CREE DEVELOPMENT CORPORATION

LA GRANDE ALLIANCE

LA GRANDE ALLIANCE

PRE-FEASIBILITY AND FEASIBILITY STUDIES – PHASES II & III – TRANSPORTATION INFRASTRUCTURE

TECHNICAL NOTE 4

ARCHAEOLOGY AND CULTURAL HERITAGE

FINAL VERSION

DATE: MARCH 25, 2024

PREPARED BY:

François Guindon, Ph.D.
Lead archaeologist – Archeoconsultant inc.

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EXECUTIVE SUMMARY

The aim of this technical Note 4 is to provide a summary of all known heritage sites, to identify Areas of Heritage Interest (AHI) where site concentrations and values are highest and to assess the archaeological potential of a planned road corridor between La Grande and Whapmagoostui/Kuujjuarapik. This effort will provide information for the preventive management of heritage sites when planning future steps of La Grande Alliance. Heritage sites notably include funerary and spiritual sites, historical campsites, harvesting areas, portages, and archaeological sites, occupied mostly by Indigenous Peoples.

A total of 221 sites have been recorded within the study area and its four proposed transportation corridors. All known sites are located on land, but maritime and underwater sites may also be present in coastal, riverine and lacustrine environments. This resource can be described very succinctly as highly valuable, but poorly investigated.

AHIs highlight the most sensitive areas of Eeyou Istchee under study, where the proposed infrastructures present a higher risk of impact over heritage places. Ten have been identified throughout the area under study. They concentrate near Whapmagoostui and inland from Wemindji. Most AHIs near Whapmagoostui also hold human burials, which are the most sensitive of all cultural sites. However, the breath of research is uneven across this vast territory. Research thus remains insufficient to accurately define the limits of the sensitive areas and more accurate data may help propose more specific recommendations.

Also, absence of sites or of AHIs in parts of the study area may not necessarily mean that it has low or no heritage value. This apparent void may simply be consequent to a lack of data. That is particularly striking in the marine and estuarine environments of the Hudson Bay coast, where traffic may have been notable during the fur trade era. Additional research may thus help refine current AHIs, as well as defining other sites and AHIs across the study area. Such effort will especially be important over impacted areas of La Grande Alliance, to accurately assess the risk of impact and propose specific avoidance, mitigation, and compensation strategies.

A total of 1,422 zones of archaeological potential has been identified within the planned road corridor. Most of the area, however, has nil to low potential, due to extensive disturbances, other unfavourable attributes, or few favourable attributes. The rest comprises 550 zones with moderate and 218 with high archaeological potential. These zones are sensitive because they could hold traces of past Indigenous occupation, including the Inuit, Paleo-Inuit, Eeyouch and their ancestors. Traces of non-Indigenous activity may also be found in this northernmost portion of the study area due to the proximity of a former Hudson's Bay Company trade post.

Measures of avoidance and mitigation have been proposed on sites of moderate to high value and zones of moderate to high archaeological potential. On sites with low value and zones of low to nil potential, impact risk on the archaeological heritage is considered insufficient to recommend any further mitigation.

Compensation should be considered for impacted sites with higher heritage value, but also outside of impacted areas, beyond the 40 km corridor and Areas of Heritage Interest, where places of significant heritage value may already be identified. These measures are expected to help generate support towards La Grande Alliance and possibly facilitate acceptation for other aspects of the proposed infrastructures by responding to local needs.

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1 INTRODUCTION

1.1 OBJECTIVES

This technical Note 4 provides an assessment of the heritage sites component of the prefeasibility and the feasibility study of La Grande Alliance, phases II and III. The aim of this technical Note 4 is thus twofold:

1 Prefeasibility study:

To provide a summary of all known heritage sites and to identify Areas of Heritage Interest (AHI) where site concentrations and values are highest within three corridors (SA1 to SA3) (Figure 1-1).

