. The bridge is positioned on or near the easternmost esker ridge.



Figure 13: View north showing typical bank conditions in lower part of the stream. Note the low ridge in distance and the seasonal high water line on the vegetation.



Figure 14: View northwest showing high bank on Dixie creek supporting mature conifers.



Figure 15: View east showing moderate bank area adjacent to Dixie Creek supporting lone jackpine. Jackpine do not usually favour wet conditions.



Figure 16: View west showing the navigable limit on Dixie Creek. Upstream, the creek occupies a narrower channel with regular banks set back from the stream.



Figure 17: View north showing typical shore conditions on Rice Lake. Note boulder at shore, extensive area of low shrub in front of closed spruce forest.



Figure 18: View west showing typical shore conditions on Rice Lake. Note extensive grass beds. Currently little wild rice is present, but the lake name suggests abundant rice in the past.



Figure 19: View southwest showing area of the mouth of the creek draining into Rice Lake. The creek flows through an extensive grass bed.



Figure 20: View south showing typical shore Rice Lake with low (1 – 2m) terrace above lake adjacent to ridge.



Figure 21: View north showing perspective from top of high ridge south of Rice Lake. The ridge is beyond 50m from the high water mark of the lake.



Figure 22: View east showing outlet from Rice Lake. The stream meanders through extensive grass beds and has an indistinct channel.



Figure 23: View north showing outflow from Stone Lake toward Hwy 105. Low marsh banks grading to higher, better drained ground inland.



Figure 24: View west of low slope shoreline on Stone Lake. Note that the marshy shore is underlain by cobbles, ground grades higher inland.



Figure 25: View south showing the bed of the intermittent stream draining Genesee Lake into Dixie Lake. The stream is mapped, but is not permanent.



Figure 26: View north showing general conditions along shore Genesee Lake. Shoreline varies between marsh over cobble and steeply sloped bedrock.



Figure 27: View north showing Teardrop Lake. Foreground shows woody herbaceous shrub cover in level wet area, with extensive rice beds beyond.



Figure 28: View south showing the transition between woody shrub to black spruce forest corresponding to slight rise in elevation.



Figure 29: View south showing higher well drained areas inland from Teardrop Lake that supports mature conifer forest.



Figure 30: View west along south shore of Teardrop Lake (south part) showing silt/sand beach, rise to well-drained, forested area. Bedrock at point.



Figure 31: View west showing upland interior terrain on existing transmission corridor. Mid-elevations show sand deposits from glaciofluvial deposits, ponding in low areas. Bedrock ridge in distance.



Figure 32: View east showing excavated face in one of several sand pits in the area. Bedded sands indicate active glaciofluvial depositional environment.



Figure 33: View east showing slope break from moraine deposits to post-glacial outwash channel. This forms a well-drained terrace above Teardrop Lake basin.



Figure 34: View northeast showing a 'mapped stream,' a seasonal drainage expressed as low seep accentuated by recent surface runoff and vehicle traffic.



Figure 35: View northeast showing a 'mapped stream,' a seasonal drainage expressed in a small valley. A culvert has been installed on the trail.



Figure 36: View south showing 600mm culvert and small 'mapped stream'. The stream is >1m wide, shallow and runs within a channel of >5m width through otherwise level terrain.



Figure 37: View west showing 'mapped stream' crossing heavily travelled road. Surface runoff has created a small wet patch, but no corresponding stream was visible.



Figure 38: View west showing general terrain configuration in the interior of the property. Apart from the esker and bedrock ridges to the north, the property is quite level.



Figure 39: View west showing Dixie Creek upstream from the location shown in Fig. 16. Dense shrub and grasses crowd the stream channel.



Figure 40: View north showing exposed section of slope break above Dixie Creek channel.



Figure 41: View southeast showing terrain across upper Dixie Creek. Foreground disturbance is a drill pad, leading down to stream. Road, visible in distance on opposite side of creek and valley.



Figure 42: View south showing drill pad. Soils in much of the subject property have a high clay content resulting in poor drainage. Drill pad disturbance at drill pads affects small areas in both absolute and relative terms across the subject property.

Stage 1 Archaeological Assessment

Proposed Natural Gas Connection at Tuzycks Road and Highway 105, Unorganized Territory, District of Kenora, Ontario.

Northwest Archaeological Assessments Ltd.

Consulting Archaeologists | Cultural Heritage Consultants

Northwest Archaeological Assessments Ltd.

Andrew Hinshelwood, PhD, CAHP

Stage 1 Archaeological Assessment of the Proposed Natural Gas Connection at Tuzycks Road and Highway 105, Unorganized Territory, District of Kenora, Ontario.

Stage 1
Original Report
November 10, 2023

Archaeological Assessment Report
Prepared by Andrew Hinshelwood
Archaeological Licence P236
PIF P236-0232-2023

Prepared for:

Great Bear Resources Ltd.
104 Howey Street,
Red Lake, ON P0V 2M0

ashley.moncrief@kinross.com

hinshelwoodandrew@gmail.com

www.andrewhinshelwood.com

[807 252-1251](tel:807-252-1251)

Executive Summary

Great Bear Resources Ltd. (GBR) propose the development of their Great Bear property, located in unorganized territory, District of Kenora, Ontario (Map 1). The subject property comprises approximately 9100 hectares and lies approximately 25 kilometres southeast of Red Lake, Ontario (Map 2). The proposed mining activity will be centred on a linear zone showing higher grade gold mineralization (the LP Fault zone) running southeast to northwest through the centre of the property.

Planning for the Great Bear Project includes developing the infrastructure to support proposed facilities at the mine site. Currently, planning is being undertaken to permit and construct a natural gas pipeline between the existing pipeline, which runs along the east side of Highway 105, and the proposed mine site. The majority of the pipeline route through the GBR property will follow existing roadways developed for mineral exploration, forestry, and aggregate hauling. A comprehensive evaluation of the potential for archaeological and cultural heritage properties to be present in the project area was completed in 2022. The report for this Stage 1 assessment (PIF P236-0208-2022) included this existing road network. A short section of the pipeline will pass through an area away from existing roads and is the subject of this assessment (Map 3).

This Stage 1 archaeological assessment conforms to the direction found in the Ministry of Citizenship and Multiculturalism (MCM) Standards and Guidelines for Consultant Archaeologists (S&Gs). The Stage 1 archaeological assessment reported here includes a background study and property inspection. The background study included a review of the existing conditions and the historical and archaeological records relevant to the property. Property inspection included a review of the physical conditions of the property to confirm the evaluation of potential and assess strategies for Stage 2 fieldwork, if required. Property inspection examined the entire subject property (Map 3).

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

1. The result of the Stage 1 archaeological assessment, including background study and property inspection evaluates the subject property as holding low archaeological potential. It is recommended that no further archaeological assessment work is required for the property prior to development.

Table of Contents

Executive Summary..... 2

Project Personnel..... 4

Statement of Qualifications..... 4

Project Context..... 4

Development Context 4

Historic Context..... 5

Archaeological Potential 7

Observations..... 9

Record of Finds..... 9

Conclusions..... 10

Recommendations..... 10

Advice on compliance with legislation 11

Bibliography and Sources..... 12

Maps..... 13

Figures..... 19

Project Personnel

Personnel involved in this project included the licensee (Andrew Hinshelwood, P236), acting as field director. Ted Binguis (LSFN) participated in the property inspection. Heather Hopkins acted as project manager and assisted in the preparation of this report.

Statement of Qualifications

This report was prepared by Andrew Hinshelwood, PhD. Dr. Hinshelwood is a licenced archaeologist in Ontario (archaeological licence P236) with over 35 years' experience in archaeological assessment in Northern Ontario. Andrew has worked as a consulting archaeologist and as a provincial review officer for the ministry. He is member in good standing of the Association of Professional Archaeologists (Ontario), and the Canadian Association of Heritage Professionals (CAHP).

Project Context

Great Bear Resources Ltd. (GBR) propose the development of their Great Bear property, located in unorganized territory, District of Kenora, Ontario (Map 1). The subject property comprises approximately 9100 hectares and lies approximately 25 kilometres southeast of Red Lake, Ontario (Map 2). Planning for the Great Bear Project includes developing the infrastructure to support proposed facilities at the mine site. Currently, planning is being undertaken to permit and construct a natural gas pipeline and substation between the existing pipeline, which runs along the east side of Highway 105, and the proposed mine site.

The pipeline route through the GBR property follows existing roadways. A comprehensive Stage 1 evaluation of potential for archaeological and cultural heritage properties in the project area was completed in 2022. The report for this Stage 1 assessment (PIF P236-0208-2022) included this existing road network. A short section of the pipeline and substation will be constructed in an area away from existing roads and is the subject of this assessment (Map 3). The location of the subject property is approximately 50.8930°N and -93.6050°E.

This Stage 1 archaeological assessment was undertaken in conformance to the direction found in the Ministry of Citizenship and Multiculturalism (MCM) Standards and Guidelines for Consultant Archaeologists (S&Gs).

Development Context

Most of the proposed pipeline route through the GBR property follows existing roadways. A comprehensive Stage 1 evaluation of potential for archaeological and cultural heritage properties in the project area was completed in 2022. This Stage 1 assessment (PIF P236-0208-2022) included the existing road network. A short section of the proposed pipeline will pass through an area away from existing roads and is the subject of this assessment (Map 3). For the purposes of this assessment, the subject property was an area of about 100 by 350 metres, or 3.5 hectares. The location of the subject property is approximately 50.8930°N and -93.6060°E.

Historic Context

The subject property lies within the Traditional territories of Lac Seul First Nation and Wabauskang First Nation and is within the Treaty No. 3 area. Treaty No. 3 was signed in 1873 at Northwest Angle, placing a large area of what is now northwestern Ontario (primarily the Lake Winnipeg drainage) under Treaty. Lac Seul First Nation is affiliated with the Independent First Nations Alliance. Wabauskang is affiliated with Bimose Tribal Council.

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 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). In response to trade pressures, both companies established a number of major and minor posts and had active trading parties throughout the northwest, until 1821, when the HBC and Northwest Company merged (Moodie, et al. 1987; Rich 1958).

Lac Seul and Red Lake are connected by the Chukuni River, which also runs through Pakwash Lake, Two Island Lake and Gullrock Lake. The Chukuni River lies east and north of the subject property. Wabaskang Lake is also connected to Red Lake through Cedar River, which runs through Rice Lake and Camping Lake. A juncture between Rice and Camping Lakes provides direct access into the English River system. The English River is a major travel route connecting the areas north of Lac des Milles Lacs to the Winnipeg River. East of Milles Lac, access into Lakes Nipigon and Superior is relatively straightforward. To the west, The English River affords access into Lake of the Woods and Rainy Lake (Map 1). During the fur trade period, from at least 1790, posts had been established at Red Lake (Red Lake House), Lac Seul (Pine Ridge Post), and the juncture of the Chukuni and English Rivers (Mattawa Post).

Historic travel and trade routes were mapped onto the interconnecting waterways. Euro-Canadian travellers learned routes from Indigenous communities in the region who had used these routes for millennia. These routes served as the basis for early geological exploration that led to the discovery of the gold in the Red Lake mining district in the 1920s. By 1940, most of the Red Lake area had been staked, and several significant mining operations were in place and producing. The Dixie Lake area was not staked or developed during this early period and is generally seen as a blank area on the early survey maps.

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.)

The earliest material evidence of post-glacial human occupation of the region is termed “Late Palaeo” by archaeologists.¹ The antiquity of the sites, coupled with soil conditions in northern Ontario that are not conducive to preservation, has resulted in sites that contain little more than worked stone artifacts and the waste resulting from their manufacture. During this period post-glacial lake levels in regional lake basins 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.² 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 7,000 to 8,000 years B.P. Pollen records show that for a time at the start of this sequence the interior of northeastern Ontario was a treeless tundra that would have supported herds of caribou and possibly residual groups of mastodons. This tundra was gradually closed in as forest cover was established.

Subsequent environmental change as drainage patterns and the environment stabilised is represented in the archaeological record as a poorly known but very long period termed the “Archaic”. During this period, which lasted until about 2,000 years ago, regional inhabitants made a gradual cultural transition from an economy based in the large-scale caribou hunting of the late palaeo period, to the diverse local game procurement practices that included moose and smaller game animals. Artifacts known for the Archaic increase in diversity over time and begin to include copper and ground stone tools. Archaeologists speculate that this change in hunting focus was matched by a shift from large game hunting to larger social groups, to pursuit of a wider range of game by extended families or bands. Despite the focus on hunting, 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 transition from the later Archaic to the “Woodland” period is marked by the introduction of ceramics (pottery) to the artifacts found at archaeological sites. Apart from this addition, the stone and copper tools present are virtually indistinguishable from those of the Archaic. The earlier (“Middle Woodland”) sites of this time are also referred to as “Laurel” period sites based on a distinctive pottery type. Later Woodland sites include a range of different ceramic cord impressed vessels. They are distinct from Laurel ceramics in both overall shape of the vessel and the methods of decoration and are typical of types from northeastern Ontario.

Indigenous occupation and use of the region is also seen in the archaeological sites dating to the “Contact” period, which begins with the fur trade and introduction of European manufactured trade items. The fur trade, which was the economic basis for this initial move to enter the region began in the early 17th century as trade goods were distributed by middlemen from the south who controlled trade with French traders from Montreal (Ray 1974; Ray and Freeman 1978). More direct contact was initiated in 1670 with the incorporation of the Hudson Bay Company (HBC) who proceeded to build posts on James and Hudson Bays. To compete, French traders, taking advantage of intergroup conflict in southern Ontario *circa* 1650, began to trade directly into the region. The Montreal groups later began to

¹ We note that a growing body of evidence places the ‘earliest’ archaeological sites in North America well before the end of the Pleistocene (roughly 12,500 years B.P.). This evidence has challenged both the antiquity of Indigenous presence on the continent and immigration hypotheses such as the Bering Strait, suggesting a much broader and nuanced understanding is necessary (see, for example, Steeves, 2021).

² This date marks the onset of a stable landscape. It is entirely likely that the sediment rich end moraines at the toe of the continental ice mass would have supported plant and animal life, and therefore human use of areas now understood as ‘ice covered’.

establish posts in the region, centred at Lake Temiskaming and Lake Superior in the 1670s (Burpee 1927; Rich 1958). The competing entities merged in 1821 when the HBC formally acquired control over the NorthWest Company, the main Montreal trading concern.

Stage 1 Background study

The subject property is a linear property commencing at the south side of Highway 105, at a point approximately 250 metres east of Tuzyck's Road and running south for approximately 350 metres to join with Tuzyck's Road (Map 3). The substation will be built towards the south end of the new pipeline. From this point, the proposed pipeline will run within the existing roadway alignment. The property is situated between the existing road and an aggregate source area further east. The property is in northern Ontario and on the Canadian Shield (S&Gs Section 2.1.5). The elevation of the property is 390m asl and is relatively level (Map 3). Access to the property from Highway 105 or Tuzyck's Road.

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

Archaeological Potential

Archaeological potential is a statement of the likelihood that archaeological resources are present on a specific property. Potential is not a probability statement, rather it is the application of the current understanding of archaeological resource distribution to an area not previously examined. In most cases, potential is evaluated based on current knowledge of the property and the landscape associations of registered archaeological sites on properties showing similar landscape characteristics. In the present assessment, archaeological potential is evaluated on the basis of whether the property, or sections of the property, are proximate to a few key factors. Specifically, these are registered archaeological sites, modern watercourses, topography or quaternary geology, relict shorelines (former watercourses), and historic settlements or transportation routes, among other factors (S&Gs Section 1.3.1). In addition, areas showing clear evidence of extensive and intensive ground disturbance may be evaluated as holding low or no archaeological potential based on (S&Gs Section 1.3.2).

Registered Archaeological Sites and Previous Assessment

As part of the Stage 1 archaeological assessment, the *Ontario Archaeological Sites Database* (OASD), maintained by MCM, was consulted. The database shows no sites within five kilometers of the property.

Previous archaeological assessment has been completed for the GBR property. Stage 1 fieldwork and reporting was completed in 2022 under PIF P236-0208-2022. A Stage 2 assessment was conducted in 2023 under PIF P236-0222-2023. The report for this assessment is currently in preparation.

Stage 2 assessment is required for all areas within 300m of a registered site (S&Gs Section 1.4.1).

Modern water sources

The subject property occupies an interior upland position on the landscape. No modern water sources are evident on the property, with the nearest water sources located more than 150 metres from the property boundary to the west and south.

The S&Gs, require Stage 2 assessment of all areas within 50m of modern water sources (S&Gs Section 2.1.5).

Topography or Quaternary Geology

The subject property is located in an area of glaciofluvial sediments (post-glacial delta and outwash deposits), primarily comprised of sand (Nielsen 1989; Map 4). Nielsen has mapped the terrain at the subject property as part of an esker, although the esker more likely passes through the existing aggregate source area.

Eskers, as areas of elevated terrain, are considered characteristic of archaeological potential areas. Property inspection noted that the esker ridge was weakly defined and discontinuous through the subject property. As such, it did not appear as a topographic feature, and does not support an evaluation of archaeological potential.

Former water courses

This part of northern Ontario was deglaciated fairly rapidly *circa* 9,200 years BP (Zoltai 1965; Dyke 2004), suggesting that no archaeological resources dating to before this time are expected in archaeological survey. As noted, post-glacial water movement is indicated by the glaciofluvial deposits underlying the property. However, glaciofluvial deposits indicate a dynamic post glacial environment in which it is unlikely that relict shorelines or other features supporting near-shore occupations formed or were stable.

No areas of mapped or potential relict water sources are noted in the information available. No landscape features signalling the presence of a former watercourse within the subject property were noted.

Historic settlement and transportation routes

The S&Gs (Section 1.3.1) group several types of historic Euro-Canadian settlement together for consideration in Stage 1. These include domiciles (farms, cabins, houses) as well as infrastructural elements (bridges, docks, cemeteries). Early historic travel routes (roads, railways, and portages) also signal archaeological potential.

The subject property was not formerly settled in the sense that permanent habitations were established. Background study raised no concerns that early Euro-Canadian settlement had taken place within the subject property, and no special consideration is given.

Existing disturbance

Extensive and intensive disturbance removes most archaeological potential from a property. We note that no disturbance is evident in the subject property.

Stage 1 Property Inspection

Stage 1 property inspection was conducted on October 30, 2023. Property inspection (S&Gs Section 1.2) examined all parts of the subject property. Inspection was systematic for the areas of where construction related disturbance was anticipated (Map 3). The inspection was completed under PIF P236-0232-2023.

The inspection included a visual review of the entire subject property (Map 5). The inspection was sufficient to confirm the distribution of various landscape characteristics, disturbance, and the local condition of soils and terrain. The

property inspection proceeded on foot. Permission to enter onto the property was provided by the proponent. Photographs were taken as part of the inspection (Map 6).

Weather during the inspection was warm and sunny, about 10° C, and cool and damp, with overcast skies. Weather and lighting conditions did not have an adverse effect on fieldwork.

Observations

The subject property encloses an area of about 3.5 hectares between Highway 105 and the intersection with Tuzyck's Road (Figure 1). The proposed pipeline route begins at Highway 105, although additional work on the connection will be required to the north of the highway where the current pipeline is situated. Vegetation cover in the subject property is a conifer dominated mixedwood near the highway (Figure 2) and more of a pure second growth conifer cover in the interior (Figure 3). The terrain through the subject property is level to gently sloping (Figure 4) with no real indication of a significant esker ridge being present.

Tuzyck's Road is an all-weather gravel road with an average width of about 12 metres running within a 15 to 20 metre cleared right-of-way. The right-of-way constitutes an area of disturbance for the purpose of the archaeological assessment. Disturbance is also indicated within the Highway 105 corridor.

Record of Finds

Stage 1 assessment included a desktop review and property inspection.

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 project include the following:

Table 2: Documentary records associated with P236-0232-2023.

<i>Documentation</i>	<i>N</i>	<i>Description</i>	<i>Location</i>
Photographs	14	digital images	digital storage
GPS readings	4	property, context	digital storage
Notes	1	page of notes	digital storage
Report	1	copy (.pdf)	digital storage

Analysis

A short section of natural gas pipeline is proposed for an area between Highway 105 and Tuzyck's Road, near Red Lake, Ontario. The development is part of the planning and infrastructure work necessary as the Great Bear Resources Ltd. mine proceeds to production. Work on the pipeline includes the excavation of a trench for the pipeline through a relatively level section of previously undisturbed ground. The pipeline is proposed to continue through the GBR property along existing roadways. An earlier Stage 1 assessment of the larger GBR property has identified as the existing road alignments as intensively and extensively disturbed.

The subject property was considered in landscape context. There are no registered archaeological sites within 300 metres of the property. While acknowledging that the registered sites form an unknown fraction of the sites that may exist, we are confident that the archaeological data for the area reflects the trend toward larger lakes and rivers for archaeological site location regionally. The property lies more than 50 metres from any modern water source, and there are no indications from available data or field inspection that past water sources are present. Slight variation in the local terrain does not match the expectation that the mapped esker feature (Neilsen 1989: Map 4) represents a topographic high point that contributes to archaeological potential. The subject property does not include any other physical landscape features that would attract long term or intensive habitation that might result in archaeological resources formation. There are no historic Euro-Canadian settlements or travel routes in the subject property.

Conclusions

In evaluating archaeological potential, we considered the available background information and the results of the property inspection. Overall, archaeological potential is low, based on the absence from the study area of any features indicating archaeological potential (S&Gs Section 1.3.1), including the distance of the property from registered archaeological sites, modern water sources, former water sources, and historic settlement or transportation routes. The subject property is an interior area which would have supported extensive even aged conifer stands prior to the construction of the highway, forestry, and aggregate extraction. This type of landscape is relatively productive, but the resources available are dispersed with the result that past use would not normally result in the density of archaeological artifacts and features that would allow the identification using normal archaeological techniques.