2 Feasibility study:

To assess the archaeological potential and the risk of impact over the archaeological heritage of a planned road corridor connecting La Grande to Whapmagoostui (Figure 1-2).

This will provide baseline information for the preventive management of heritage sites when planning future steps of La Grande Alliance. Recommendations have been proposed at the end of the report to support an exemplary practice of sustainable management for heritage sites.

1.2 SCOPE AND STUDY AREA

Heritage sites notably include funerary and spiritual sites, historical campsites, harvesting areas, portages, and archaeological sites, occupied mostly by Indigenous Peoples.

As shown on Figure 1-1, the study area is located within the territory of the Eeyou-Istchee James Bay region of northern Québec. The study area is divided in three zones:

- Study Area 1 (SA1): Billy-Diamond Highway Railway – Rupert – La Grande
- Study Area 2 (SA2): Road & Rail Extension, and Harbour – La Grande – Whapmagoostui/Kuujjuarapik;
- Study Area 3 (SA3): Route 167 - Renard Mine – Trans-Taiga Road.

It is to be noted that these study areas are slightly different that the ones described in La Grande Alliance MOU, thus, to suit the proposed infrastructures scope.

At the feasibility stage (archaeological potential), the study area is narrowed down to a 270 km long and 1 km wide corridor. It covers both sides of a planned road that will connect Whapmagoostui/Kuujjuarapik to La Grande within SA2 (Figure 1-2). This corridor, or study area, intersects with SA2 – Road & Rail Extension, and Harbour – La Grande – Whapmagoostui/Kuujjuarapik, defined in the prefeasibility study of phases II and III of Grande Alliance.

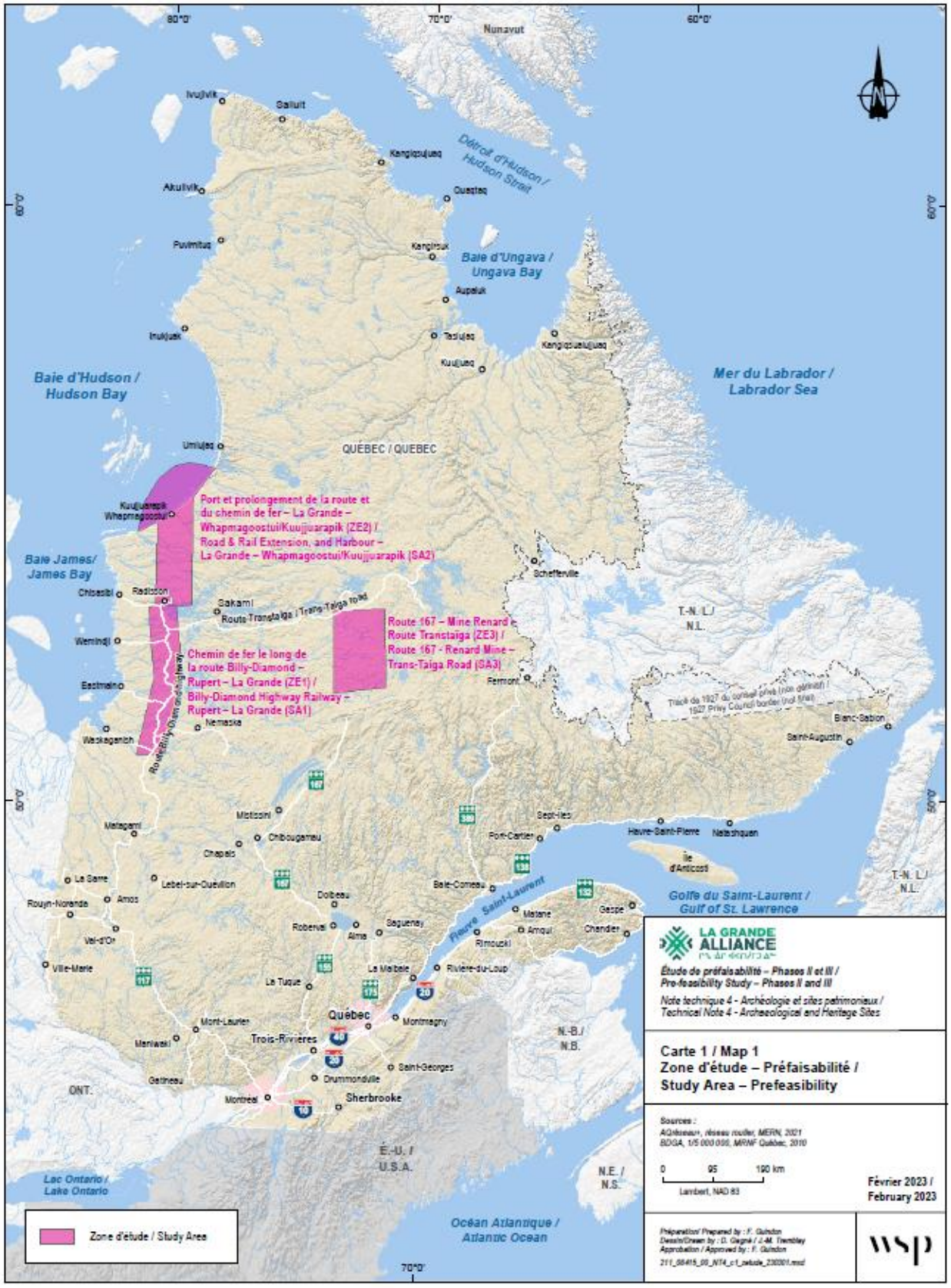


Figure 1-1 Study area

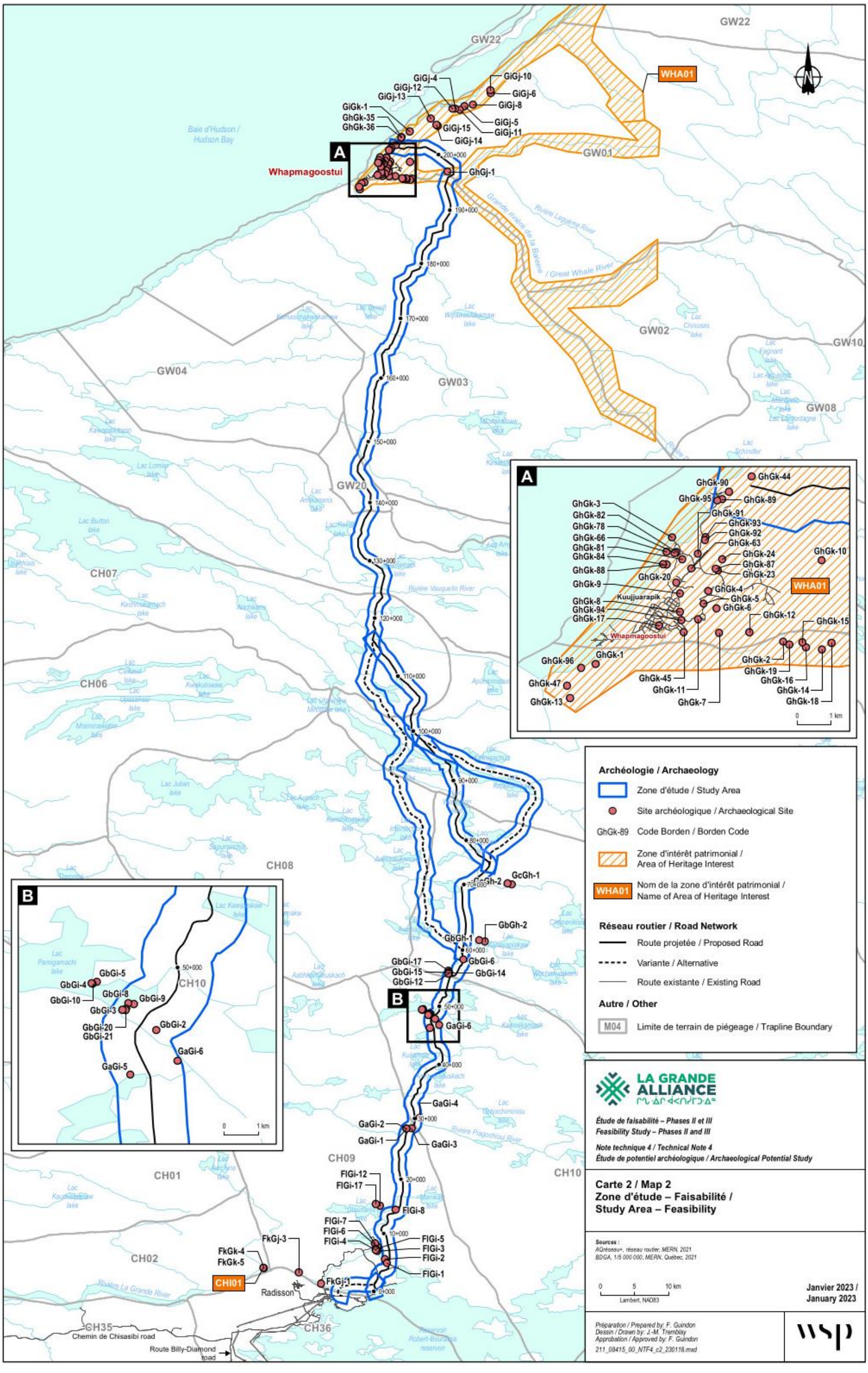


Figure 1-2 Study area and synthesis of available archaeological information

2 METHODOLOGY

Heritage sites included in the study can be understood broadly as any land or marine location occupied by human groups and with a cultural or historical significance. This includes archaeological sites, which can be understood as locations with material components attesting to human occupation. Common practice is to consider places occupied before 1950 as archaeological sites. Other heritage places include sites for which community members recognize any kind of cultural or historical significance.

Cultural sites include the following, without limitation regarding antiquity:

- Funerary site
- Birthplace
- Spiritual or ritual site (e.g., Christian mass, mishtikuhkaan/ceremonial mast)
- Campsite
- Harvesting area
- Portage
- Any other place of historical significance, linked to memorable people, stories, places or events

These sites are the object of our attention in this report, for both the prefeasibility and feasibility study.

2.1 PREFEASIBILITY STUDY

The methodology designed for the prefeasibility study aimed at providing a summary of all known heritage sites and to identify Areas of Heritage Interest (AHI) where site concentrations and values are highest within three proposed transportation corridors (SA1 to SA3).