Overall, we conclude that 100% of the subject property can be evaluated as holding low archaeological potential (Map 5). 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.

Recommendations

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

1. The result of the Stage 1 archaeological assessment, including background study and property inspection evaluates the subject property as holding low archaeological potential. It is recommended that no further archaeological assessment work is required for the property 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*.

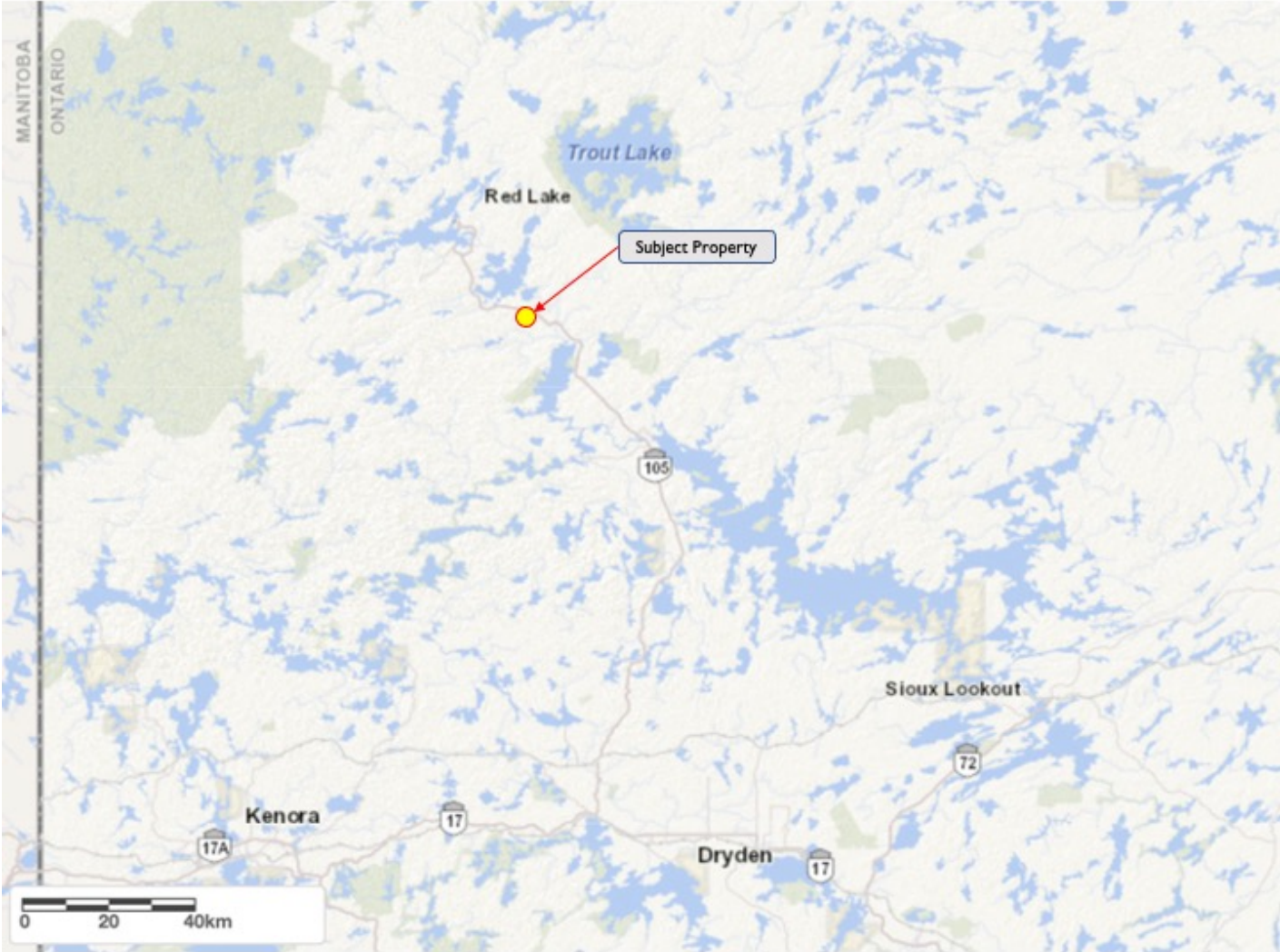
Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage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

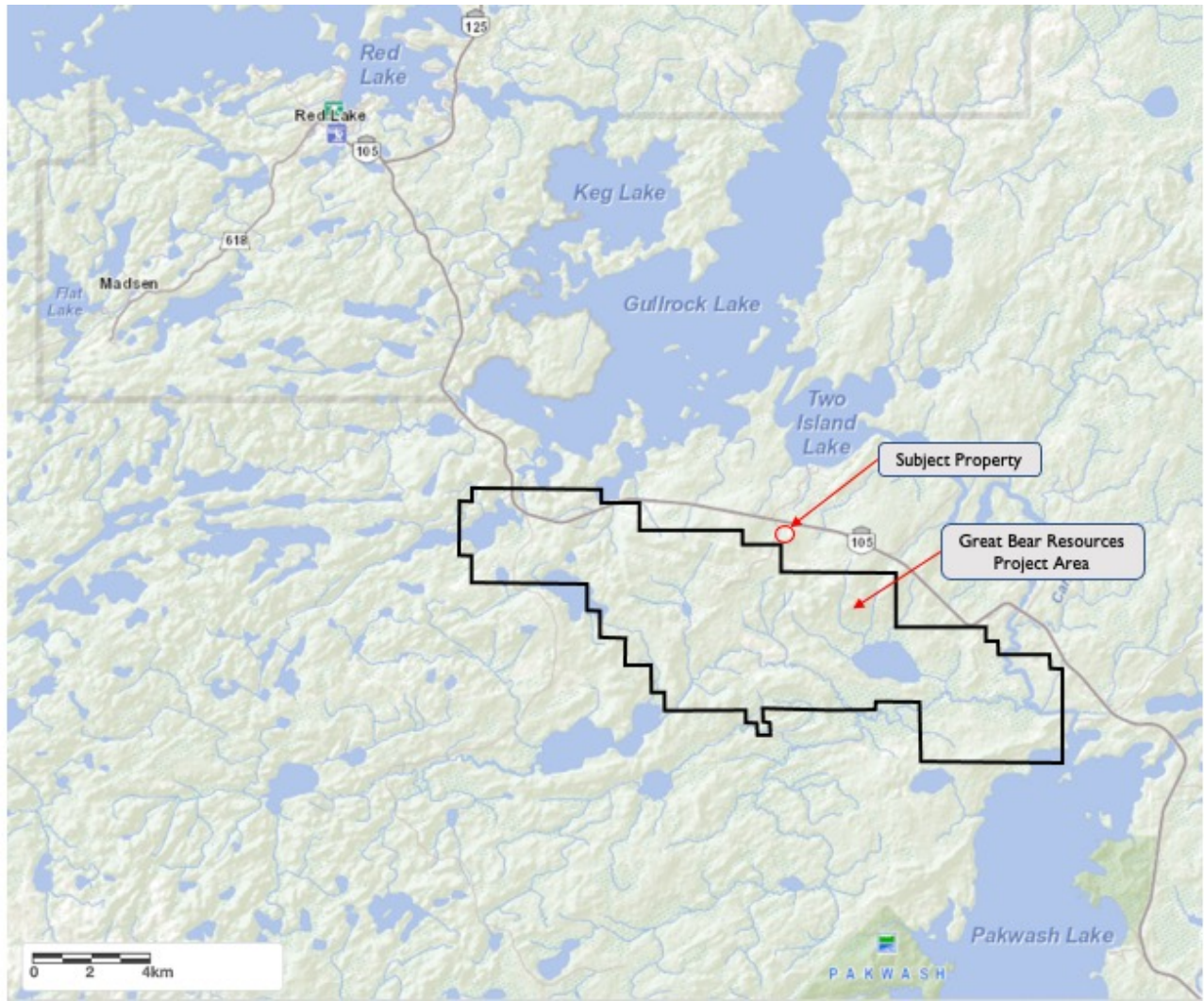
Bibliography and Sources

- Burpee, L.J. 1927. Journals and Letters of LaVerendrye and his Sons. Champlain 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.
- 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.
- 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.
- Neilsen, J.M. 1989. Northern Ontario Engineering Terrain Study, Data Base Map Pakwash Lake. Ontario Geological Survey Map 5107. Scale 1: 100 000.
- 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.
- Rich, E.E. 1958. The History of the Hudson's Bay Company (2 volumes). Hudson's Bay Record Society, London.
- Steeves, P. 2021. *The Indigenous Palaeolithic of the Western Hemisphere*, University of Nebraska Press, Lincoln.
- Voohies, E. 1930. Historic Forts and Trading Posts of the French regime and of the English Fur Trading Companies. Department of the Interior, Ottawa.
- Zoltai, S.C. 1965. Glacial Features of the Quetico – Nipigon Area. *Canadian Journal of Earth Sciences* 2: 247-269.

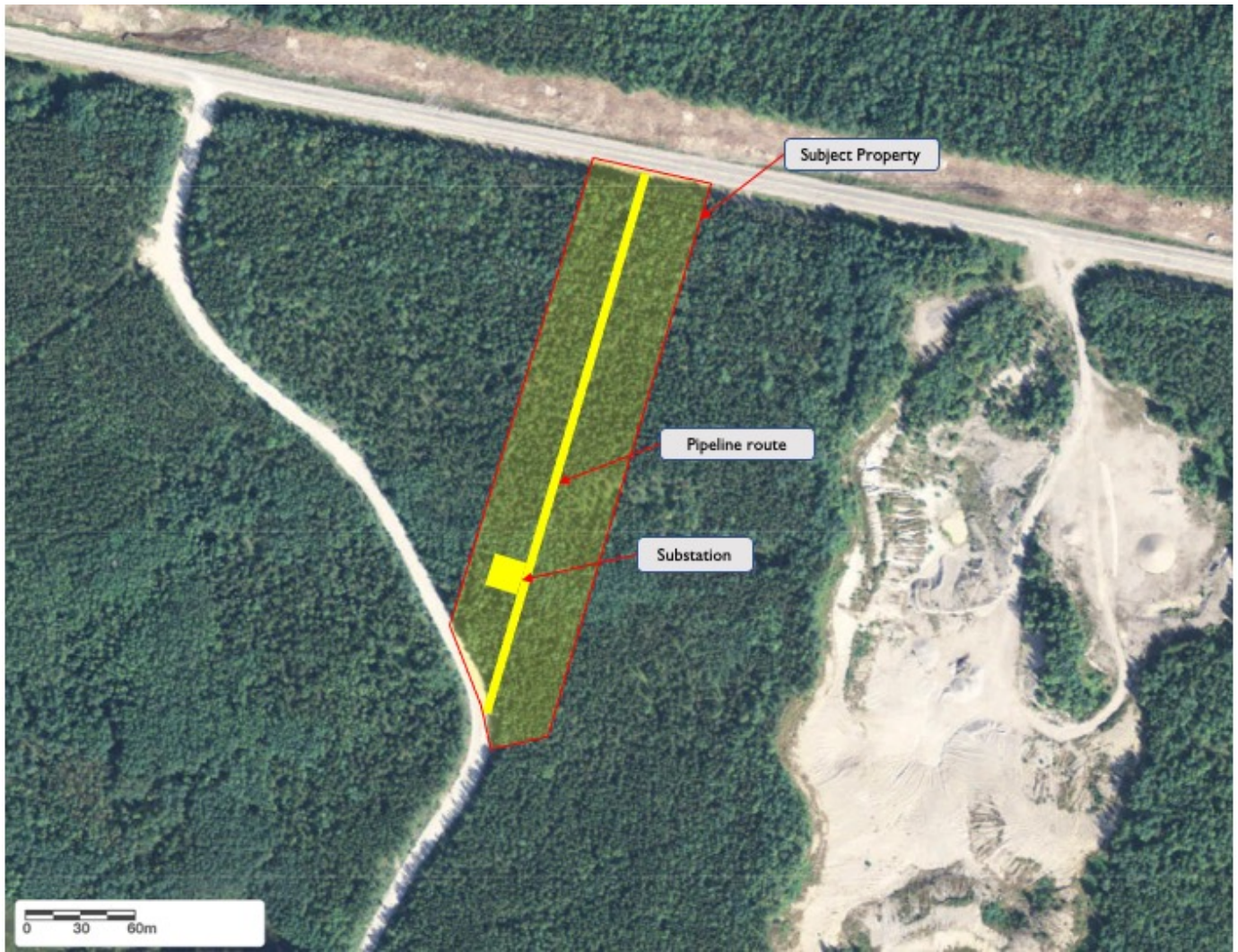
Maps



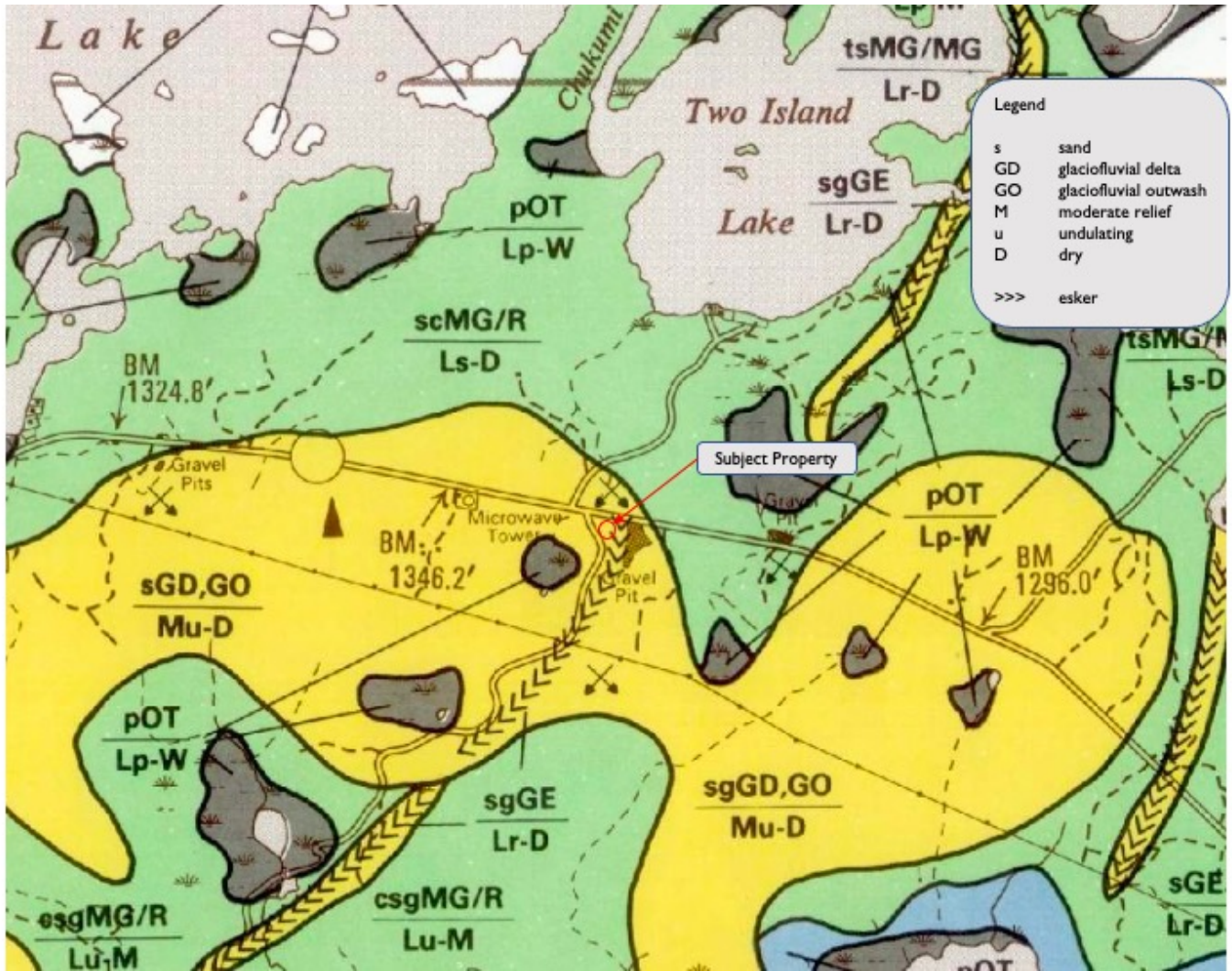
Map 1: Regional location of subject property examined at Stage 1.



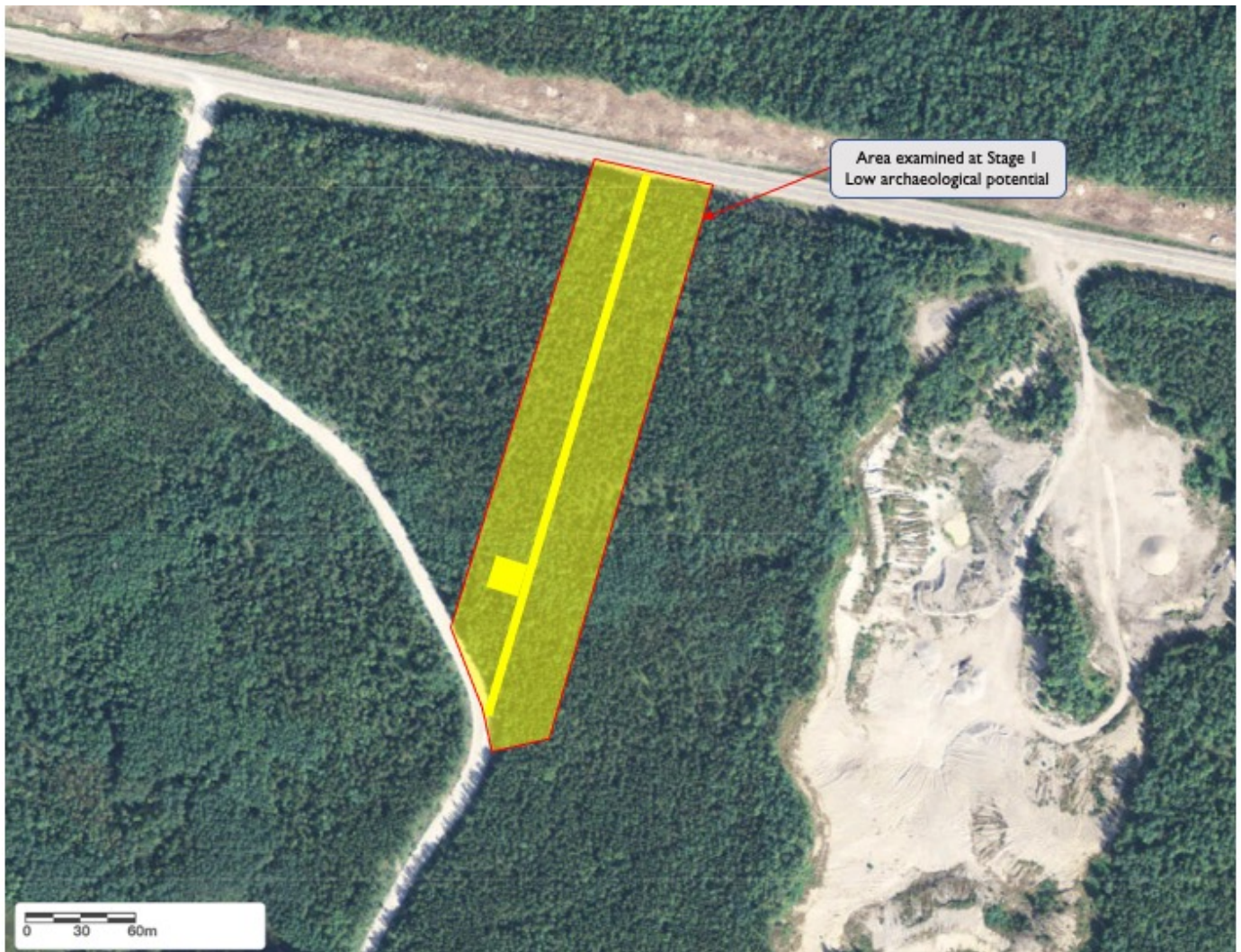
Map 2: The subject property in relation to the Great Bear Resources Ltd. project area.



Map 3: The subject property and surrounding area. Tuzyck's road is to the west of the proposed pipeline, and an aggregate source is being operated at the esker to the east. The darker yellow line represents the approximate route of the pipeline, and the yellow polygon marks the location of the proposed substation. The larger, red bounded polygon marks the area inspected at Stage 1.



Map 4: Quaternary geology of the subject property (Source Neilsen 1989).



Map 5: Study area showing areas examined at Stage 1 and evaluated archaeological potential. The property generally holds low archaeological potential based on the distance to water and registered archaeological sites, as well as the generally level terrain.



Map 6: Location and direction of photographs used in the report.

Figures



Figure 1: View south showing entrance to Tuzyck's Road from Highway 105. The road is an all-weather gravel road showing disturbance across a 15 to 20 metre corridor.



Figure 3: View south showing general terrain and forest conditions within the subject property. Conifer dominated mixedwood forest over silt sand soil. Level terrain.



Figure 2: View south showing the mixedwood forest at the north edge of the GBR property where the proposed pipeline will be constructed. The foreground is MTO right-of-way and is extensively disturbed.