The study area was originally designed with a 50 km-wide corridor which included the hunting grounds within that area. However, the study area of the entire prefeasibility study was eventually standardized for all subdisciplines and subdivided into three corridors (see Introduction), with maximum widths reaching up to 190 km. A narrow 40 km-wide sub-area was also defined for each corridor to help prioritize future actions regarding heritage sites. This study area was defined to gather baseline information, which provided a wide regional perspective when analysing the archaeological potential at the feasibility stage.

The following sources were consulted to identify all known sites:

- Stakeholders (elders, tallymen, etc.)
- Aanischaaukamikw Cree Cultural Institute, Archaeology Service
- Cree Nation Government – Toponymy service
- Hydro-Québec – Archaeology Service and Cherloc Database
- Avataq Cultural Institute – Archaeology Service
- Ministry of Culture and Communications (MCC) - Digital Archaeological Library
- MCC – Archaeological Sites Registry of Quebec (ISAQ)
- Government of Newfoundland and Labrador - Provincial Archaeology Office (PAO)
- Parks Canada – Archaeology and History Branch - Underwater Archaeology Team
- Government of Nunavut – Culture and Heritage, Archaeology Services
- Northern Maritime Research - Northern Shipwrecks Database
- Library and Archives Canada - Enquêtes sur les naufrages, Ship Registrations (1787-1966) and Naval marine Archive
- Wreck Site (https://www.wrecksite.eu/)
- Transport Canada, Receiver of Wreck (Wreck Database)
- Archives of Manitoba
- Published documents