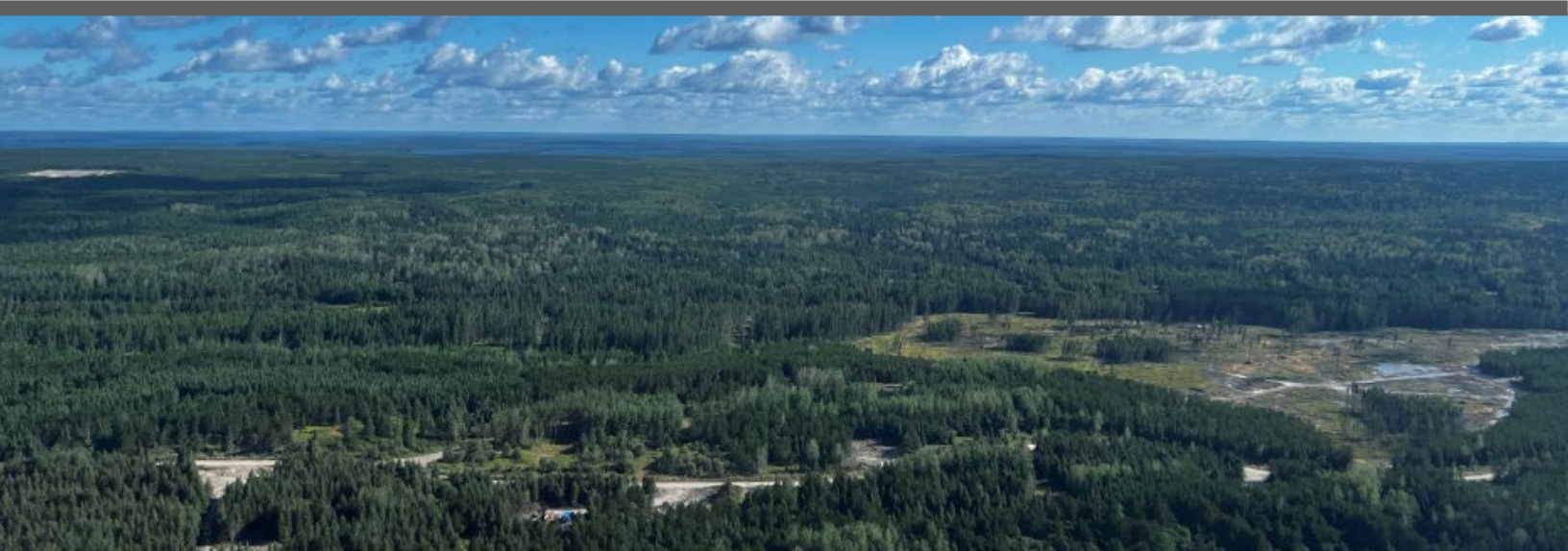
Figure 4: View north showing general terrain conditions within the subject property. While an esker is mapped in the NOEGTS mapping, terrain is relatively level with a few gently sloping sections.

KINROSS

Great Bear

Great Bear Gold Project Impact Statement

Stage 2 Archaeological Assessment



Stage 2 Archaeological Assessment

Proposed Kinross Gold Corporation Great Bear Project, Unorganized Territory, District of Kenora.

Northwest Archaeological Assessments

Consulting Archaeologists | Cultural Heritage Consultants

Northwest Archaeological Assessments

Andrew Hinshelwood, PhD, CAHP

Stage 2 Archaeological Assessment, Proposed Kinross Gold Corporation Great Bear Project, Unorganized Territory, District of Kenora.

Stage 2
Revised Report
January 16, 2026

Archaeological Assessment Report
Prepared by Andrew Hinshelwood
Archaeological Licence P236
PIF P236-0222-2023

Prepared for:

**Kinross Gold Corporation
Great Bear Project**

Ashley.Moncrief@Kinross.com

hinshelwoodandrew@gmail.com

www.andrewhinshelwood.com

[807 252-1251](tel:807-252-1251)

Executive Summary

Kinross Gold Corporation, Great Bear Resources propose the development of their Great Bear property, located in unorganized territory, District of Kenora, Ontario (Map 1). The subject property comprises approximately 9100 hectares and lies approximately 25 kilometres southeast of Red Lake, Ontario (Map 2). The proposed mining activity will be centred on a linear zone showing higher grade gold mineralization running southeast to northwest through the centre of the property.

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 is a component of the Pre-Feasibility Study and 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.

Planning for the Great Bear Project includes completing a comprehensive Stage 2 property assessment for areas previously evaluated as holding archaeological potential at Stage 1. Stage 2 assessment provides an inventory of the archaeological resources present, and an evaluation of the potential impacts to these resources from the development, construction, operation and decommissioning of the mine.

In Ontario, archaeological assessment is directed by the Ministry of Citizenship and Multiculturalism (MCM) *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 Stage 1 archaeological assessment, including the evaluation of archaeological potential and property inspection was completed in 2022 under PIF P236-0208-2022.

As a result of the archaeological 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, specifically 2.1.2, 2.1.3 and 2.1.6.
2. Further, as the property is located on the Canadian Shield in 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. As small areas of extensive and intensive disturbance are present throughout the subject property, it is recommended that disturbance in or adjacent to areas of archaeological potential be delineated through Stage 2 fieldwork conforming to the direction set out in the Standards and Guidelines for Consultant Archaeologists, Section 2.1.8.

4. Specifically, if development is proposed in any part of the subject property within 300 metres of registered archaeological site EeKi-3, Stage 2 archaeological assessment conforming to the direction found in the S&Gs Section 2.1.1, will be required (S&Gs Section 1.4.1, s. 1(c)).
5. For areas of proposed development within 100 metres of the Chukuni River, a historic transportation route, Stage 2 archaeological assessment conforming to S&Gs Section 2.1.1, will be required (S&Gs Section 1.4.1, s. 1(d)).
6. For areas adjacent to modern water sources (Dixie Creek, Rice Lake, Stone Lake, Genesee Lake, Dixie Lake, and Teardrop Lake), Stage 2 archaeological assessment conforming to S&Gs Section 2.1.1, will be required, as modified by Section 2.1.5. Test pitting will be required within the archaeological potential area, defined on the basis of terrain and proximity to the high water mark (S&Gs Section 1.4.1, s. 1(c)).
7. For areas of elevated topography, including eskers and topographic heights, Stage 2 archaeological assessment conforming to S&Gs Section 2.1.6, will be required (S&Gs Section 1.4.1, s. 1(e)).
8. For all parts of the subject property evaluated as holding low archaeological potential, and in areas of confirmed disturbance, no further archaeological work is recommended.
9. It is recommended that 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

Stage 2 property assessment was completed in 2023. This report presents the results of the Stage 2 property assessment and provides information on the archaeological resources identified on the subject property. Fieldwork for the assessment was conducted between August 5 to 31, 2023 under archaeological licence P236. The project is registered with MCM as PIF P236-0222-2023. Note that the archaeological sites identified do not conflict with the proposed operations on the property. Consequently, the proponent has indicated a preference to establish protective buffers on the sites, once Stage 3 site-specific assessment is complete, and that the sites be set apart for long term avoidance and protection. The following recommendations are made with this consideration in mind.

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

1. Stage 2 property assessment resulted in the identification of five archaeological sites meeting the standard for requiring Stage 3 site-specific assessment (S&Gs Section 2.2, s. 1). For the archaeological site identified, it is recommended that Stage 3 site-specific assessment conforming to the direction set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 3 is completed for each site.
2. Specifically, it is recommended that additional research is undertaken on each of the sites registered as set out in S&Gs, Section 3.1, s. 1, including review of the archaeological sites with affected Indigenous communities to determine if relevant historical or cultural heritage information is available.

3. It is further recommended that the sites registered as EfKj-1, EfKj-2, EfKj-3, EfKj-4 and EeKi-4 hold continued Cultural Heritage Value or Interest.
4. It is recommended that for each site, a fixed datum is established as the basis for the test unit grid, and that the number and spacing to test units is determined in conformance with the direction set out in the S&Gs Section 3.2.2, Section 3.2.3, and Table 3.1.
5. Further to recommendation 4, we also recommend the following:
 - a. archaeological site EfKj-1 is understood to be a small precontact site where it is not yet evident that the level of cultural heritage value or interest will result in a recommendation to proceed to Stage 4. For this site, it is recommended that 1-metre square test units are placed across the site at a five-metre interval, with an additional units totalling 20% of the grid unit total added in areas of interest or for the purpose of defining the extent of the site.
 - b. archaeological sites EfKj-2 and EfKj-3 are understood to be small precontact sites where it is clearly evident that the level of cultural heritage value or interest will result in a recommendation to proceed to Stage 4. For these sites, it is recommended that 1-metre square test units are placed across the site at a ten-metre interval, with an additional units totalling 40% of the grid unit total added in areas of interest or for the purpose of defining the extent of the site.
 - c. archaeological site EfKj-4 is understood to be a large multicomponent or single component lithic scatters. For this site, it is recommended that 1-metre square test units are placed across the site at a ten-metre interval, with an additional units totalling 40% of the grid unit total added in areas of interest or for the purpose of defining the extent of the site.
 - d. archaeological site EeKi-4 is understood to be an intact archaeological site. For this site, it is recommended that 1-metre square test units are placed across the site at a five-metre interval, with the excavation of at least three adjacent test units along each grid line until yields of five or fewer artifacts are obtained for each test unit.
6. For Stage 3 fieldwork, all test units must be 1-metre squares placed in measured locations on a set grid. Units must be excavated by hand in systematic (5cm) levels, at least 5cm into subsoil. All unit fill must be screened using 6mm screens, and all recoveries collected and recorded. For any features identified, it is required to follow the direction in S&Gs Section 3.2.2, s. 6.
7. For Stage 3 fieldwork at archaeological sites EfKj-3 and EfKj-4, at least 10% of the units will be screened using 3mm mesh.
8. It is recommended that for each site, the determination of whether the site requires (Stage 4) mitigation is determined in conformance with the S&Gs, Section 3.4 and Section 3.5. This recommends that affected Indigenous communities must be engaged when evaluating the cultural heritage value or

interest of each of the sites examined (Section 3.4, s. 2), and when determining Stage 4 mitigation strategies (Section 3.5, s. 1).

9. It is recommended that an archaeological assessment report, conforming to the relevant direction found in the S&Gs, Section 7.5 and Section 7.9, is prepared for each archaeological site and that each report includes a summary of Indigenous community engagement in conformance to the direction in S&Gs Section 7.6.2, s. 1.
10. On the basis of the property assessment completed for the balance of the areas evaluated as holding archaeological potential at Stage 1, and where no archaeological resources or features were identified, it is recommended that there are no further archaeological concerns for the area, and that no further archaeological assessment work is required.
11. Finally, it is recommended that a comprehensive "chance finds protocol" is prepared for ongoing use in the construction, operation and decommissioning phases of the Great Bear Resources project. The protocol should include contact information when chance finds arise, and reflect the results of the archaeological assessments completed and the advice on compliance to legislation described in S&Gs Section 7.5.9.

Table of Contents

Executive Summary.....	2
Project Personnel.....	7
Project Context.....	7
Development Context.....	7
Historic Context.....	7
Archaeological Potential.....	9
Results of the Stage 1 assessment.....	12
Results.....	14
Eskers and areas of elevated terrain.....	18
Record of Finds.....	19
Recommendations – Stage 2.....	24
Advice on compliance with legislation.....	26
Bibliography and Sources.....	27
Maps.....	28
Figures.....	36

Project Personnel

Personnel involved in this project included the licensee (Andrew Hinshelwood, P236), acting as project director and field director. Ted Binguis, Lac Seul First Nation, assisted in the field and provided valuable insight into the archaeological potential evaluation. Also in the field crew were Scot Kyle and Kaelen Steele from Thunder Bay. Heather Hopkins acted as project manager and assisted in the preparation of this report.

Project Context

Kinross Gold Corporation, Great Bear Resources propose the development of their Great Bear property, located in unorganized territory, District of Kenora, Ontario (Map 1). The subject property comprises approximately 9100 hectares and lies approximately 25 kilometres southeast of Red Lake, Ontario (Map 2). The proposed mining activity will be centred on a linear zone showing higher grade gold mineralization running southeast to northwest through the centre of the property.

Planning for the Great Bear Project includes completing a comprehensive Stage 2 property assessment for areas previously evaluated as holding archaeological potential at Stage 1. Stage 2 assessment provides an inventory of the archaeological resources present, and an evaluation of the potential impacts to these resources from the development, construction, operation and decommissioning of the mine.

A comprehensive Stage 2 archaeological assessment of the property, including test pit survey of areas evaluated as holding archaeological potential at Stage 1 (S&Gs Section 2.1, s. 1), excluding those areas meeting the criteria set out in S&Gs Section 2.1, s. 2 (a – c). Fieldwork was completed August 5 to 31, 2023 under PIF P236-0222-2023. The assessment conformed to the Ministry of Citizenship and Multiculturalism (MCM) *Standards and Guidelines for Consultant Archaeologists* (S&Gs), developed under the *Ontario Heritage Act* (RSO 1990, c O.18).

Development Context

The subject property is located between the municipalities of Red Lake, approximately 25 kilometres to the northwest, Ear Falls, lying approximately 40 kilometers to the southeast. Both communities are accessible from Highway 105, which also forms the northern boundary of the subject property. The property is located in unorganized territory, District of Kenora, Ontario. The centre of the study area is located at approximately 50.8600N and -93.6111E. Existing development within the subject property is limited to several aggregate sources, a municipal landfill, and a network of exploration and forestry access roads and water crossings.

Historic Context

The subject property lies within the Traditional territories of Lac Seul First Nation and Wabauskang First Nation and is within the Treaty No. 3 area. Treaty No. 3 was signed in 1873 at Northwest Angle, placing a large area of what is now northwestern Ontario (primarily the Lake Winnipeg drainage) under Treaty. Lac Seul First Nation is affiliated with the Independent First Nations Alliance. Wabauskang is affiliated with Bimose Tribal Council.

Lac Seul and Red Lake are connected by the Chukuni River, which forms a water-based historic travel route that includes Pakwash, Two Island, and Gullrock Lakes. Chukuni River lies east and north of the subject property. Wabaskang Lake is also connected to Red Lake through Cedar River, Rice Lake, and Camping Lake. A juncture between Rice and Camping Lakes provides direct access into the English River system. The English River is a major historic travel route connecting the areas north of Lac des Milles Lacs to the Winnipeg River. East of Milles Lac, access into Lakes Nipigon and Superior is relatively straightforward. To the west, The English River affords access into Lake of the Woods and Rainy Lake (Map 1). From at least 1790, posts had been established at Red Lake (Red Lake House), Lac Seul (Pine Ridge Post), and the juncture of the Chukuni and English Rivers (Mattawa Post).

Historic travel and trade routes were mapped onto the interconnecting waterways. Euro-Canadian travellers learned routes from Indigenous communities in the region who had used these routes for millennia. These routes served as the basis for early geological exploration that led to the discovery of the gold in the Red Lake mining district in the 1920s. By 1940, most of the Red Lake area had been staked, and several significant mining operations were in place and producing. The subject property appears not to have been staked during this early period and is generally seen as a blank area on the early survey maps.

In addition to major watercourses and associated economic development, smaller lakes and rivers will have been used with varying levels of intensity for local travel and resource procurement activities such as fishing, trapping and plant resource collection. The archaeological expression of these activities is a function of the quantity of cultural material left at the sites as a function of intensity and frequency of past use.

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.)

Archaeological resources originating in all of these periods may be expected to occur in the subject property.

The archaeological record of the Red Lake area is reasonably well known through a series of archaeological surveys conducted through the former MCM regional archaeology offices at Kenora and Thunder Bay. These surveys, plus a small number of commercial archaeological surveys, have contributed a considerable amount of data on archaeological resources in the region. Larger sites at a distance from the subject property are known from Red Lake and Lac Seul. The distribution of registered sites follows the pattern of past survey efforts, augmented by a few sites reported by members of the public. Some sites containing dense deposits of cultural material are known from the larger lakes, but again, the definition of large, dense deposits appears to be derived from research effort, not a statistical basis. Sites are reported from all cultural periods.

There have been no previous archaeological assessments completed for the subject property, and no recommendations have been made regarding archaeological resources on the property.

The property is located in northern Ontario. The terrain is irregular with variable amounts of exposed bedrock, bedrock covered with a thin veneer of till, and moist, organic soils. Overall, the subject property shows a distinctly “shield” or “northern Ontario” topography. Topographic relief is low to moderate, with elevation across the subject property ranging between 340 and 420 asl. High points on the property are bedrock controlled rises and lower elevations lie within extensive areas of marshy terrain.

Archaeological Potential

The Stage 1 background study reviewed the available archaeological and landscape data to develop an evaluation of archaeological potential for the subject property.

Archaeological potential is a statement of the likelihood that archaeological resources are present on a specific property. Potential is not a probability statement, rather it is the application of the current understanding of archaeological resource distribution to an area not previously examined. In most cases, potential is evaluated based on current knowledge of the property and of the landscape associations of registered sites on properties showing similar landscape characteristics, and whether the property, or sections of the property, are proximate to a few key factors. Specifically, these are: registered archaeological sites, modern watercourses, topography or quaternary geology, relict shorelines (former watercourses), and historic settlements or transportation routes. A number of other factors are also considered (S&Gs Section 1.3.1). In addition, areas showing clear evidence of extensive and intensive ground disturbance may be evaluated as holding low or no archaeological potential based on (S&Gs Section 1.3.2).

Registered Archaeological Sites

As part of the Stage 1 archaeological assessment, the *Ontario Archaeological Sites Database (OASD)*, maintained by MHSTCI, was consulted. There is one registered archaeological site within one kilometer of the property. The site, EeKi-3, was reported from the tourist camp on the east bank of the Chukuni River at Snake Falls. No further information is available regarding the site in the available OASD files. From available mapping, EeKi-3 does not appear to lie within 300 metres of the subject property.

We note that an archaeological survey of Pakwash and Bruce Lakes was undertaken in 2005 by Taylor-Hollings of Lakehead University. The survey was identified as a Stage 2 survey, but was not in fact a consulting archaeological assessment, but rather a survey completed on behalf of Ontario Parks. A report on the fieldwork, under licence P095-008 was reviewed following the completion of the Stage 1 (P236-236-0208-2022) and the previous version of the Stage 2 report (P0236-0222-2023) when the survey report was brought to our attention. In seeking clarification on the status and nature of the archaeological sites identified through the survey, we were informed that none of the sites have been registered with the ministry, and that there was no indication that the Borden numbers had been assigned by the ministry or the requisite forms completed.¹

¹ Email correspondence with R. von Bitter, Data Coordinator, Ministry of Citizenship and Multiculturalism, 7 October 2024.

Modern watercourses

Several modern water sources are noted within the subject property (Map 2). The Chukuni River runs through the eastern part of the property, and the northern boundary of the lease area touches on two small bays on the south shore of Gullrock Lake. Within the property, notable water sources include Rice Lake and much of Dixie Creek. The property also includes parts of Stone, Genesee, and Dixie Lakes on the western end of the property. A number of smaller lakes, ponds and streams are also present on the subject property.

Topography or Quaternary Geology

Quaternary geology of the subject property shows a complex overburden of ground moraine, glaciofluvial and glaciolacustrine deposits (Neilsen 1989). Three eskers are mapped crossing the subject property north to south, with two other eskers approaching the property from the north, above Rice Lake. An end moraine feature, defined by elevated topography, is also noted near Snake Falls. Areas of glaciolacustrine terrain hold the potential for relict shoreline features to be present. Elevated terrain, specifically esker ridges, area also associated with archaeological potential.

Former water courses

Post-glacial water bodies near the subject property include higher level stands in the Pakwash Lake basin, represented by glaciolacustrine deposits in parts of the subject property. The complex interactions of glacial ice, meltwater, and isostatic rebound, particularly where the damming and subsequent opening of southerly drainage suggest that the area may have been an attractive margin for habitation or procurement during this early post-glacial period. Soils associated with the glaciolacustrine deposits and adjacent ground moraine deposits are clay rich, however, areas of glaciolacustrine terrain hold the potential for relict shoreline features to be present This contributes to an evaluation of archaeological potential.

Historic settlement and transportation routes

The subject property was not formerly settled in the sense that permanent habitations were established. Some historic sources do reflect occupation by fur trade posts and 'cabins.' The latter may be Indigenous occupations, or cabins constructed by prospectors to support their ongoing fieldwork at or adjacent to the Red Lake gold deposits.

Background study raised no concerns that early Euro-Canadian settlement had taken place within the subject property. In terms of Euro-Canadian transportation routes, the S&Gs group several types of routes together for consideration, including trails, passes, roads, railways, and portages. In the subject property, the Chukuni River is identified as a principal transportation route in the region.

Existing disturbance

Extensive and intensive disturbance removes most archaeological potential from a property. Within the subject property soil disturbance was noted associate with forest management and aggregate extraction. Mineral

exploration has introduced a network of trails and drill pads throughout the central portion of the subject property. This disturbance reflects previously permitted activities beyond the scope of this assessment.

Results of the Stage 1 assessment

From the review of background information and a property inspection, the subject property was identified as holding mixed archaeological potential.

Areas of archaeological potential include:

- Parts of the subject property within 300 metres of the registered archaeological site at Snake Falls, and
- Areas within 100 metres of the highwater mark along the Chukuni River

Areas of mixed archaeological potential include:

- Areas of elevated topography, including esker ridges, especially at water crossings,
- Areas of elevated topography where glaciolacustrine sand deposits have been mapped, and
- Areas within 50 metres of Dixie Creek, and Rice, Stone, Genesee, Dixie, and Teardrop Lakes

Archaeological potential areas are based on the seasonal high water mark of the creek or lakes. For Dixie Creek, potential may extend beyond the current route of the stream to areas further from the creek where the larger valley is defined. For Teardrop and Rice Lakes, potential includes locations where ricing camps may be located in lower elevation areas.

Areas of low archaeological potential include:

- Areas of disturbance associated with the continuously evolving industrial landscape, and
- Areas of disturbance associated with the existing industrial features, such as pits and roads.

The evaluated archaeological potential is shown on Map 3.

Field Methods – Stage 2

Stage 2 property assessment was completed for all areas evaluated as holding archaeological potential or mixed archaeological potential at Stage 1. Field methods conformed, to the extent possible, to the direction set out in S&Gs Section 2.1, Section 2.1.2, and Section 2.1.3. The property is located in northern Ontario and in the Canadian Shield area, and Stage 2 field methods also conformed to the direction in S&Gs Section 2.1.5.

Each area of archaeological potential was approached in the following manner. The location was first subject to an overview to assess the nature of the local terrain, noting conditions such as slope, irregularity of surface, soil or site moisture, density of vegetation, and disturbance. In areas adjacent to water, we noted the difference between the normal water level for August and evidence seen in the potential area of seasonal overbank flooding and the results of this flooding. In areas adjacent to water, we also noted the extent of marsh vegetation in the foreshore areas.

Fieldwork was completed only when suitable conditions were available. Weather during the assessment was fine, with clear to overcast skies, temperatures between 10 and 25°C, and generally dry conditions. Some rain showers did occur, and during these events, fieldwork was suspended for safety reasons and to ensure that the work conformed to S&Gs Section 2.1, s. 3. The areas examined during Stage 2 fieldwork are shown in Map 4. Direction and location of photographs used in the report are shown on Map 9.

Local conditions determined field testing approach. All areas evaluated as holding archaeological potential were assessed (Section 2.1, s. 1). Areas characterised as permanently wet (Section 2.1, s. 2(a)(i)), exposed bedrock (Section 2.1, s. 2(a)(ii)), or steeply sloped (Section 2.1, s. 2(a)(iii)), were eliminated from further consideration. Note that high water table included areas of moist to wet clay soils at low elevations above the August water level.² At the same time, we examined the areas for extensive and intensive disturbance that would have removed archaeological potential (Section 2.1, s. 2(b)). Areas evaluated as holding low potential at Stage 1 were not examined (Section 2.1, s. 2(c)).

Shovel testing was completed for all areas of archaeological potential not removed from consideration at Stage 1, Stage 2 or due to disturbance. Test pits were excavated at a five metre interval, maintaining the grid as well as possible through difficult terrain. Test pits were excavated by hand (S&Gs Section 2.1, s. 7), with each test being at least 30 centimetres in diameter, and excavated at least 5 centimetres into subsoil (or to densely packed till, bedrock, or ground water), with each test pit examined for evidence of archaeological features or stratigraphy in the pit walls (Section 2.1.2, s. 5 and s. 6). All pit fill was screened through 6mm wire mesh screen, and the screens examined for archaeological resources (Section 2.1.2, s. 7), with artifacts being collected and recorded by test pit (Section 2.1.2, s. 8). Upon completion, all test pits were backfilled (Section 2.1.2, s. 9).

Where test pits returned archaeological resources, the excavation of tests across the grid were completed for that operation (S&Gs Section 2.1.3, s. 1). When additional positive test pits were not identified, or where the continued testing returned low artifact counts, or equivocal results, additional test pits were excavated. Test intensification followed the direction in Section 2.1.3, s. 1 and s. 2, with Option A preferred.

² We note here that August water levels were unusually low for the area, both in absolute terms and compared to August 2022 fieldwork experience.

Results

The results of the Stage 2 property assessment are presented by the area within the subject property where archaeological potential was evaluated at Stage 1. We note that the area evaluated as holding potential was estimated as being approximately four percent of the subject property, or 350 hectares. Much of the areas evaluated as holding potential were examined at Stage 2 and seen to be low, wet, or unsuited to testing. z

Teardrop Lake

Mixed archaeological potential was evaluated for approximately 10 hectares adjacent to 2.5 kilometres of shoreline at Teardrop Lake (Map 5). Potential was based on the proximity to water, the extensive bed of wild rice, and the esker ridge that runs to the south. The lake is set within a broad area of organic terrain with only one small, low energy creek draining the lake to Dixie Creek. Teardrop Lake is bisected by an older forestry road, creating two distinct water bodies. The shoreline of the northern part shows a predominantly marsh shoreline and wild rice covers almost the entire water surface (Figure 1). Some small areas around the west side of the lake support mature conifers; however, the testing in these areas showed the underlying soil to be organic and wet. The shoreline soils on the south shore of the lake are derived from the esker deposits. Mature second growth conifer forest cover dominates the southern part (Figure 2), and the steep slope rising to the esker ridge further south.

Test pitting was completed in compliance with the S&Gs for approximately 4.0 hectares at the lake, focussed mainly on the south shore where there was sufficient soil to complete the work. Testing followed a five metre grid where possible, although in many areas test pits followed a judgemental placement where steeply sloped, organic, or hummocky areas precluded efficient testing. One archaeological site was identified during this work on a small rocky point separating the ridge from a marsh area (Figure 3). Testing and intensification at the site produced a small quantity of lithic debitage of an unknown, fine grained siltstone.

Additional investigation was undertaken on the esker ridge, but it was noted as being a narrow, very steep-sided esker (Figure 4). The configuration of the landscape limited testing in the area, as few locations of level ground suited to habitation were noted.

Chukuni River

Mixed archaeological potential was evaluated for approximately 100 hectares adjacent to a 5.5 kilometre section of the Chukuni River within the GBR project lease area (Map 6). Potential was based on the proximity of the river, a historic transportation route. Terrain is based on glaciolacustrine deposits (silt/clay) and shows relatively low relief across the area. Relief is shaped by seasonal flood, and the patterns of erosion/deposition within the river channel. Vegetation varies with soil and site moisture, with most of the area reflecting fresh to wet soils. Seasonal flooding has scoured the banks and created a sharp step of one to two metres near the bank and backslope away from the river. In testing, local relief was noted as ranging from sloping to hummocky, with small areas of relatively level, even terrain.

Test pitting was completed in compliance with the S&Gs for approximately 1.5 hectares in this section. Testing followed a five metre grid where possible, although in many areas test pits followed a judgemental placement

taking advantage of smaller areas of level, well-drained ground. No archaeological resources were identified during this work.

Shoreline areas are either marked by extensive beds of aquatic vegetation (Figure 5) or erosional slopes (Figure 6). In from the river, the ground rises to between one and two metres above the water (Figure 7). The ground surface inland from the river was found to be generally level to sloping (Figure 8) and was often hummocky and irregular with a high incidence of cobbles or small boulders at or near the surface. Minor changes in elevation led to low, wet areas that dominated the area overall (Figure 9). The elevated moisture in these areas was typically derived from a slight 'levee' effect from seasonal flooding or marking the confluence with some smaller stream seeping into the larger river.

Test pitting was completed in compliance with the S&Gs. Testing identified that much of the riverbank area within 100 metres of the river was unsuited to long term habitation due to irregular topography and generally wet condition. No significant archaeological resources were identified, although two locations where recent camps had been set up were noted.

Dixie Creek

Low archaeological potential was evaluated for approximately 30 hectares adjacent to a 3.0 kilometre section of lower Dixie Creek between the Chukuni River and the Tote Road bridge crossing (Map 6). Potential was based on the nature of the creek. Lower Dixie Creek is a large, low-energy stream which flows through an extensive, complex of open water and marsh (Figures 10 and 11). Areas suited to testing were absent from this section.

Stage 2 examination of the area identified the area as holding low archaeological potential. No test pitting was completed in this section and no archaeological resources were identified.

Archaeological potential was evaluated for approximately 5 hectares adjacent to a 1.0 kilometre section of lower Dixie Creek at the Tote Road bridge crossing (Map 6). Tote Road follows the alignment of an esker running north to south through the GBR lease area. The esker is relatively well defined, although not prominent along most of its length beyond appearing as a convenient roadbed for the forestry road. Soils are mixed till within the esker itself, with a fine-grained silt/clay soil dominating downstream (east) of the esker. Dixie Creek passes through a narrow gap in the esker, which has seen additional reduction with the installation of the bridge (Figure 12). Sedimentation on the downstream (east) side of the esker has created a fairly extensive and level area adjacent to the creek (Figure 13).

Test pitting was completed in compliance with the S&Gs for approximately 2.0 hectares in this section. Testing followed a five metre grid where possible, although in many areas test pits followed a judgemental placement avoiding areas of low and wet, or steeply sloped terrain.

North of the creek and east of the esker a fluvial deposit of has created an approximately 1.5 hectare area of level, well-drained soil (Figure 14). Testing in this area identified one archaeological site, defined on the presence of lithic material (debitage, expedient tools). Intensification at the site (Figure 15) provided additional detail that the site was comprised of a number of smaller lithic scatters, suggesting multiple, repeat occupations making use of the location which provides access to both the creek and the esker for overland

travel. No diagnostic artifacts were recovered that might offer an indication of the age and date range of the site occupation. Contemporary refuse (cans, dimensional lumber) was also noted on the surface at the site, suggesting ongoing use.

Testing was also completed in compliance with the S&Gs for an approximately 0.5 hectare area south of the creek. One positive test pit produced one piece of debitage. Intensification did not produce any additional material. Evidence of a contemporary trapper's encampment was noted (Figure). Also, a 'ramp' leading to the creek was visible on the south bank (Figure 17), near the positive test pit. It is likely that this was an earlier crossing for logging or had been established as a boat launch.

Upper Dixie Creek was evaluated as holding mixed archaeological potential for approximately 50 hectares adjacent to a 5.0 kilometre section of the creek (Map 4a). Potential was based on the presence of the creek alone. The section between the bridge and an unpassable rapid provided few opportunities for testing (Figure 18). All possible areas were investigated, such as high bank areas (Figure 19) and lone conifers (Figure 20), although no resources were located. Above the rapids (Figure 21), dry in 2023, the creek is between two and four metres wide, and relatively shallow (Figure 22). It follows a meandering course within a much wider valley incised between one and four metres into the surrounding landscape. Areas suited to testing were limited in this section, which was accessed from existing exploration trails and roads. The valley is characterised by wet soil supporting primarily alder, while the adjacent areas supported a second growth, conifer dominated mixedwood on clay rich moraine sediments (Figure 23).

Limited test pitting was completed in compliance with the S&Gs in this section, and no archaeological resources were identified. Testing was completed from the creek below the small rapid, and from interior access roads above this point.

Pakwash Lake

Archaeological potential was evaluated for approximately 10 hectares adjacent to 2.5 kilometres of shoreline at Pakwash Lake (Map 7). Potential was based on the proximity to the lake, and association with the Pakwash River, a historic transportation route. The shore of the lake within the GBR lease area shows a low slope for at least the first 50 metres, with a sandy beach at the shore, boulder-rich sand soils inland, rising further (+100m) inland to a significant moraine ridge. The lake is set within a narrow band of glaciolacustrine deposits that encircle this generally shallow lake. Soils are silt sand, and forest cover is a mature second growth conifer.

Test pitting was completed in compliance with the S&Gs for approximately 2.0 hectares at the lake (Figure 24). Testing followed a five metre grid where possible, although in many areas test pits followed a judgemental placement to avoid areas of low, wet ground. Surface collection on the wide sand beach was also completed (Figure 25). One archaeological site was identified during this work, primarily from surface finds on the beach and some test pits. It is likely that the sites are a single large occupation; however, the distribution of material on the beach and in test pits is divided by an area of fragmented rock and boulders midway along the shoreline (Figure 26). East of this rocky point, the beach is narrower and lies closer to a steep slope inland (Figure 27). Testing and intensification at the site produced a significant range of stone tools suggesting a middle and late woodland occupation.

Rice Lake

Mixed archaeological potential was evaluated for approximately 30 hectares adjacent to 5.5 kilometres of shoreline at Rice Lake. Potential was based on the proximity to water, and the historic use of the lake for wild rice production (Map 8). The lake is set within a steep basin with only one small, low energy creek draining the lake to Dixie Creek. The lake level is relatively stable through the year, as suggested by the productive rice beds. Soils along much of the shore are thin, organic soils over cobble till and clay glaciolacustrine sediments. The south shore soils are derived from the glaciofluvial outwash deposits forming a steep ridge to the south (Figure 28). Vegetation varies, conifer dominated stands occupy the forested northeast (Figure 29), and extensive areas of marsh are seen to the east and west (Figure 30). Local relief was noted as rocky at the shore, level but hummocky inland. Thin soils were noted along the north shore, and moderately to steeply sloped with a hummocky surface over peat, clay and sandy soils set in a dense cobble matrix along the south shore. Organic deposits and extensive marsh were noted to the east and west.

Test pitting was completed in compliance with the S&Gs for approximately 1.5 hectares at the lake, focussed mainly on the south shore where there was sufficient soil and level terrain to complete the work. In this section, testing followed a five metre grid where possible, although in many areas test pits followed a judgemental placement taking advantage of smaller areas of level, well-drained ground (Figure 31). No positive test pits were returned from the Stage 2 work, and it was noted that in any places near the shore the soil was predominantly a dense organic root mat under dominant cedar forest cover.

Two archaeological sites were identified during this work. Both sites were surface collected on the shore of Rice Lake, and it is likely that they are connected. The sites produced mostly lithic debitage (Figure 32). One late palaeo spearpoint base was recovered, along with a small number of bifacial and unifacial tools which cannot be ascribed to a specific cultural period. The dominant material in the collected material was a green rhyolite/chert. This material is known from the region as a commonly used material.

Genesee Lake

Mixed archaeological potential was noted for the north, east and south shores of Genesee Lake (Map 4b). The lake was observed to be relatively shallow. Shoreline conditions at the lake varied between steeply sloped shores and low, marsh areas, conditions that reduced the suitability of the lake for long term habitation (Figure 33). Limited areas where testing could be completed were identified within the GBR lease area. On the west side of the lake, two locations where bedrock controlled ridges ran into the lake from the north shore were examined. Testing was not possible in the thin soil over bedrock, but evidence of contemporary use was noted (Figure 34).

Test pitting was completed in both locations in compliance with the S&Gs for approximately 1.5 hectares. No archaeological resources were identified in testing.

Stone Lake

Mixed archaeological potential was noted for the shoreline at the eastern half of Stone Lake (Map 4b). The lake was observed to be relatively shallow with an abundance of boulders and cobbles at the shore. Shoreline

conditions at the lake varied between steeply sloped, bedrock-controlled shores, and low, marsh areas, conditions that reduced the suitability of the lake for long term habitation (Figure 35). The south shore of Stone Lake was noted as coincident with the esker ridge and testing was focussed in this area; however, fieldwork identified only limited areas where testing could be completed. Specifically, this was near the outlet of a small creek feeding the lake at the eastern end (Figure 36), and locations along the south shore.

Test pitting was completed in both locations in compliance with the S&Gs for approximately 1.5 hectares. No archaeological resources were identified in testing.

Eskers and areas of elevated terrain

The S&Gs (Section 1.3.1) identify eskers as features or characteristics that indicate archaeological potential. They are included in a list of features indicating elevated terrain. At Stage 1, three esker ridges are noted from topographic mapping. Rather than a blanket belief that eskers were occupied as a general rule, we interpret this direction to mean that where an esker ridge intercepts another feature indicating archaeological potential there is a heightened potential for archaeological resources to be present. Eskers may be utilised for hunting and traversing extensive areas of wet ground; however, along most of their length, eskers form an area of higher ground within a broader landscape that may itself vary in elevation.

Roads have been built on each of the three eskers (Figure 37), and aggregate extraction has been carried out adjacent to the roads in various locations (Figure 38). This access facilitated the Stage 2 examination of the eskers. The westernmost esker underlies Dixie Lake Road, the central esker forms the base for Tuzyck's Road, while the easternmost esker is the base for Tote Lake Road (Map 4).

Stage 2 fieldwork for the eskers was focussed on examination of the eskers to determine where additional features indicating archaeological potential interacted with the landform and supported an evaluation of archaeological potential. As noted above, one archaeological site was identified at the intersection of Dixie Creek and the easternmost esker. Similarly, a small archaeological site was noted adjacent to Teardrop Lake near the central esker. The balance of the eskers within the subject property were either highly disturbed by road construction and aggregate extraction or were poorly defined within the context of the moderate relief of the interior forests.

Record of Finds

Stage 2 archaeological assessment was centred on fieldwork and resulted in the recovery of a variety of archaeological resources and the creation of documentary materials, as noted below and in the artifact catalogue (Appendix I). Documentary records for this project include the following:

Table 1: Documentary records associated with P236-0222-2023.

Documentation	N	Description	Location
Photographs	279	digital images	digital storage
GPS readings	42	property, context	digital storage
Notes	12	page of notes	digital storage
Report	1	copy (.pdf)	digital storage

The archaeological collection made under this PIF are listed in the catalogue. The total size of the packed collection is two standard bankers boxes. Mapping of the archaeological resources can be found in the Supplementary Documentation.

Analysis – Stage 2

As a result of the 2023 Stage 2 fieldwork, archaeological resources were identified on Teardrop Lake, Rice Lake, Pakwash Lake and Dixie Creek. In addition, several small sites containing recent artifact deposits were noted (i.e., bottled, fuel and food cans). These recent deposits are non-archaeological for the purposes of the assessment and will not be recorded or subject to detailed analysis.

A total of five archaeological sites were identified, along with one locale and four contemporary campsites. Further assessment is required for the archaeological sites, and no further concerns arise from the locale (a single debitage from a test pit), or the camps.

The following archaeological sites were registered with MCM:

EfKj-1	Teardrop Lake	Lithics/campsite
EfKj-2	Dixie Creek	Lithics/habitation site
EfKj-3	Rice Lake 1	Lithics/knapping station
EfKj-4 ³	Rice Lake 2	Late palaeo knapping station
EeKi-4 ⁴	Pakwash Beach	Multicomponent Woodland habitation

EfKj-1 and EfKj-3 are defined on the basis of lithic debitage, the residual material resulting from stone working, or *knapping*. EfKj-2, also defined on the basis of lithic artifacts, is a larger site and likely the location of a larger

³ Following Stage 3 investigations at the site, EfKj-3 and EfKj-4 were combined as a single site largely based on similarities in the material recovered.

⁴ A report of a survey of Pakwash and Bruce Lakes by Taylor-Hollings includes records for twenty sites. A data request to the OASD determined that about 19 of these sites were listed in the report using site registration numbers that were not assigned by the ministry and therefore have no corresponding record in the OASD. We are working to resolve the confusion regarding the registration of EeKi-4 by either re-registering the site as EeKi-17 or clarifying the used of the EeKi-4 designation.

or longer term occupation. EeKi-4 is also a larger habitation site and produced Middle and Late Woodland ceramic artifacts. EfKj-4 was defined on the basis of lithic debitage as well as refined stone tools including the base of a late palaeo period spear point.

The majority of the archaeological resources recovered at Stage 2 were lithics, and of these, most were debitage. The most immediate analysis of the lithics is the distribution of raw material (Table 2). Across four sites the lithic raw material is relatively consistent with the majority (between 100 and 88%) being “rhyolite”. The use of the term rhyolite is colloquial, not geological, and describes a greenish, fine-grained silica-rich siltstone that often has visible quartz inclusions that reflect light. The fine grain of the material means that it knaps well, and it is a commonly found material in collections across northwestern Ontario. The source of the material is not known, but it may be associated with the metasedimentary rocks of the greenstone belt. The second most abundant material is quartz, which does not knap as well and is difficult to analyse due to a highly reflective surface. It is generally viewed as an expedient of “last resort” raw material, although it is not uncommon to find sites where it appears to be the preferred tool stone, and some highly refined artifacts produced.

Table 2: Lithic raw material by site.

Lithics	EfKJ-1		EfKj-2		EfKj-3		EfKj-4	
	N	%	N	%	N	%	N	%
Rhyolite	13	1.00	60	0.91	155	0.88	185	0.98
Quartz		0.00	4	0.06	18	0.10	3	0.02
Siltstone		0.00	1	0.02		0.00		0.00
Chert		0.00	1	0.02	3	0.02		0.00
total	13		66		176		188	

Table 3: Lithic artifacts by morphological type.

Form	EfKJ-1		EfKj-2		EfKj-3		EfKj-4	
	N	%	N	%	N	%	N	%
Point		0.00		0.00	2	0.01	1	0.01
Biface		0.00		0.00	5	0.03		0.00
Uniface		0.00		0.00	6	0.03	1	0.01
Core		0.00		0.00	2	0.01		0.00
Platform flake	2	0.15	23	0.35	54	0.31	37	0.20
Flake fragment	11	0.85	27	0.41	97	0.55	149	0.79
Shatter		0.00	16	0.24	9	0.05		0.00
Cortex		0.00		0.00	1	0.01		0.00
	13		66		176		188	

The range of artifacts recovered at Stage 2 is limited, apart from beach context materials from EeKi-4 on Pakwash Lake. As seen in Table 3, the majority of artifacts are flake fragments (between 41 and 85%) and platform flakes (15 to 35%). On the other hand, under 10% of the lithics recovered are formal implements, with three points or fragments, five bifaces or biface fragments, and seven unifaces or scrapers. This attests to the small size of the sites identified. Larger samples may allow for additional cultural inference.

Analysis is directed by the S&Gs Section 3.4.1. The analysis discusses each of the sites in turn.

Teardrop Lake 1 (EfKj-1)

One positive test pit produced 12 lithic artifacts with a second test pit recovering one further debitage during intensification. The site is indeterminate in age, comprising solely of lithic (stone) manufacture debris or *debitage*. The area of the site for the purpose of estimating the Stage 3 requirement is 1,200 m² (30m x 40m). The site is located on a small point of land that provides for a natural boundary to the site.

Dixie Creek 1 (EfKj-2)

A relatively large site was recorded north of Dixie Creek and east of Tote Road bridge, represented by 75 artifacts. The site is comprised solely of debitage, although characteristics of individual artifacts allow for detailed analysis. Six positive test pits were noted, with additional material recovered from seven intensification tests. The site is characterised by several small, possibly discrete lithic scatters within an area of 10,000 m² (200m x 50m). The site is located on a longitudinal bar formed by sediment washed from the esker (on which the haul road is based), and is marked by a low, wet area inland from the creek. The site offers insight into the use of the esker and creek, as well as the stone tool industry of the earlier inhabitants of the region.