All sites were registered in a MS Excel database with the following attributes:

- Borden Code
- La Grande Alliance (Phase II or III)
- Hunting Ground
- MTM Coordinates
- Corridor (-40 km, +40 km)
- Year of Fieldwork
- Source (author, date)
- Type of Fieldwork (Survey, Dig, Visual Inspection, Surface Collection, Incidental Finding)
- Context of Fieldwork (Development Project, Community-Based Project, Research, etc.)
- Result of Fieldwork/Analysis
- Cultural affiliation (Indigenous, Non-Indigenous)
- Chronology (Paleohistoric, Colonial1)
- Human Burial (Yes, No)
- State of Preservation (Intact, Good, Disturbed, Flooded, Destroyed, Uncertain)[2]
- Estimated Heritage Importance (Nil, Low, Moderate, High)
- Recommendation

The heritage value of each site was estimated with the grid of attributes presented in Table 2-1.

Archaeological sites were usually presented in the literature with sufficient details to establish their value, but other cultural sites suffered from a lack of details.

[1] In the present study, the colonial period refers to the events following the arrival of Europeans in the Americas, marked by important changes in the Indigenous way of life, starting in the 16th century. The concept of paleohistory replaces the concept of prehistory. The latter expression projects a negative perception on Indigenous Peoples and their past, suggesting that, prior to European contact, they did not have a history. Such an idea is, of course, false. The Eeyouch, Innu, Inuit, Naskapi, and their ancestors have an exceptional history going back to immemorial times. Heritage studies contribute to enriching this past.

[2] The description of the preservation state of a site is subjective and limited to information provided in the reports. “Intact” implies the site has not been submitted to any damage, other than usual taphonomic processes. “Good” means that a large proportion is undisturbed, with possible damages to some minor sections. “Disturbed” implies important damages to the site such as bulldozer ploughing a large proportion. “Flooded” implies it has been submerged by an impoundment. “Destroyed” means it has entirely been ploughed or bulldozed to the point where nothing may be left. “Uncertain” was assigned to sites with insufficient information to assess the state of preservation.

Table 2-1 Grid of attributes used to establish the heritage value of each site

VALUE	POSITIVE ATTRIBUTE	NEGATIVE ATTRIBUTE
Low	– Possible traces of occupation	– Uncertain nature of traces – Traces of low interest (e.g., cut tree, poles) – Context unclear – Severe disturbance (e.g., flooded or bulldozed)
Moderate	– Clear traces of occupation – Recent architectural component	– Context unclear – Poorly distinctive or indistinctive components (e.g., site with few stone flakes) – Possible disturbance – Low potential for research or community development
High	– Distinctive or exceptional components (ex. multiple occupations, multicultural, specific activities, burial, large surface area) – Recent architectural component – Associated with events or persons within the local memory – Outstanding potential for research and community development despite poor preservation of the site (e.g., material culture)	– Low disturbance

Areas of Heritage Interest (AHI) were then defined, with spatial limits comprising sites of high heritage value, concentration of sites, as well as potential extensions of site concentrations based on the experience of the archaeologist. Their level of sensitivity, or heritage value, as well as their level of priority for intervention (avoidance, mitigation, compensation), were ultimately established. The level of priority (moderate or high) is based on presence/absence within the narrow 40 km corridor and exceptional heritage, such as high site concentrations, human burials, cultural practices, and historical events. All non-destroyed/non-flooded burial sites were integrated in high priority AHIs due to their sensitivity. Recommendations regarding possible interventions were proposed accordingly. Each AHI ultimately participated in defining Highly Sensitive Areas (HSA).