Pakwash Lake 1 (EeKi-4)

A large, multi-component archaeological site was recorded on the north shore of Pakwash Lake, west of Snake Falls. Four positive test pits with six positive tests from intensification were recorded inland from the beach where most of the artifacts recovered. The site produced 90 artifacts of a wide range of types, including a range of stone tools formed on different lithic raw materials (Figures 39, 40), and 12 ceramic shards (Figures 40, 41). Eleven of the latter are fragments from the body of the clay vessel, and lack the diagnostic elements found on the rim that typically provide for precise dating and typological identification. One spalled rim fragment was recovered showing typical decoration of Laurel ceramics. For the body shards, the construction and surface treatment allow a speculative identification of the artifacts as representative of both Laurel and Selkirk cultural periods. This places them in the later pre-contact period, dating between 400 and 2,200 years ago. The site is extensive, occupying up to one kilometre of shoreline. Testing inland from the shore noted that the terrain was irregular and wet in places. Overall, the site is estimated to be approximately 50,000 m² (1,000m x 50m).

Rice Lake 1 (EfKj-3) and Rice Lake 2 (EfKj-4)

Two archaeological sites were recorded on Rice Lake, marked by small two small scatters of a distinctive crystalline green material totalling 364 artifacts. The sites are quite similar in terms of size, location and material produced, but despite their similarities, the sites are reported separately. The sites were found on beaches on

the south shore of the lake and were rendered more visible due to the unusually low water levels during fieldwork. Rice Lake 1 includes debitage, expedient implements, and the basal fragment of a finished spearpoint (Figures 42, 43). The point base shows characteristics typical of the earliest (post-glacial) period of human occupation in the region, specifically basal grinding (to reduce the sharpness of the sides and base of the point) and basal thinning (to reduce the thickness of the point at the base, presumably to facilitate hafting to a spear shaft). After completing the analysis and conferring with other archaeologists who specialise in the artifacts of this early period, we are confident that the point is on the order of 7,000 years of age. Rice Lake 2 comprises a larger but less diverse collection of lithic debitage and expedient (flake) tools. Test pitting at both sites included excavation inland from the finds, but the nature of the soil (a dense organic root mat over cobbles and a small quantity of sand) did not lead to additional materials being recovered. Based on landscape terrain characteristics, we estimate each site to be approximately 2,500 m² (50m x 50m).

The assemblage at EfKj-3 comprises 176 lithic artifacts collected primarily from a shoreline setting. Almost 90% of the lithics are made on a greenish, silicious stone with a glassy fracture, colloquially referred to as "rhyolite". A further 10% is quartz, with the remaining 2% formed on glacially transported cherts (Table 2). Two projectile points were recovered. One has been highlighted above, while the second is a small quartz point of no clear typological affiliation.⁵ Five bifaces or biface preforms were collected and all were on rhyolite. Six unifaces, including two rhyolite side scrapers, two end scrapers, one retouched flake and one utilized flake, were also identified. Retouched flakes are debitage that has been utilized as a tool, and the retouch is either the result of use-wear or, alternately, marks a deliberate attempt to strengthen the edge by removing a number of small flakes. Bifaces are multi-purpose tools that are used either as they are, or, with additional flaking, are refined into formal artifacts such as projectile points.⁶ The majority of the recovered artifacts are debitage (N=160), including 54 platform bearing flakes, and 97 flake fragments. A further nine pieces of shatter were included in the assemblage (Table 3). Debitage is the material that is removed from a core during toolmaking and can be used in technological and cultural analysis of sites. Platform-bearing flakes are complete flakes showing the entirety of the debitage removed from the core. Additional information, such as the striking angle, can be used to evaluate the nature of the core from which the flake was removed (i.e., was it a rough core, or a refined biface?). Fragmentary flakes and shatter, although the product of knapping, are incomplete and therefore provides lower information yields

The lithic assemblage from EfKj-4 included 188 artifacts. All but three of the artifacts recovered are made from a greenish 'rhyolite' (N=185) with the remainder made from white quartz. None of the artifacts typologically distinct artifacts that add to the determination of cultural affiliation of the site. The majority (N=145) of the lithics are debitage fragments. Thirty-eight artifacts (N=38) are platform-bearing flakes. Also among the collected material is an informal tool, a retouched flake (N=1) and a biface fragment (N=1). Finally, three debitage fragments (N=3) are made from a white quartz.

⁵ Typology is the systematic consideration of the form or style of an artifact to determine cultural affiliation, relationship to other artifacts and age of a site.

⁶ Bifaces may be both cores and tools, with the early stage biface being used for some tasks and then further refined if the material proves to be suitable for additional flaking.

Conclusions – Stage 2

Stage 2 property assessment was completed in 2023. A total of five archaeological sites were identified, along with one locale and four contemporary campsites. Further assessment is required for the archaeological sites, and no further concerns arise from the locale (a single debitage from a test pit), or the camps. Note that the archaeological sites identified do not conflict with the proposed operations on the property. Consequently, the proponent has indicated a preference to establish protective buffers on the sites, once Stage 3 site-specific assessment is complete, and that the sites be set apart for long term avoidance and protection. The following recommendations are made with this consideration in mind.

EfKj-1 and EfKj-3 are defined on the basis of lithic debitage, the residual material resulting from stone working, or *knapping*. EfKj-2, also defined on the basis of lithic artifacts, is a larger site and likely the location of a larger or longer term occupation. EeKi-4 is also a larger habitation site and produced Middle and Late Woodland ceramic artifacts. EfKj-4 was defined on the basis of lithic debitage as well as refined stone tools including the base of a late palaeo period spear point.

Recommendations

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

1. Stage 2 property assessment resulted in the identification of five archaeological sites meeting the standard for requiring Stage 3 site-specific assessment (S&Gs Section 2.2, s. 1). For the archaeological site identified, it is recommended that Stage 3 site-specific assessment conforming to the direction set out in the *Standards and Guidelines for Consultant Archaeologists*, Section 3 is completed for each site.
2. Specifically, it is recommended that additional research is undertaken on each of the sites registered as set out in S&Gs, Section 3.1, s. 1, including review of the archaeological sites with affected Indigenous communities to determine if relevant historical or cultural heritage information is available.
3. It is further recommended that the sites registered as EfKj-1, EfKj-2, EfKj-3, EfKj-4 and EeKi-4 hold continued Cultural Heritage Value or Interest.
4. It is recommended that for each site, a fixed datum is established as the basis for the test unit grid, and that the number and spacing to test units is determined in conformance with the direction set out in the S&Gs Section 3.2.2, Section 3.2.3, and Table 3.1.
5. Further to recommendation 4, we also recommend the following:
 - a. archaeological site EfKj-1 is understood to be a small precontact site where it is not yet evident that the level of cultural heritage value or interest will result in a recommendation to proceed to Stage 4. For this site, it is recommended that 1-metre square test units are placed across the site at a five-metre interval, with an additional units totalling 20% of the grid unit total added in areas of interest or for the purpose of defining the extent of the site.
 - b. archaeological sites EfKj-2 and EfKj-3 are understood to be small precontact sites where it is clearly evident that the level of cultural heritage value or interest will result in a recommendation to proceed to Stage 4. For these sites, it is recommended that 1-metre square test units are placed across the site at a ten-metre interval, with an additional units totalling 40% of the grid unit total added in areas of interest or for the purpose of defining the extent of the site.
 - c. archaeological site EfKj-4 is understood to be a large multicomponent or single component lithic scatters. For this site, it is recommended that 1-metre square test units are placed across the site at a ten-metre interval, with an additional units totalling 40% of the grid unit total added in areas of interest or for the purpose of defining the extent of the site.
 - d. Archaeological site EeKi-4 is understood to be an intact archaeological site. For this site, it is recommended that 1-metre square test units are placed across the site at a five-metre interval,

with the excavation of at least three adjacent test units along each grid line until yields of five or fewer artifacts are obtained for each test unit.

6. For Stage 3 fieldwork, all test units must be 1-metre squares placed in measured locations on a set grid. Units must be excavated by hand in systematic (5cm) levels, at least 5cm into subsoil. All unit fill must be screened using 6mm screens, and all recoveries collected and recorded. For any features identified, it is required to follow the direction in S&Gs Section 3.2.2, s. 6.
7. For Stage 3 fieldwork at archaeological sites EfKj-3 and EfKj-4, at least 10% of the units will be screened using 3mm mesh.
8. It is recommended that for each site, the determination of whether the site requires (Stage 4) mitigation is determined in conformance with the S&Gs, Section 3.4 and Section 3.5. This recommends that affected Indigenous communities must be engaged when evaluating the cultural heritage value or interest of each of the sites examined (Section 3.4, s. 2), and when determining Stage 4 mitigation strategies (Section 3.5, s. 1).
9. It is recommended that an archaeological assessment report, conforming to the relevant direction found in the S&Gs, Section 7.5 and Section 7.9, is prepared for each archaeological site and that each report includes a summary of Indigenous community engagement in conformance to the direction in S&Gs Section 7.6.2, s. 1.
10. On the basis of the property assessment completed for the balance of the areas evaluated as holding archaeological potential at Stage 1, and where no archaeological resources or features were identified, it is recommended that there are no further archaeological concerns for the area, and that no further archaeological assessment work is required.
11. Finally, it is recommended that a comprehensive "chance finds protocol" is prepared for ongoing use in the construction, operation and decommissioning phases of the Great Bear Resources project. The protocol should include contact information when chance finds arise, and reflect the results of the archaeological assessments completed and the advice on compliance to legislation described in S&Gs Section 7.5.9.

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

Neilsen, J.M. 1989. Northern Ontario Engineering Geology Terrain Study, Data Base Map, Pakwash Lake. Ontario Geological Survey. Map 5107, Scale 1:100 000.

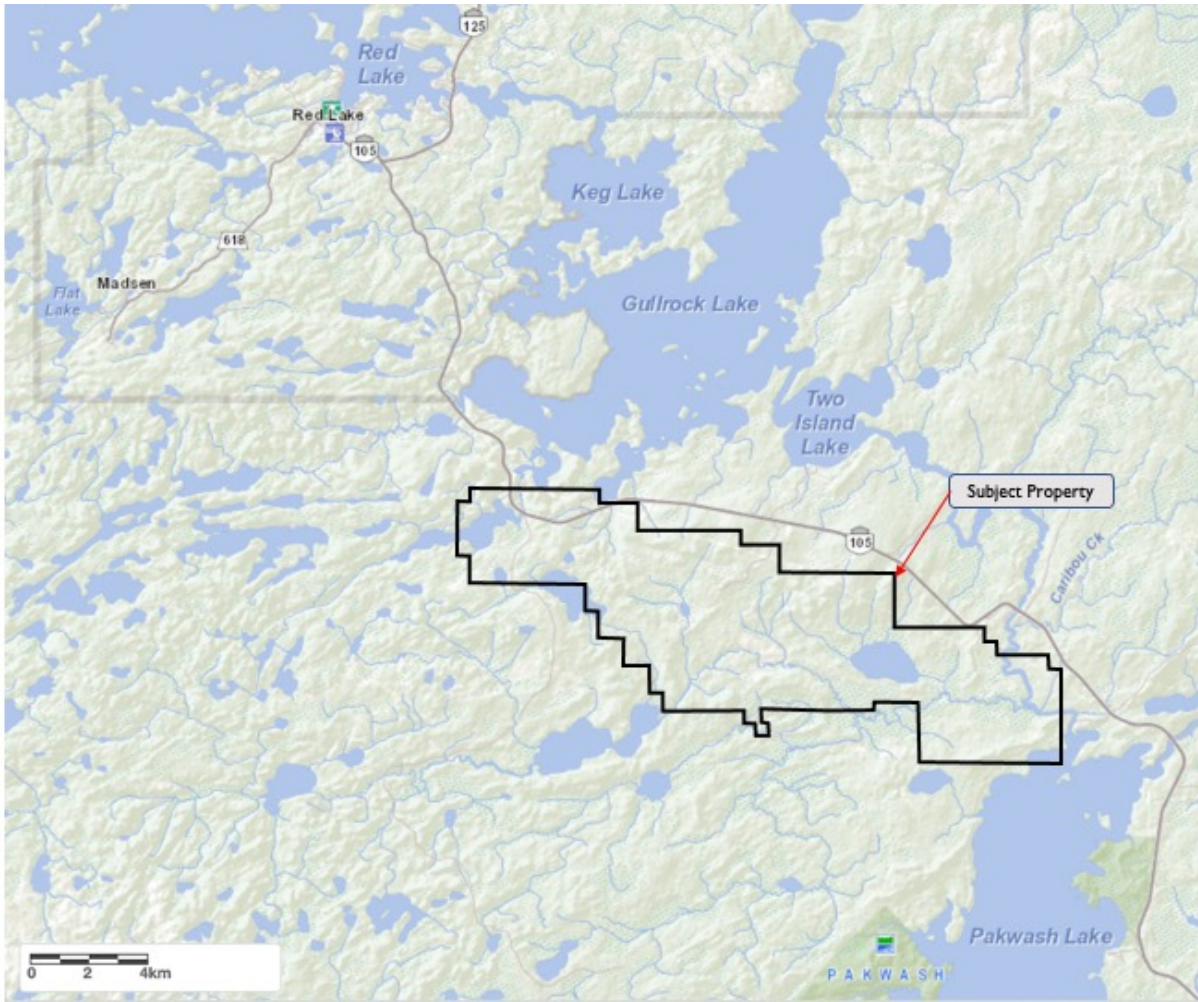
Northwest Archaeological Assessments. 2023. Stage 1 Archaeological Assessment, Proposed Kinross Gold Corporation Great Bear Project, Unorganized Territory, District of Kenora. Original report dated February 03, 2023. Prepared by Andrew Hinshelwood, Archaeological Licence P236 (PIF P236-0208-2022).

Taylor-Hollings, J., and Scott Hamilton. 2007. Stage 2 Archaeological Research at Pakwash and Bruce Lakes, Northwestern Ontario. Report prepared for Ontario Parks, Ear Falls, ON, under archaeological licence P095-008. Report on file with the Ministry of Citizenship and Multiculturalism, Toronto.

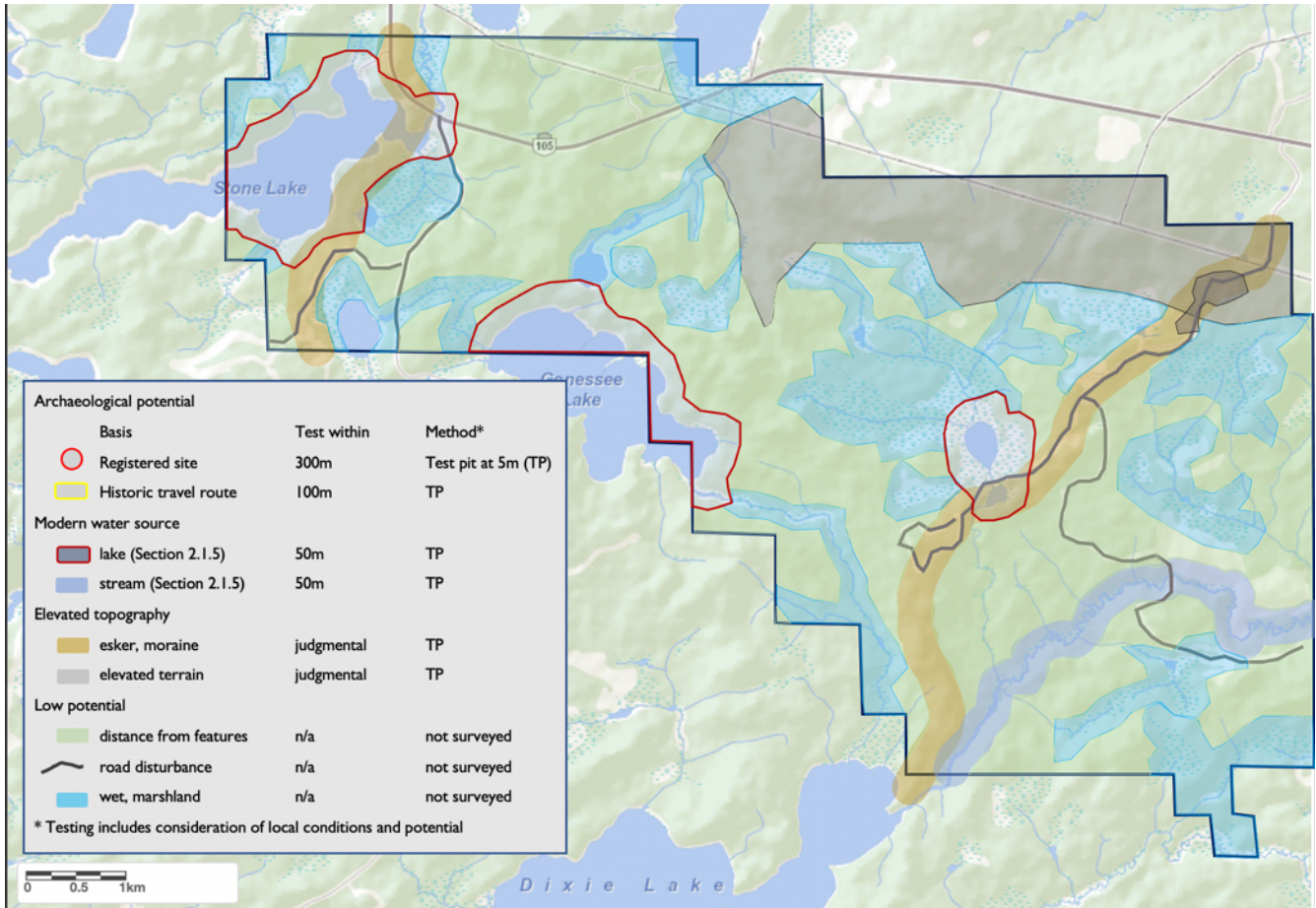
Maps



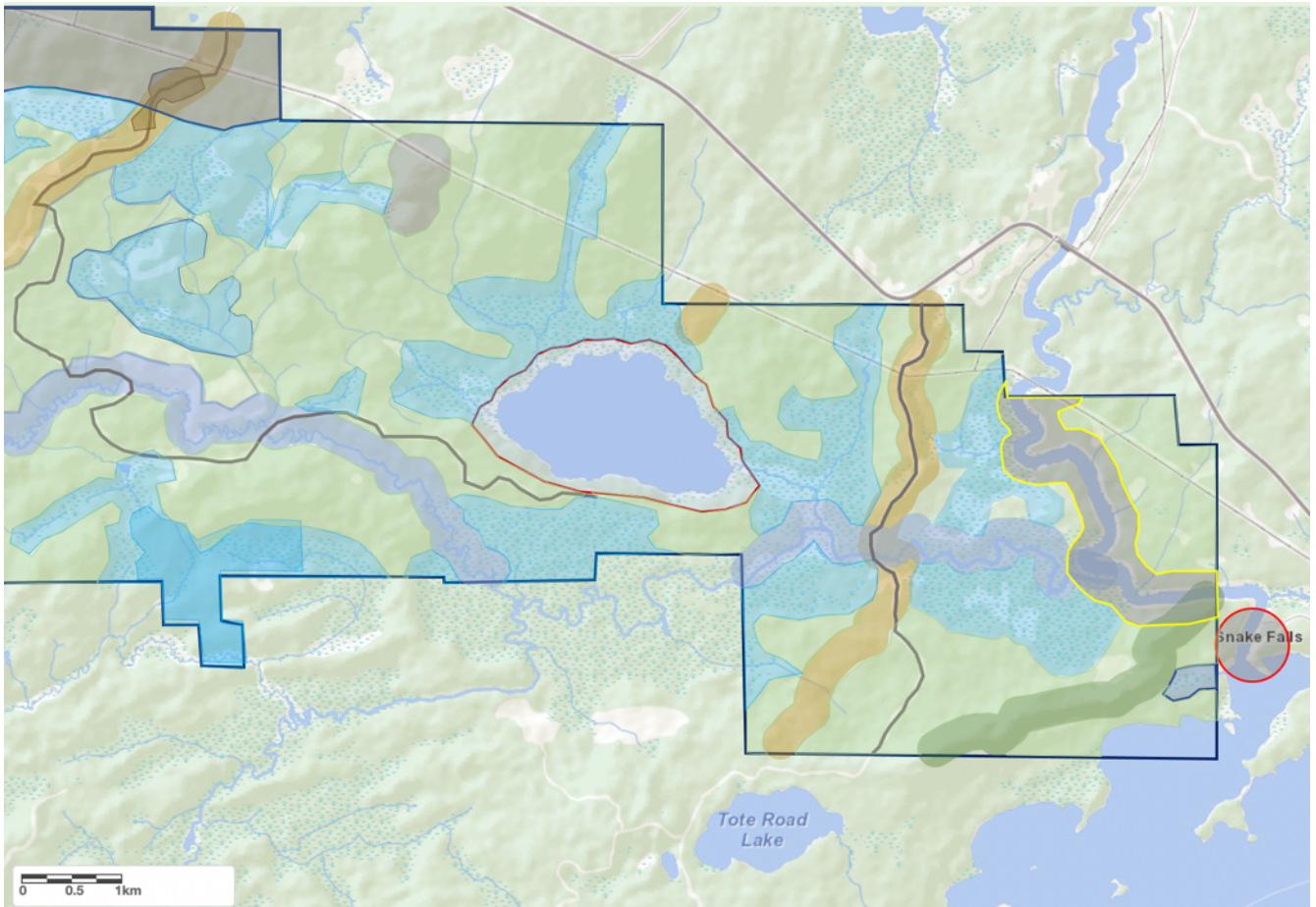
Map 1: Regional location of subject property.



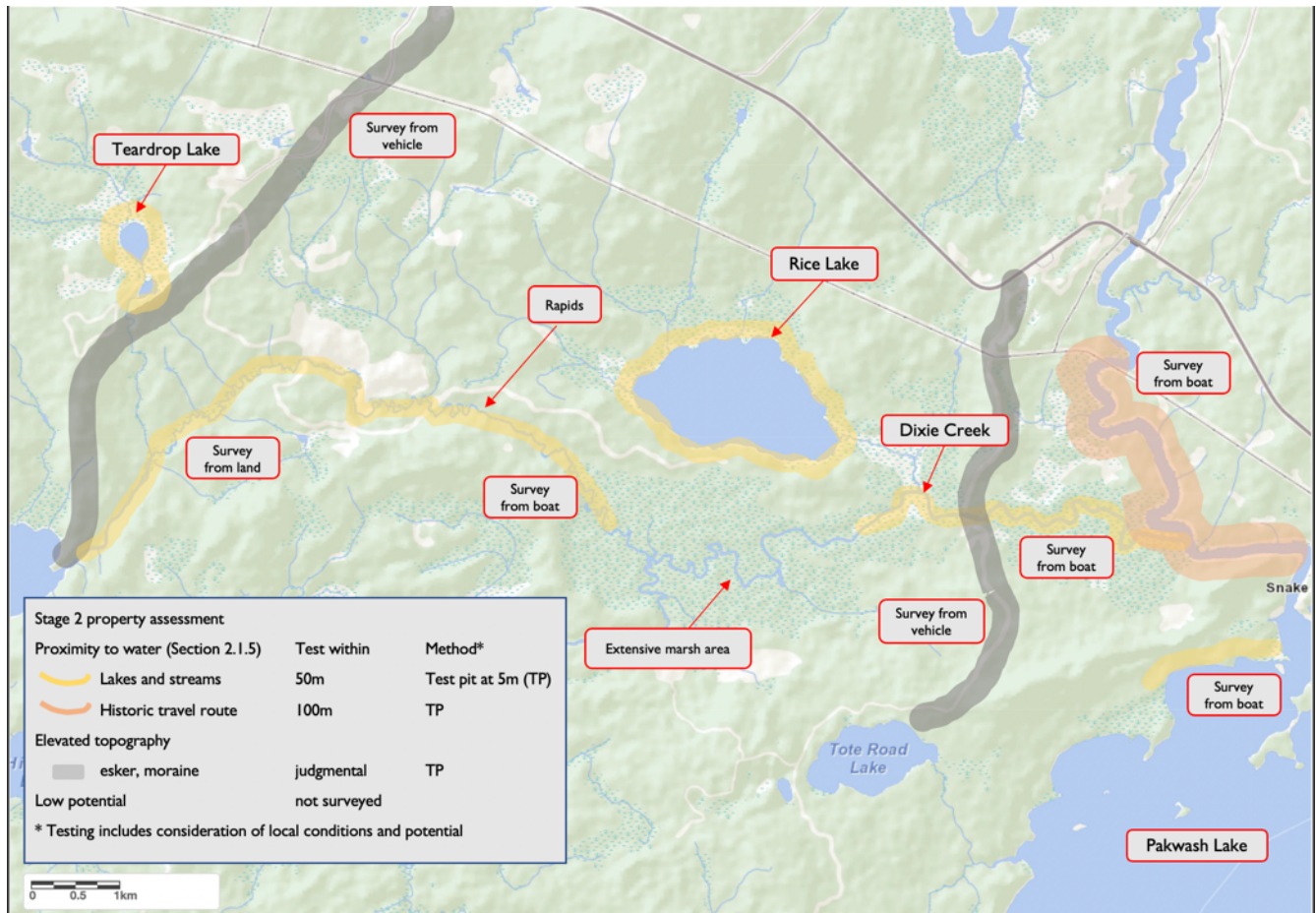
Map 2: The subject property is located east of the Chukuni River and south of Highway 105, southeast of Red Lake, Ontario.



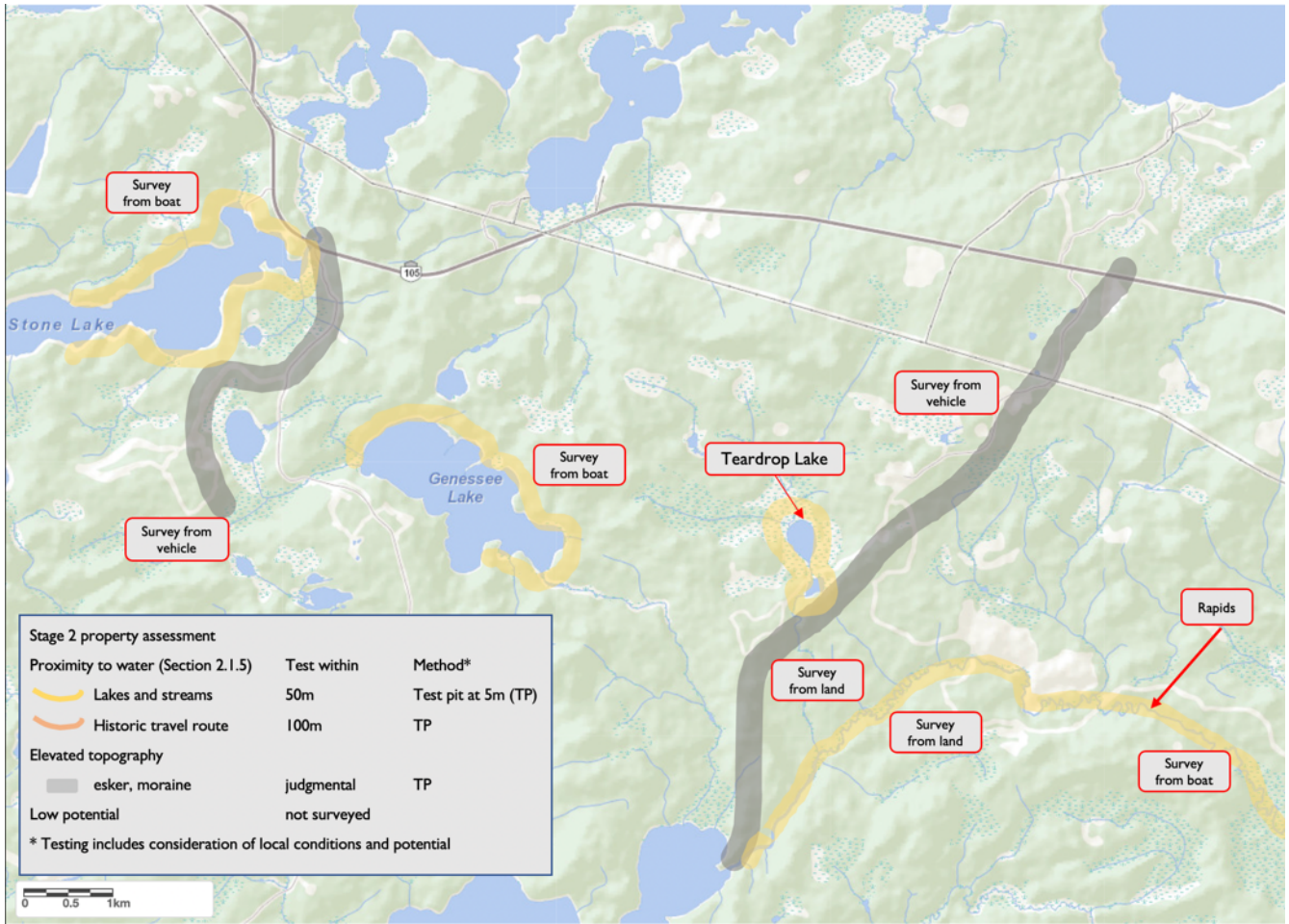
Map 3a: Archaeological potential evaluated at Stage 1, western part of property. All areas of archaeological potential are mixed or complex archaeological potential. Test pit survey at 5 metre intervals where possible, noting local areas of low potential due to bedrock, moisture, or similar conditions. Areas mapped in green as 'distance from features', include areas more than 50 metres from water sources, reflecting the direction in S&Gs Section 2.1.5, s. 1. Note that actual archaeological potential areas along Dixie Creek and Rice Lake is based on the distance from the high water mark or at the transition from marsh to dry forest and includes a number of isolated areas. No development is proposed for areas north of the highway.



Map 3b: Archaeological potential evaluated at Stage 1, eastern part of property. All areas of archaeological potential are mixed or complex archaeological potential. Test pit survey at 5 metre intervals where possible, noting local areas of low potential due to bedrock, moisture, or similar conditions. Areas mapped in green as 'distance from features', include areas more than 50 metres from water sources, reflecting the direction in S&Gs Section 2.1.5, s. 1. Note that actual archaeological potential areas along Dixie Creek and Rice Lake is based on the distance from the high water mark or at the transition from marsh to dry forest and includes a number of isolated areas. No development is proposed for areas north of the highway.



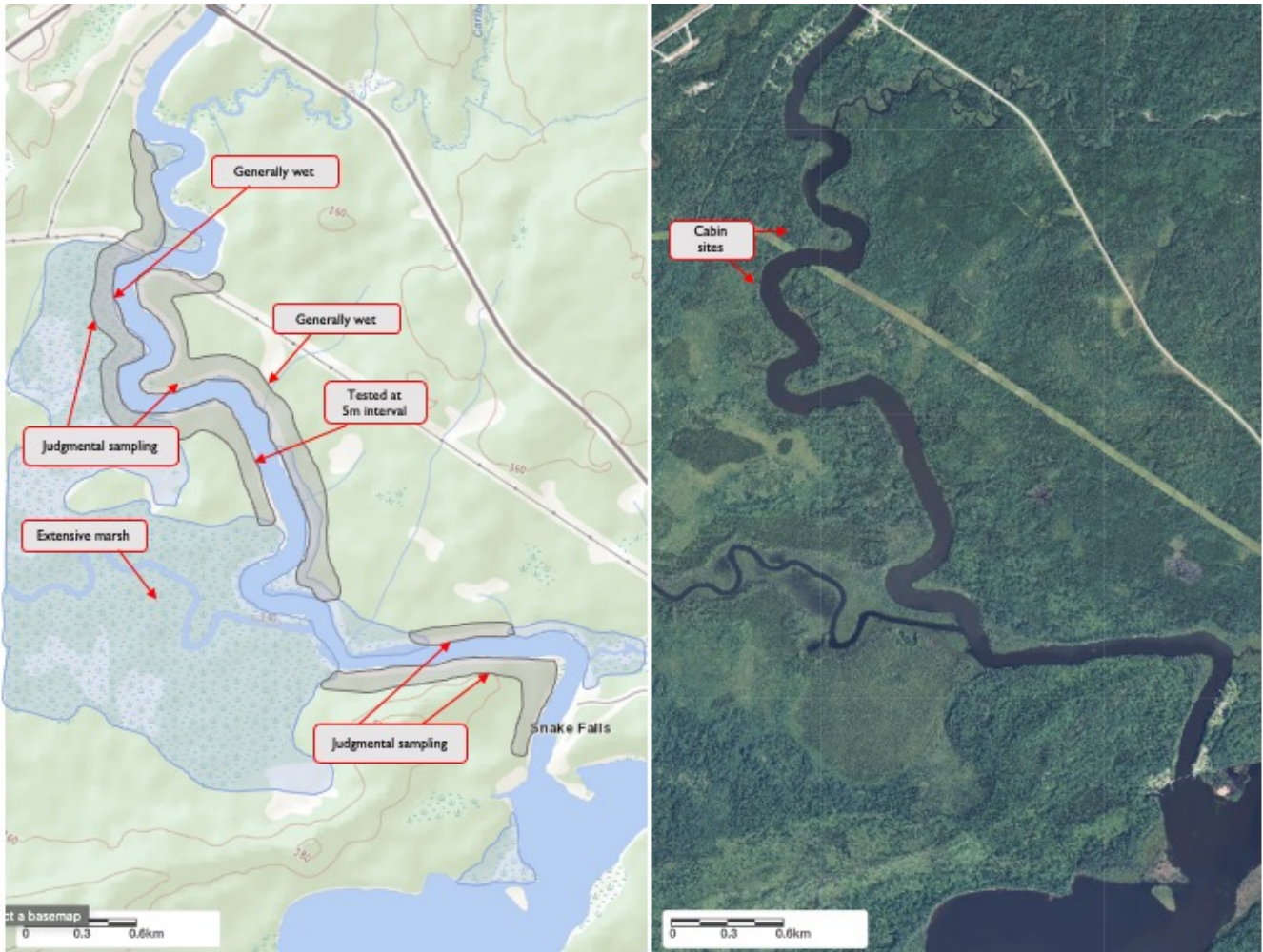
Map 4a: Areas of focus for Stage 2 property assessment, eastern portion. Stage 2 archaeological assessment focussed on areas evaluated as holding archaeological potential at Stage 1. These areas were assessed using either a five metres test interval within 50 metres of features of archaeological potential, or judgemental testing to test pockets of level, well drained sandy soil present in areas of generally low, wet terrain or steeply sloped bedrock controlled terrain. The areas marked in gold were examined in their entirety on foot and boat where necessary for access.



Map 4b: Areas of focus for Stage 2 property assessment, western portion. Stage 2 archaeological assessment focussed on areas evaluated as holding archaeological potential at Stage 1. These areas were assessed using either a five metres test interval within 50 metres of features of archaeological potential, or judgemental testing to test pockets of level, well drained sandy soil present in areas of generally low, wet terrain or steeply sloped bedrock controlled terrain. The areas marked in gold were examined in their entirety on foot and boat where necessary for access.

Map in Supplementary Documentation.

Map 5: Fieldwork at Teardrop Lake. Additional information in Supplementary Documentation.



Map 6: Fieldwork along the Chukuni River showing areas assessed at Stage 2.

Map in Supplementary Documentation.

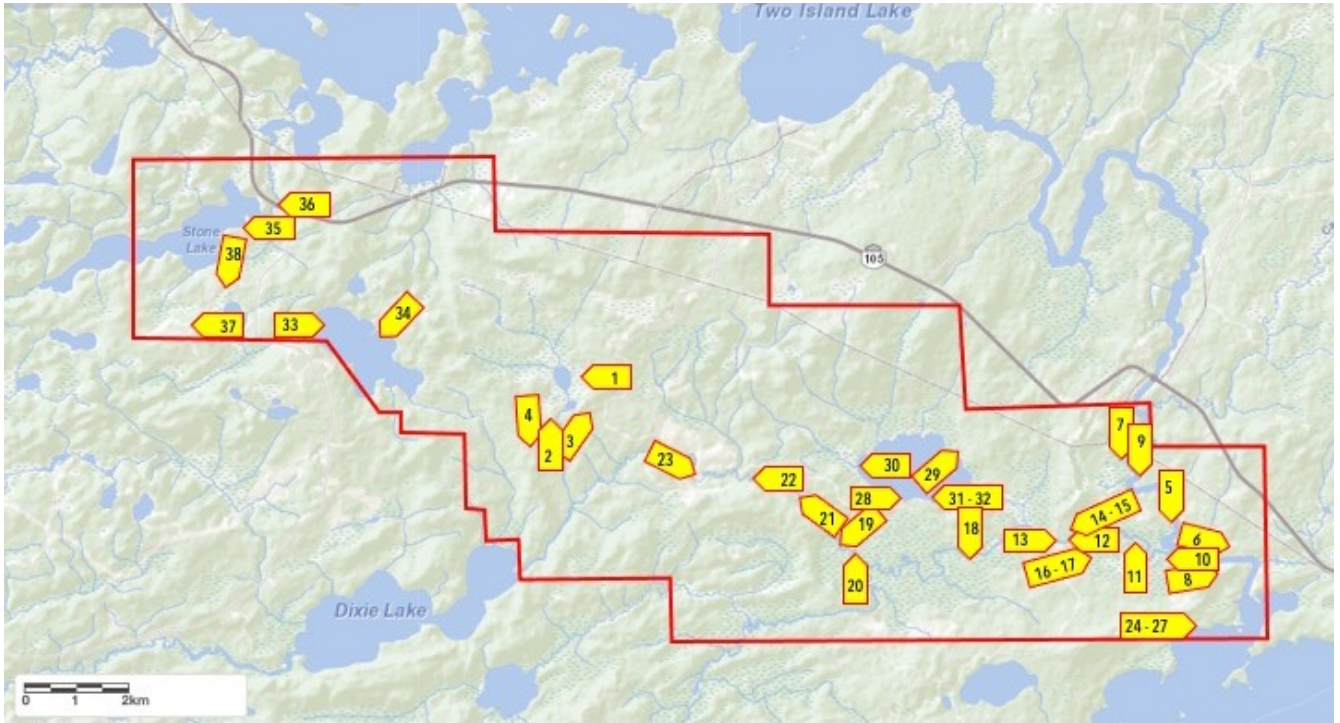
Map 7: Fieldwork on Dixie Creek. Additional information in Supplementary Documentation.

Map in Supplementary Documentation.

Map 8 Fieldwork in Pakwash Lake area showing areas assessed at Stage 2. Stage 2 testing focussed on areas of level well drained soil within 50 metres of water (indicated by gold shading). Low and wet, and steeply sloped areas were not tested. Ground rises steeply behind marsh east of the area tested. Additional information available in Supplementary Document.

Map in Supplementary Documentation.

Map 9: Fieldwork at Rice Lake, showing areas assessed at Stage 2. Stage 2 testing focussed on areas of level well drained soil within 50 metres of water (indicated by gold shading). The south shore was mostly steep at shore, irregular and hummocky inland with pockets of poorly drained and wet soil. Low, wet, and marsh areas were not tested. Additional information available in Supplementary Documentation.



Map 10: Location and direction of photographs used in the report.

Figures



Figure 1: View west across Teardrop Lake showing terrain and vegetation conditions.



Figure 3: View north showing conditions at archaeological site EfKj-1.



Figure 2: View north showing terrain conditions west side of the southern part of Teardrop Lake.



Figure 4: View south showing terrain at the narrow, steep sided esker running south from Teardrop Lake.



Figure 5: View south on Chukuni River showing marsh conditions at shore, and moist to fresh bank area supporting alder-willow and spruce-fir mixedwood forest.



Figure 7: View south showing steep bank at location of contemporary camp.



Figure 6: View east on Chukuni River showing rocky conditions at shore, and steep slope up to level terrain.



Figure 8: View east along Chukuni River showing typical dry to fresh interior terrain. Tested at 5m interval.



Figure 9: View south along Chukuni River showing typical moist to wet terrain. Not tested at Stage 2.



Figure 11: View north showing typical terrain conditions along lower Dixie Creek. Not tested at Stage 2.



Figure 10: View west showing confluence of Dixie Creek and Chukuni River. Low and wet. Not tested at Stage 2.



Figure 12: View west (upstream) showing forestry operations bridge crossing Dixie Creek. The bridge is positioned on or near the easternmost esker ridge. EfKj-2 is to the right of the photo.



Figure 13: View east from forestry operation bridge showing shoreline adjacent to EfKj-2.



Figure 15: View west showing level terrain at EfKj-2 with Stage 2 intensification in progress.



Figure 14: View west showing level terrain at EfKj-2 with Stage 2 test pitting in progress.



Figure 16: View east showing a food cache box, one element of the trapper's camp noted on the south bank opposite EfKj-2.



Figure 17: View west showing the log 'ramp' leading to the south bank of Dixie Creek, east of the forestry operations bridge.



Figure 19: View southwest showing an area of level, dry terrain being tested in the upper reaches of Dixie Creek.



Figure 18: View south showing typical shore conditions on Dixie Creek upstream from the bridge. Note that the tufts of grass are in standing water.



Figure 20: View north showing isolated jack pine. This species generally prefers dry, well-drained soils. Testing at this and similar locations identified soils as organic and moist to wet.



Figure 21: View northwest showing the low water levels at the rapids on Dixie Creek. Testing was completed in areas of level, dry terrain adjacent to the rapids.



Figure 23: View southeast showing typical bank conditions at Dixie Creek above the rapids. Dense growth of grass and alder signalled moist to wet conditions.



Figure 22: View west showing typical bank conditions at Dixie Creek above the rapids. Testing in areas of level, dry terrain was completed. Access was via trails.



Figure 24: View east showing testing inland from the beach at Pakwash Lake. Terrain varied between level and moist to sloped and irregular and fresh.



Figure 25: View east showing the wide sand beach at EeKi-4. The rocky point separating the east and west beach areas is in the distance, beyond the crew member completing a surface survey of the beach.



Figure 27: View east showing the east beach at Pakwash Lake. Limited artifact recoveries at this location. Note the steep rise from the water to the interior.



Figure 26: View east showing the rocky point separating the east and west beach areas. Cobbles and boulders were frequently noted in test pits inland from the shore.



Figure 28: View east showing shoreline conditions along the south shore of Rice Lake. Cobbles and boulders at shore, land slopes steeply up to moraine ridge under dense conifer canopy.



Figure 29: View northeast showing typical shoreline conditions on Rice Lake with aquatic vegetation in foreground rising to slight ridge in distance.



Figure 31: View west showing area of level, well-drained terrain between adjacent steeply sloped, or low and wet areas. Pockets of level terrain were tested at Stage 2.



Figure 30: View west showing typical shoreline conditions on Rice Lake with extensive grass, sedge area.



Figure 32: View down showing cluster of lithic artifacts at EfKj-4. The greenish rhyolite shows against the tan backdrop of the beach sand.



Figure 33: View east showing typical shoreline conditions at Genesee Lake. Shallow water at shore with marsh vegetation backed by steeply sloped inland terrain.



Figure 35: View west showing typical shoreline conditions at Stone Lake. Low slope shore leads to hummocky terrain inland. Limited testing where conditions warranted.