The results were integrated to the GIS database of the Study, which supported stakeholders' consultations during the validation process and decisions regarding the design of proposed infrastructure. Due to technical limitations of the GIS format, the geospatial database includes one entry per site, whilst the original Excel file, where documentary research was logged, has one entry per intervention. For instance, the site GiGj-05 was visually inspected in 1980 and excavated in 1991. In the Excel file, two entries have thus been logged for the site, one summarizing the intervention of 1980 and the other for 1991. However, the geospatial database has only one entry with the latest information regarding the state of knowledge for the site. Minor discrepancies may thus be observed between the two formats. A third version of the database was prepared by a GIS specialist to integrate the Excel structure to GIS format, thus resolving most formatting issues.

2.2 FEASIBILITY STUDY

At the feasibility stage, our methodology aimed at assessing the archaeological potential and the risk of impact over the archaeological heritage of a planned road corridor connecting La Grande to Whapmagoostui/Kuujjuarapik. The study area was a 270 km long and 1 km-wide corridor and was wide enough to cover impacted areas as well as unforeseen adjustments to the planned road corridor.

An assessment of archaeological potential consists of evaluating the possibility that archaeological traces may be present within a given territory. This estimation goes beyond available field research as it defines the level of likeliness that documented and undocumented archaeological heritage may be present. In the context of land development, risks

of impacting the archaeological heritage can then be assessed and measures of mitigation can be proposed accordingly. Potential adjustments to the proposed infrastructures can also provide more favourable conditions for archaeological heritage protection if required.

Historical, cultural and natural features served as a basis for segmenting the area into distinct zones of varying levels of archaeological potential. This investigation was carried out through 1) archival and documentary research, 2) constitution of a geospatial database, and then by 3) dividing the study area into zones of archaeological potential. Finally, 4) a field assessment was carried out to validate the accuracy of desktop analyses.

2.2.1 DOCUMENTARY RESEARCH

Documentary research built on the extensive dataset of the prefeasibility study and was completed, with increased focus on the narrow study area (see chapter 1). Sources listed below were searched with the objective of locating all previous archaeological fieldwork, archaeological traces, places of cultural significance, as well as any previous development and land disturbances:

- Bibliothèque numérique en archéologie
- Inventaire des sites archéologiques du Québec (ISAQ)
- Ressources naturelles du Canada - Canvec
- Greffe de l'arpenteur général du Québec (GAGQ)
- Bibliothèques et Archives nationales du Québec (BAnQ)
- Library and Archives Canada (LAC)
- Registre public des droits miniers (GESTIM)
- Published sources regarding regional history, ethnology, and archaeology
- Oral sources
- Hudson's Bay Company Archives

In addition, historical changes in the natural environment can influence human occupation and land use. It was thus essential to consider past and present environmental conditions to accurately assess the archaeological potential of the study area. Published sources regarding past and present environmental settings were consequently consulted to outline the environmental history of the study area. The following sources were used:

- Infrastructure géomatique ouverte (IGO) données écoforestières
- Centre d'expertise hydrique du Québec – Répertoire des barrages
- Système d'information géominière of Québec (SIGÉOM)
- Published literature about past and contemporary environment
- Data provided by the client

2.2.2 GEOSPATIAL DATABASE

Documentary research can provide a vast amount of information about the occupation of a given territory. Following documentary research, a geospatial database was built in QGIS to centralize available information. This helped with locating elements of interest, as well as disturbances negatively affecting the archaeological potential.

2.2.3 DETERMINATION OF ARCHAEOLOGICAL POTENTIAL

Zones of archaeological potential were defined based on all available information synthesized in the cultural-historical file, as well as the geospatial database. Table 2-2 outlines the attributes used in the analysis, corresponding to criteria commonly used in Québec archaeology (Denton 1976; Laliberté 1976; 1977). Proximity to main watercourses, potentially used as seasonal travel routes between the coast and inland territories, was also considered as a favourable attribute considering the high number of such routes along the study area. Selected criteria helped determine if conditions of occupation were suitable or unsuitable, thus suggesting the potential presence of campsites, portages, permanent settlements, industries, transportation, or communication networks.