Figure 34: View southwest showing contemporary camp site on steep-sided bedrock ridge, Genesee Lake. Tested at Stage 2, no recoveries.



Figure 36: View west showing stream flowing into Stone Lake. Dense aquatic vegetation at stream and wet conditions inland.



Figure 37: View south showing typical conditions along esker-based roads crossing the GBR lease area. Soils generally sandy, supporting jackpine stands with limited elevation difference between esker and surrounding area.



Figure 38: View west showing typical aggregate source area associated with eskers.



Figure 39: Large 'adze' from basalt EeKi-4. Evidence of flake removal along edges and wear from being in active beach area can be observed.



Figure 40: View of 'HBL' utilized flake (left) and Late Woodland 'Selkirk' ceramic body sherd (right) from EeKi-4. The flake shows evidence of use as a cutting implement along both long edges.



Figure 41: View of Middle Woodland 'Laurel' ceramic body sherds from EeKi-4. Laurel ceramics are identified, in part, by smooth exterior finish and coil structure.

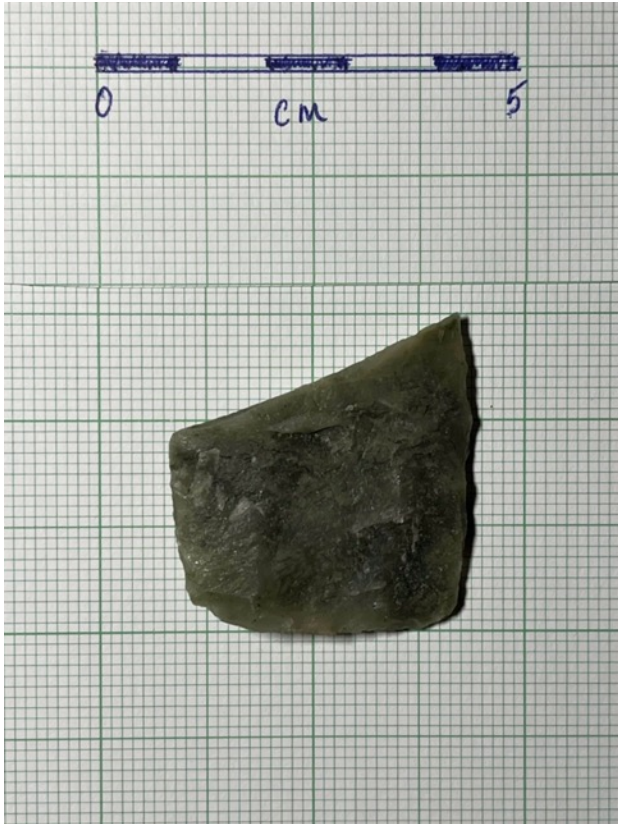


Figure 42: View of late palaeo spear point base from EfKj-4. The point has broken on a diagonal, but enough physical evidence remains to identify grinding along both lateral edges and the base, basal thinning by removal of small flakes on both faces, and parallel oblique flaking, all traits of 'early' projectile points.

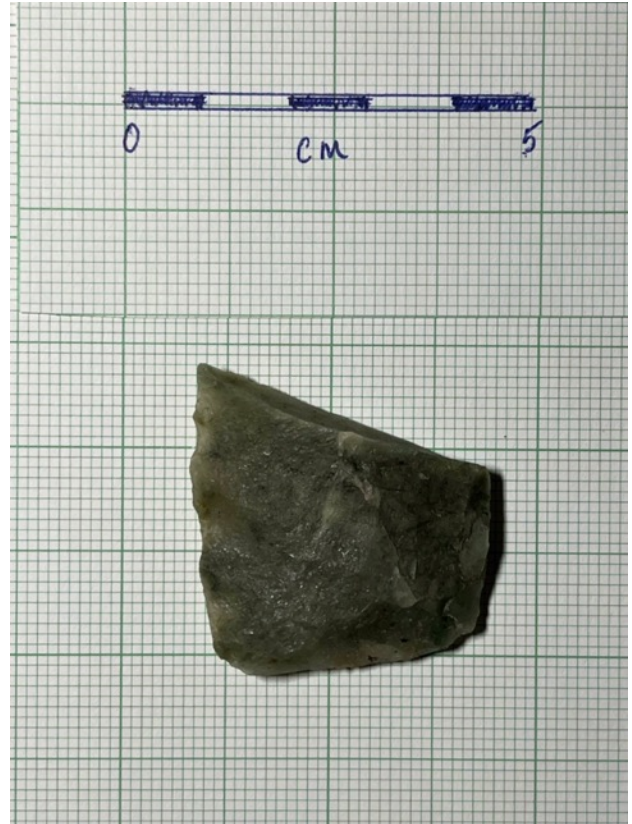


Figure 43: Obverse view of late palaeo spear point base from EfKj-4. The parallel oblique flaking is clear in this image, as are the small basal thinning flake scars.

Appendix I: Artifact catalogue:

Borden No.	Catalogue No.	Quantity	Category 1	Broad type	Specific type	Comments
Teardrop Lake						
EfKj-1	2023-TL-001	2	Lithic	debitage	platform flake frag	hinge termination
EfKj-1	2023-TL-002	1	Lithic		flake fragment	platy
EfKj-1	2023-TL-003	3	Lithic		flake fragment	blocky / platy
EfKj-1	2023-TL-004	4	Lithic		flake fragment	
EfKj-1	2023-TL-005	2	Lithic		flake fragment	
EfKj-1	2023-TL-006	1	Lithic	debitage	flake fragment	
		13				
Dixie Creek 1						
EfKj-2	2023-DC-001	1	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-002	2	Lithic	debitage	shatter	
EfKj-2	2023-DC-003	2	Lithic	debitage	platform flake	
EfKj-2	2023-DC-004	3	Lithic	debitage	platform flake	
EfKj-2	2023-DC-005	1	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-006	10	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-007	2	Lithic	debitage	shatter	
EfKj-2	2023-DC-008	5	Lithic	debitage	shatter	
EfKj-2	2023-DC-009	1	Lithic	debitage	shatter	
EfKj-2	2023-DC-010	1	Lithic	biface	fragment	roughly worked / preform
EfKj-2	2023-DC-011	1	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-012	1	Lithic	debitage	platform flake	
EfKj-2	2023-DC-013	6	Lithic	debitage	platform flake	
EfKj-2	2023-DC-014	2	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-015	3	Lithic	debitage	shatter	
EfKj-2	2023-DC-016	1	Lithic	debitage	flake fragment	

EfKj-2	2023-DC-017	1	Lithic	debitage	platform flake	
EfKj-2	2023-DC-018	2	Lithic	debitage	platform flake	
EfKj-2	2023-DC-019	1	Lithic	debitage	platform flake	cortex
EfKj-2	2023-DC-020	1	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-021	1	Lithic	debitage	platform flake	
EfKj-2	2023-DC-022	1	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-023	3	Lithic	debitage	platform flake	
EfKj-2	2023-DC-024	3	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-025	2	Lithic	debitage	shatter	
EfKj-2	2023-DC-026	2	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-027	1	Lithic	debitage	platform flake	
EfKj-2	2023-DC-028	2	Lithic	debitage	platform flake	
EfKj-2	2023-DC-029	1	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-030	1	Lithic	debitage	shatter	
EfKj-2	2023-DC-031	1	Lithic	debitage	flake fragment	
EfKj-2	2023-DC-032	1	Lithic	debitage	flake fragment	

66

Pakwash Lake East Beach *EeKi-4*

2023-PW-001	1	Lithic	debitage	flake frag	grey large crytals
2023-PW-002	2	Lithic	debitage	flake frag	1 thin 1 blocky
2023-PW-003	1	Lithic	debitage	flake frag	
2023-PW-004	1	Lithic	debitage	plat flake	
2023-PW-005	1	Lithic	debitage	plat flake	
2023-PW-006	1	Lithic	uniface	end scraper	thumbnail
2023-PW-007	1	Lithic	debitage	plat flake	
2023-PW-008	2	Lithic	debitage	plat flake	
2023-PW-009	1	Lithic	debitage	plat flake	
2023-PW-010	1	Lithic	debitage	plat flake	
2023-PW-011	1	Lithic	debitage	plat flake	
2023-PW-012	1	Lithic	debitage	flake frag	
2023-PW-013	1	Lithic	debitage	flake frag	
2023-PW-014	2	Lithic	debitage	flake frag	
2023-PW-015	1	Lithic	debitage	plat flake	complete
2023-PW-016	1	Lithic	debitage	spall	pebble frag
2023-PW-017	1	Lithic	debitage	plat flake	
2023-PW-018	1	Lithic	debitage	plat flake	
2023-PW-019	1	Lithic	core / biface	spall	worked along edge
2023-PW-020	1	Lithic	debitage	flake frag	

Pakwash Beach West Beach

2023-PW-021	1	Lithic	biface	adze	large, rough and water rolled
2023-PW-022	1	Lithic	core		large irregular
2023-PW-023		Lithic			
2023-PW-024	1	Lithic	debitage	shatter	flake-ish
2023-PW-025	1	Lithic	debitage	shatter	water worn
2023-PW-026	1	Lithic	debitage	plat flake	grainy material
2023-PW-027	1	Ceramic	body sherds	plain surface	Laurel
2023-PW-028	3	Ceramic			coil breaks ?
2023-PW-029	3	Ceramic			frags
2023-PW-030	1	Lithic	debitage	frag	
2023-PW-031	1	Lithic	debitage	frag	
2023-PW-032	1	Lithic	debitage	plat flake	
2023-PW-033	1	Lithic	debitage	plat flake	
2023-PW-034	1	Lithic	debitage	plat flake	
2023-PW-035	1	Lithic	debitage	flake	
2023-PW-036	1	Lithic	debitage	plat flake	
2023-PW-037	1	Lithic	debitage	shatter	
2023-PW-038	1	Ceramic	body sherds	fabric impressed	Selkirk
2023-PW-039	2	Lithic	debitage	flake frag	
2023-PW-040	7	Lithic	debitage	flake frag	
2023-PW-041	2	Lithic	debitage	plat flake	
2023-PW-042	1	Lithic	debitage	plat flake	
2023-PW-043	1	Lithic	debitage	plat flake	
2023-PW-044	1	Lithic	debitage	flake frag	
2023-PW-045	1	Lithic		cortex frag	pebble flake
2023-PW-046	1	Lithic		plat flake	water worn
2023-PW-047	1	Lithic		flake frag	caramel
2023-PW-048	1	Ceramic	body sherds	plain surface	Laurel
2023-PW-049	1	Ceramic	body sherds	plain surface	water worn
2023-PW-050	1	Lithic	debitage	flake frag	
2023-PW-051	1	Lithic	uniface	end scraper	
2023-PW-052	1	Lithic	uniface	end/side scraper	platform flake
2023-PW-053	1	Lithic	uniface	retouch flake	frags
2023-PW-054	1	Lithic	debitage	shatter	
2023-PW-055	1	Lithic	debitage	flake frag	cortex
2023-PW-056	1	Lithic		flake frag	cortex

2023-PW-057	1	Ceramic	body sherds	plain surface	water worn
2023-PW-058	1	Lithic	utilized flake		
2023-PW-059	1	Lithic	debitage	flake frag	
2023-PW-060	1	Lithic		flake frag	
2023-PW-061	1	Lithic	debitage	plat flake	sand polish
2023-PW-062	1	Lithic		plat flake	irregular / TA?
2023-PW-063	1	Ceramic	body sherds	fabric impressed	thin / Selkirk
2023-PW-064	1	Lithic	debitage	shatter	platy
2023-PW-065	1	Lithic	debitage	plat flake	sand polish
2023-PW-066	1	Lithic	debitage	flake frag	crystal
2023-PW-067	1	Lithic	uniface	side scraper	platform flake / cortex
2023-PW-068	1	Fossil			
2023-PW-069	1	Ceramic	body sherds	plain surface	water worn
2023-PW-070	1	Ceramic	rim sherd	dentate stamp	spalled / Laurel
2023-PW-071	1	Lithic	debitage	frag	irregular

Rice Lake 1

EfKj-4	2023-RL1-001	12	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-002	22	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-003	2	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-004	1	Lithic	debitage	thinning flake	biface frag? Core?
EfKj-4	2023-RL1-005	10	Lithic	debitage	platform flake	
EfKj-4	2023-RL1-006	4	Lithic	debitage	plat flake	
EfKj-4	2023-RL1-007	1	Lithic	core		big flaky core bit
EfKj-4	2023-RL1-008	1	Lithic	uniface	end scraper	shatter w retouch
EfKj-4	2023-RL1-009	1	Lithic	debitage	flake fragment	primary cortex
EfKj-4	2023-RL1-010	1	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-011	1	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-012	1	Lithic	debitage	platform flake	
EfKj-4	2023-RL1-013	1	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-014	3	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-015	1	Lithic	debitage	platform flake	TA
EfKj-4	2023-RL1-016	3	Lithic	debitage	flake fragment	
<i>EfKj-4</i>	<i>2023-RL1-017</i>	<i>1</i>	<i>Lithic</i>	<i>biface</i>	<i>point, palaeo</i>	<i>Base, ground</i>
EfKj-4	2023-RL1-018	17	Lithic	debitage	platform flake	
EfKj-4	2023-RL1-019	1	Lithic	debitage	scraper	
EfKj-4	2023-RL1-020	1	Lithic	debitage	shatter	
EfKj-4	2023-RL1-021	1	Lithic	debitage	biface	

EfKj-4	2023-RL1-022	1	Lithic	debitage	shatter	cobble
EfKj-4	2023-RL1-023	1	Lithic	debitage	shatter	crystal
EfKj-4	2023-RL1-024	24	Lithic	debitage	fragments	
EfKj-4	2023-RL1-025	1	Lithic	debitage	retouch flake	
EfKj-4	2023-RL1-026	2	Lithic	debitage	platform flake	
EfKj-4	2023-RL1-027	2	Lithic	biface	preform	
EfKj-4	2023-RL1-028	1	Lithic	debitage	shatter	
EfKj-4	2023-RL1-029	4	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-030	1	Lithic	debitage	shatter	
EfKj-4	2023-RL1-031	1	Lithic	biface	point	Base, ground, thinned
EfKj-4	2023-RL1-032	1	Lithic	debitage		cortex pebble frag
EfKj-4	2023-RL1-033	1	Lithic	debitage	platform flake	
EfKj-4	2023-RL1-034	1	Lithic	biface	preform	early stage, material test
EfKj-4	2023-RL1-035	1	Lithic	uniface	utilized flake	
EfKj-4	2023-RL1-036	3	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-037	4	Lithic	debitage	shatter	blocky, flat
EfKj-4	2023-RL1-038	4	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-039	11	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-040	1	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-041	1	Lithic	debitage	platform flake	cortex
EfKj-4	2023-RL1-042	8	Lithic	debitage	platform flake	
EfKj-4	2023-RL1-043	9	Lithic	debitage	platform flake	
EfKj-4	2023-RL1-044	1	Lithic	uniface	side scraper	distal end battered
EfKj-4	2023-RL1-045	1	Lithic	uniface	end scraper	and one side
EfKj-4	2023-RL1-046	1	Lithic	biface	preform	early stage
EfKj-4	2023-RL1-047	1	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-048	2	Lithic	debitage	flake fragment	
EfKj-4	2023-RL1-049	1	Lithic	debitage	flake fragment	

176

Rice Lake 2

EfKj-3	2023-RL2-001	9	Lithic	debitage	platform flake	
EfKj-3	2023-RL2-002	41	Lithic	debitage	fragments	
EfKj-3	2023-RL2-003	1	Lithic	debitage	fragments	
EfKj-3	2023-RL2-004	1	Lithic	debitage	retouched flake	
EfKj-3	2023-RL2-005	28	Lithic	debitage	platform flake	
EfKj-3	2023-RL2-006	93	Lithic	debitage	fragments	
EfKj-3	2023-RL2-007	2	Lithic	debitage	fragments	
EfKj-3	2023-RL2-008	1	Lithic	biface	biface	

Efkj-3	2023-RL2-009	11	Lithic	debitage	fragments
Efkj-3	2023-RL2-010	1	Lithic	debitage	fragments

Stage 2 Archaeological Assessment

Proposed Kinross Gold Corporation Great Bear Project, Unorganized Territory, District of Kenora.

Northwest Archaeological Assessments

Consulting Archaeologists | Cultural Heritage Consultants

Northwest Archaeological Assessments

Andrew Hinshelwood, PhD, CAHP

Stage 2 Archaeological Assessment, Proposed Kinross Gold Corporation Great Bear Project, Unorganized Territory, District of Kenora.

Stage 1
Supplementary Documentation, Revised
January 16, 2026

Archaeological Assessment Report
Prepared by Andrew Hinshelwood
Archaeological Licence P236
PIF P236-0222-2023

Prepared for:

**Kinross Gold Corporation
Great Bear Project**

Ashley.Moncrief@Kinross.com

hinshelwoodandrew@gmail.com

www.andrewhinshelwood.com

[807 252-1251](tel:807-252-1251)

Supplementary Documentation

Archaeological Site Location Data

All sites recorded under PIF P236-0222-2023

EfKj-1

Garmin Oregon 650
UTM 15U
Datum NAD 83
No correction, 5m accuracy
Small site – 40 x 30 metres

Centre	50.86302°N	-93.64834°E
NW	50.86311°N	-93.64846°E
NE	50.86309°N	-93.64811°E
SW	50.86288°N	-93.64849°E
SE	50.86287°N	-93.64815°E

EfKj-2

Garmin Oregon 650
UTM 15U
Datum NAD 83
No correction, 5m accuracy
Large site – 200 x 50 metres

Centre	50.84988°N	-93.51676°E
NW	50.84038°N	-93.51756°E
NE	50.83993°N	-93.51552°E
SW	50.83991°N	-93.51758°E
SE	50.83940°N	-93.51559°E

EfKj-3

Garmin Oregon 650
UTM 15U
Datum NAD 83
No correction, 5m accuracy
Small site – 30 x 30 metres

Centre	50.84580°N	-93.55058°E
NW	50.84602°N	-93.55088°E
NE	50.84670°N	-93.54981°E
SW	50.84553°N	-93.55110°E
SE	50.84571°N	-93.55009°E

EfKj-4

Garmin Oregon 650
UTM 15U
Datum NAD 83
No correction, 5m accuracy
Small site – 30 x 30 metres

Centre	50.84609°N	-93.55150°E
NW	50.84650°N	-93.55190°E
NE	50.84630°N	-93.55135°E
SW	50.84605°N	-93.55175°E
SE	50.84600°N	-93.55135°E

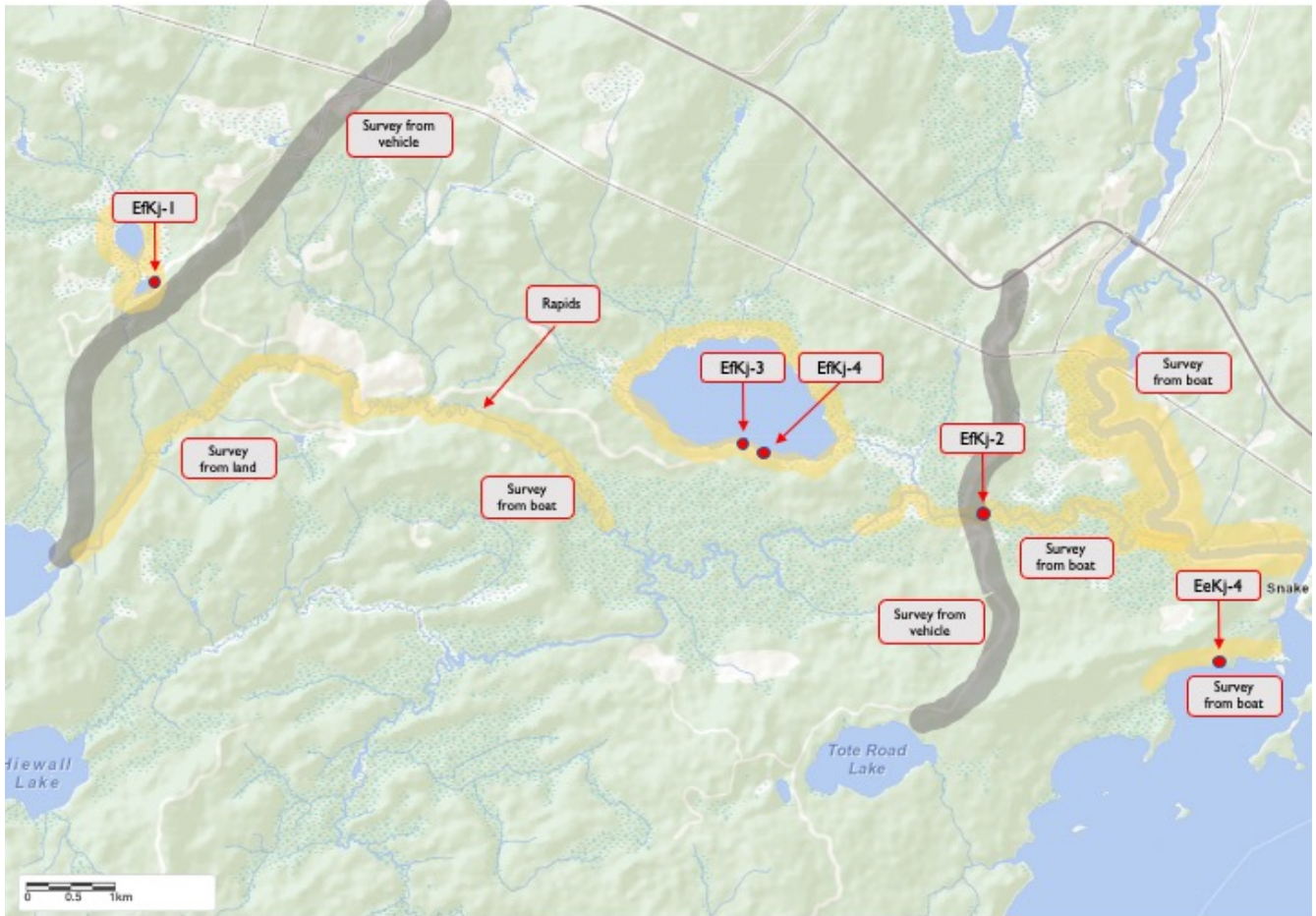
EeKi-4

Garmin Oregon 650
UTM 15U
Datum NAD 83
No correction, 5m accuracy
Large site – 1000 x 50