A selection of environmental and cultural attributes was analyzed through an automated process with preset feature parameters. This could be done through publicly available geographic information. Table 2-3 specifies how preset parameters were defined. The accuracy of the automated process was then verified by an archaeologist who could proceed to any necessary adjustment.

Data deemed favourable or unfavourable to human occupation, varying between First Nations, Inuit/Paleo-Inuit and non-Indigenous groups, was cross-referenced to define zones with nil, low, moderate or high archaeological potential. Table 2-4 outlines how the level of potential was established, depending on the cultural affiliation of the possible occupation.

Results are summarized in maps presented in appendix, as well as the list of zones of archaeological potential provided in the technical file. In the QGIS geospatial database, each level of archaeological potential forms a distinct layer containing the polygons of corresponding zones of potential. Low or nil potential is generally considered insufficient to recommend measures of mitigation. Adapted measures of mitigation are recommended when moderate and high archaeological potential are identified.

2.2.4 ON-SITE VALIDATION

On-site validation is becoming less relevant with the growing availability of remote sensing, namely Lidar, which increases the accuracy of desktop analyses. However, Lidar is yet unavailable at the latitudes of La Grande and Whapmagoostui/Kuujjuarapik. On-site validation was thus relevant and increased the level of confidence regarding the accuracy of archaeological potential determination. Zones were visited in the vicinity of the planned road and near other highly sensitive areas, where zones of moderate and high potential concentrate. Particularly along major rivers and their tributaries. From north to south; Great Whale River, Denys River, Sucker Stream, Vauquelin River, Roggan River, Piagochioui River and La Grande Rivière. Major lakes systems were also given special interest. From north to south; Lake Misinamapi, Lake Kaiskwaskutach, Lake Katakutauchitach, Lake Awisinaukamach, Lake Awahagats, Lake Pamigamachi, Lake Manikan, Lake Utaunanis and Lake Wapiyaw Tapikwanuch. Four hundred and seventy sectors were visited in these areas, leading to 228 amendments. The list of archaeological potential zones provided in the technical file indicates which sectors were visited for validation.

Inspections were carried out by helicopter, with two archaeologists landing in areas where remains were potentially identified and where observation from the air was limited by dense tree cover. Landing was, however, reduced to a minimum due to a helicopter breakdown, taking almost three entire days of the five total days planned for on-site validation.

Table 2-2 Attributes Retained for the Analysis of Archaeological Potential

ATTRIBUTE	FAVOURABLE ATTRIBUTES	UNFAVOURABLE ATTRIBUTES
Indigenous	– Classified heritage site – Known archaeological or cultural site (e.g., campsite, portage, storage area) – Proximity to a watercourse, water body or converging watercourses (contemporary or ancient) – Along possible main seasonal travel route – Good soil drainage – Homogenous soils – Regular topography – Potential geological resource site	– Soil disturbance – Contemporary or historical development – Poor drainage – Irregular topography
Non-indigenous	– Classified heritage site or building – Known archaeological site – Historical site or building – Proximity to a contemporary or ancient watercourse or water body – Proximity to a historical communication infrastructure (e.g., road, telegraph, railway) – Regular topography – Good soil drainage	– Lack of historical data about human occupation – Soil disturbance – Recent land development (after 1950)

Table 2-3 Environmental and Cultural Attributes Assessed Through an Automated Process

ATTRIBUTE	FAVOURABLE PARAMETER	EXCLUSION PARAMETER
Watercourse and water body	– Equal or less than 100 m from a permanent watercourse or water body	– Intermittent watercourse – Pond unconnected to a permanent watercourse – More than 100 m from water – Wetland
Known archaeological, heritage or cultural site	– Equal or less than 1 km from a site – Exception: proximity to portage is 50 m or less from any navigation obstacle	
Confluence of water bodies and watercourses	– Equal or less than 100 m from two permanent watercourses or water bodies	– Intermittent watercourse
General Topography	– Regular Topography (less than 15 degrees)	– Steep Incline (greater than 15 degrees)