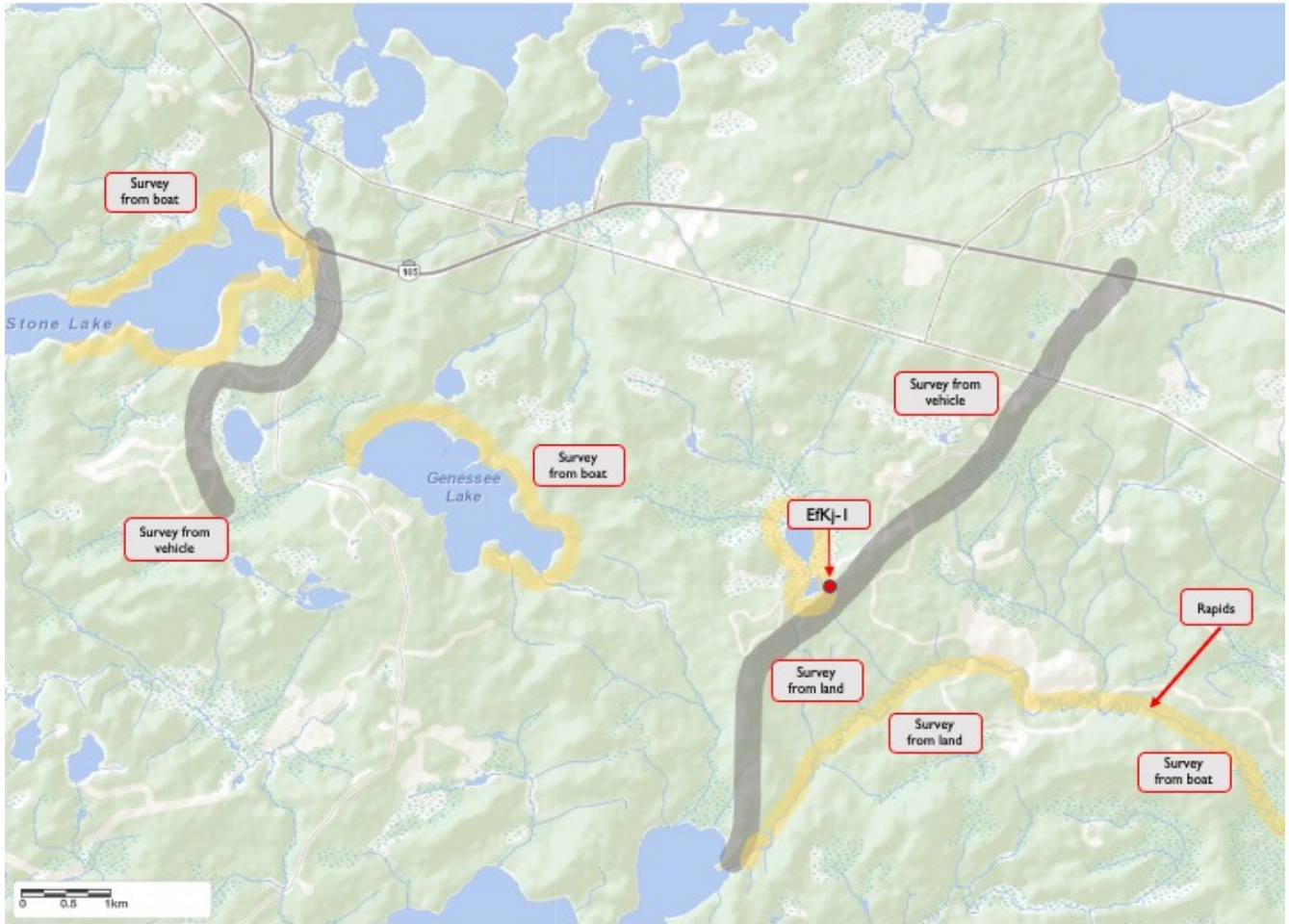
Centre	50.82460°N	-93.48950°E
NW	50.82440°N	-93.48341°E
NE	50.82600°N	-93.47379°E
SW	50.82390°N	-93.48381°E
SE	50.82524°N	-93.47287°E

Archaeological Site Location Maps

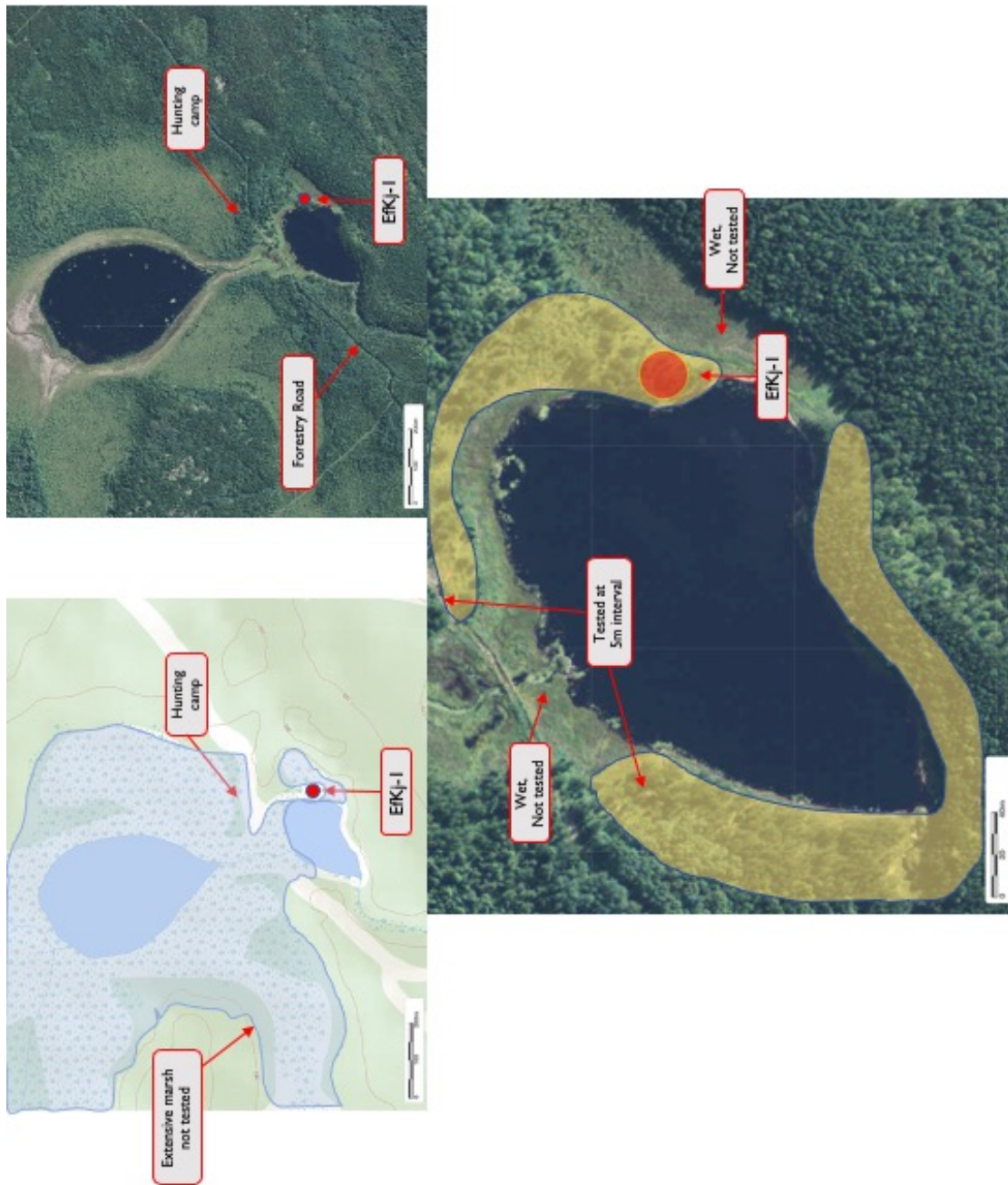
All sites recorded under PIF P236-0222-2023



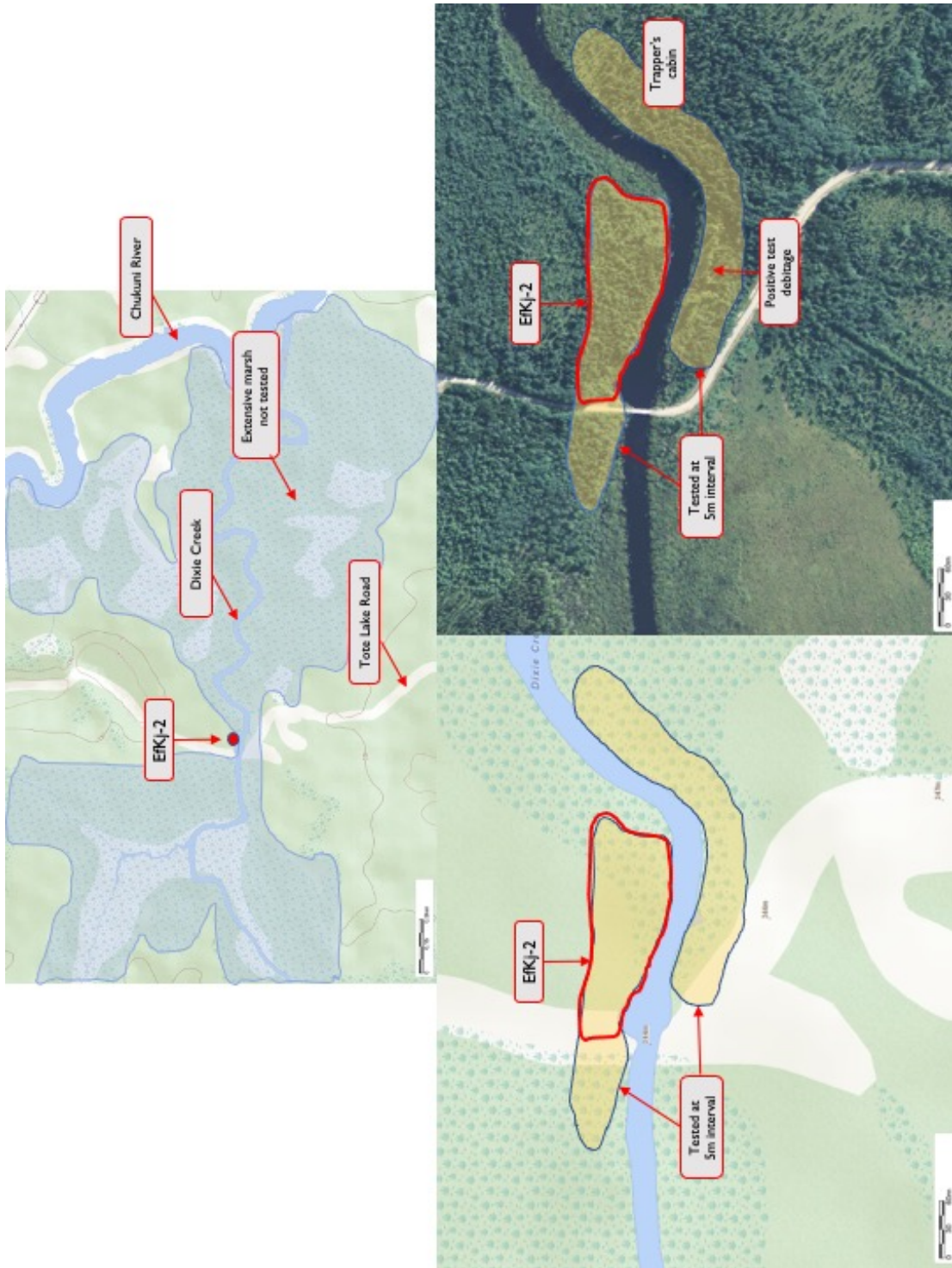
Map 4a: Areas of focus for Stage 2 property assessment, eastern portion with site locations. Stage 2 archaeological assessment focussed on areas evaluated as holding archaeological potential at Stage 1. These areas were assessed using either a five metres test interval within 50 metres of features of archaeological potential, or judgemental testing to test pockets of level, well drained sandy soil present in areas of generally low, wet terrain or steeply sloped bedrock controlled terrain. The areas marked in gold were examined in their entirety on foot and boat where necessary for access.



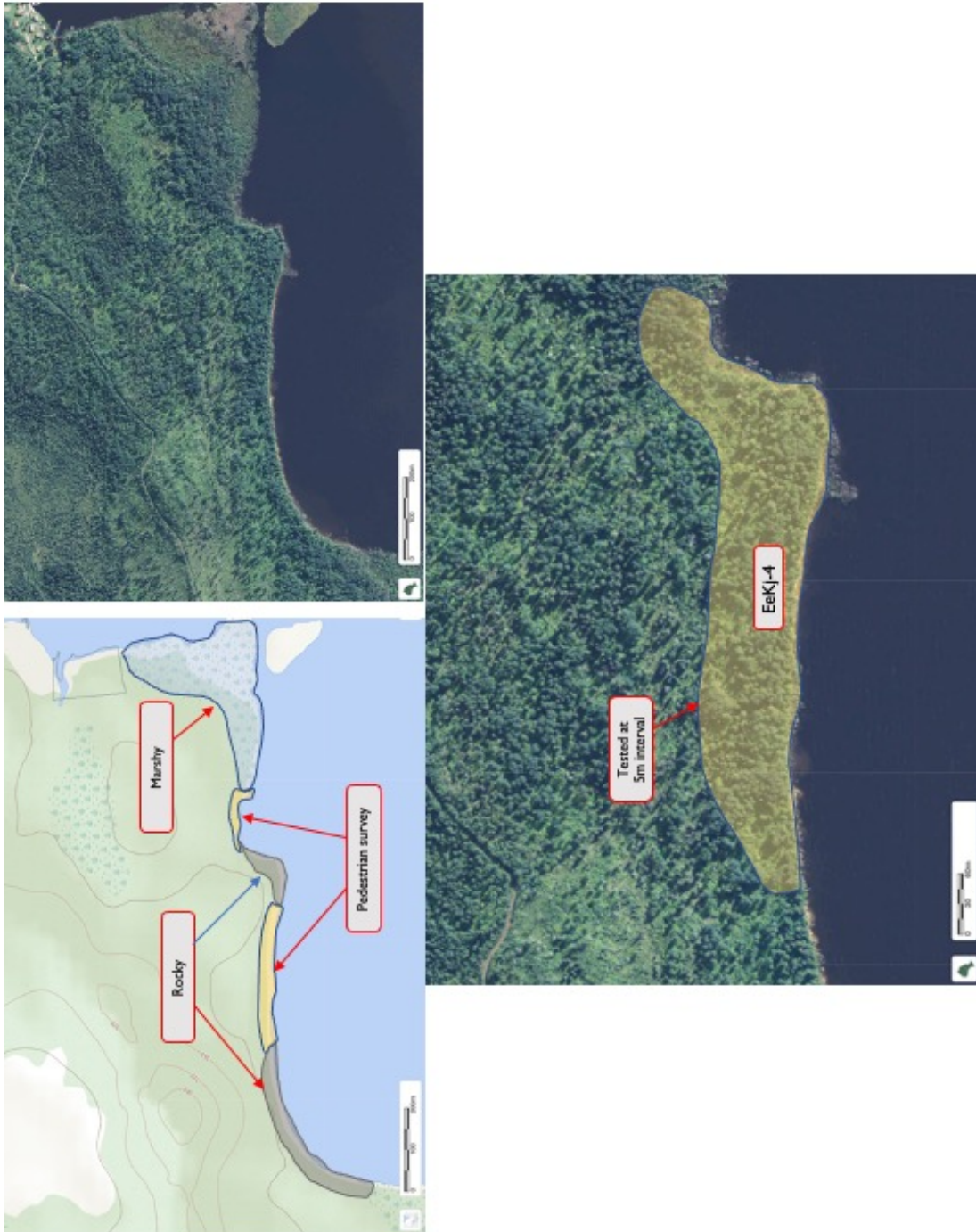
Map 4b: Areas of focus for Stage 2 property assessment, western portion with site locations. Stage 2 archaeological assessment focussed on areas evaluated as holding archaeological potential at Stage 1. These areas were assessed using either a five metres test interval within 50 metres of features of archaeological potential, or judgemental testing to test pockets of level, well drained sandy soil present in areas of generally low, wet terrain or steeply sloped bedrock controlled terrain. The areas marked in gold were examined in their entirety on foot and boat where necessary for access.



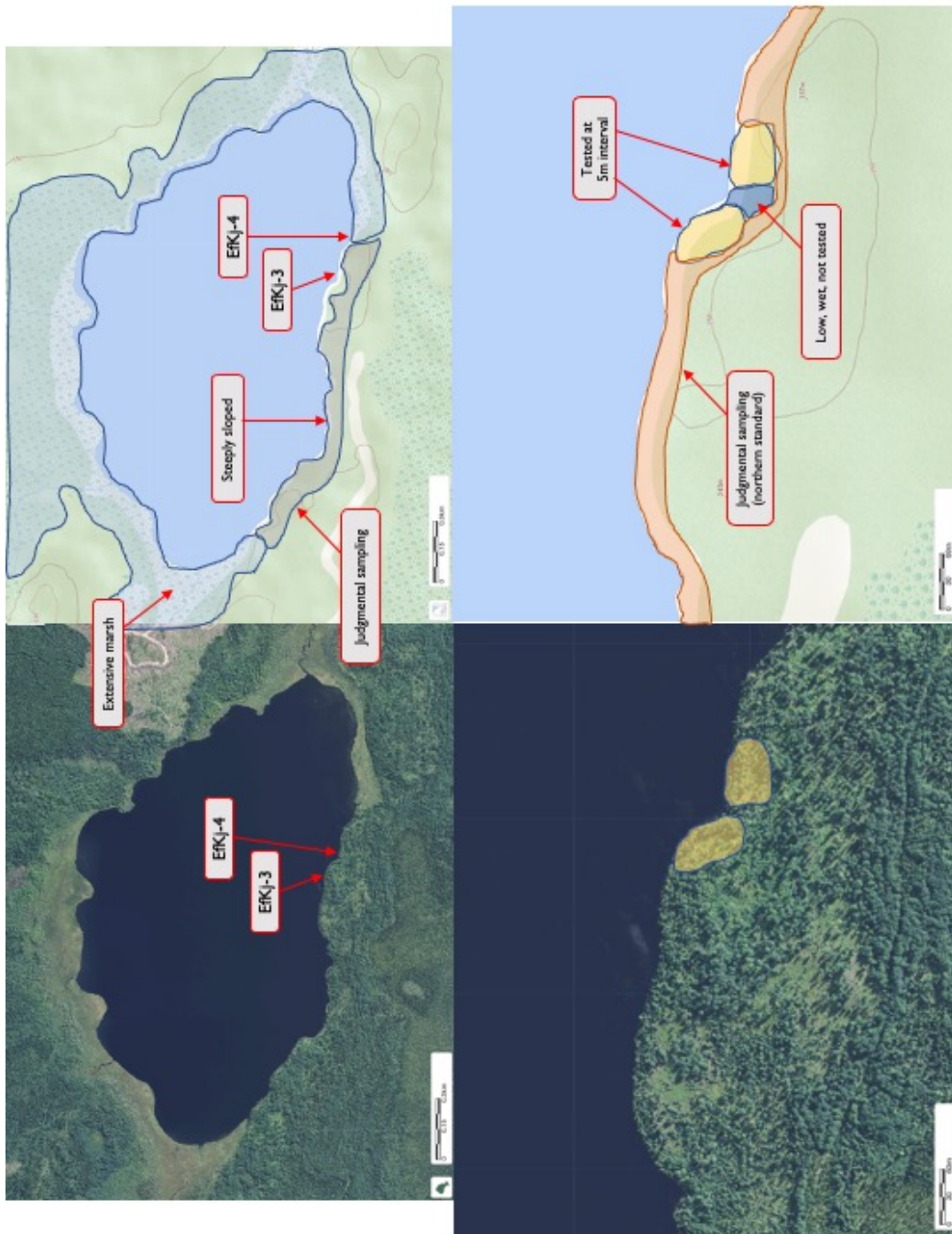
Map 5: Teardrop Lake showing areas assessed at Stage 2. Stage 2 testing focussed on areas of level well drained soil within 50 metres of water (indicated by gold shading). Low and wet, and steeply sloped areas were not tested.



Map 7: Lower Dixie Creek showing areas assessed at Stage 2. Stage 2 testing focussed on areas of level well drained soil within 50 metres of water (indicated by gold shading). Low and wet, and steeply sloped areas were not tested.



Map 8: Pakwash Lake showing areas assessed at Stage 2. Stage 2 testing focussed on areas of level well drained soil within 50 metres of water (indicated by gold shading). Low and wet, and steeply sloped areas were not tested.



Map 9: Rice Lake showing areas assessed at Stage 2. Stage 2 testing focussed on areas of level well drained soil within 50 metres of water (indicated by gold shading). Low and wet, and steeply sloped areas were not tested.

KINROSS

Great Bear

Great Bear Gold Project Impact Statement

Additional archaeological assessment reports related to EfKj-1 available on reasonable request.