Table 2-4 Determination of the Level of Archaeological Potential

LEVEL OF POTENTIAL	INDIGENOUS	NON-INDIGENOUS
Nil	Soil disturbance negating any possibility of an archaeological trace and parameters of exclusion as per Table 2-3	Unfavourable attributes negating any possibility of an archaeological trace
Low	Few favourable attributes, significantly unfavourable attributes, or uncertain information	Uncertain information, major soil disturbance or recent construction likely affecting soil integrity
Moderate	Multiple favourable attributes or one significant attribute combined with one or multiple unfavourable attributes	Multiple favourable attributes combined with minor soil disturbance or with recent construction possibly affecting soil integrity.
High	Multiple favourable attributes, presence of a known archaeological site or heritage site, with few or no unfavourable attributes	Multiple favourable attributes, known archaeological or heritage site, without recent disturbance or construction affecting its integrity.

3 ENVIRONMENT

The history of environmental conditions helps understanding the natural factors that influenced human occupation through time. The presentation begins with an assessment of current environmental conditions and follows with the paleoenvironment.

3.1 CONTEMPORARY ENVIRONMENT

This subsection concentrates on the narrow study area defined for the feasibility study since the contemporary environment is of particular importance in defining the archaeological potential.

The climate of the study area is subarctic, according to the Köppen–Geiger climate classification system, historically characterized by a short growing season of less than 3 months above 10 C, an annual average of -4.4 C, and by an annual precipitation between 656 and 680 mm, evenly distributed throughout the year. However, the past two decades have seen annual averages hover around -2.6 C, indicating a changing environment (Bhiry et al. 2011).

Two bioclimatic domains are encompassed by the study area: spruce-lichen to the south and forest tundra on the coast of Hudson Bay. Vegetation for both areas is dominated by black spruce, white spruce and eastern larch. The main difference is that the coastal tundra sees a greater white spruce proportion, whereas black spruce dominates the inland spruce-lichen biome. For both areas, forest cover is confined to valleys and land depressions with thicker soil, while exposed sites are covered by a variety of lichens and shrubs, such as dwarf birches, Labrador tea, willows, and alders (Commission régionale sur les ressources naturelles et le territoire de la Baie-James 2010).

Inland mammals include woodland caribou, moose, black bear, wolves, muskrat, ermine, hare, lynx, and Wolverine. On the coast, marine mammals such as walrus, seal, beluga and bowhead whales are regularly seen, while polar bears sometimes venture onto sea ice during winter. Migratory birds include Canada goose, black duck, king eider, and pintails, while year-round avian species include willow ptarmigan, grouse, owl, and raven. Brook trout, northern pike, and walleye abound in rivers and lakes (Commission régionale sur les ressources naturelles et le territoire de la Baie-James 2010).

The topography can be described as an alternance of low rolling hills and depressions, with visible alignments along an east-west axis. Depressions are filled with vegetation and palsa bog, whilst hills often display granite with polished appearance. The Tyrrell Sea has left clay deposits that sometimes remain as vegetal substrate, and sandy soils are nowadays sculpted by wind (Bhiry et al. 2011).

Geologically, the northern portion of the study area is within the sub-province of Minto, of the Archean Superior Province. Most common types of rocks include granite, granodiorite, quartz monzonite, quartz diorite, amphibolite, hornblende and gneiss. Minerals locally available and exploited by local groups include Nastapoka chert and quartz. Nastapoka chert quarries have been identified on the coast of Hudson Bay and a few coastal islands about 100 km north of the study area (Leclerc 2013).

Hydroelectric development began in the 1970s with the construction of La Grande-2 (LG-2), now designated as the Robert-Bourassa generating station and reservoir. The creation of the reservoir necessitated 29 dikes, totalling 27 km in length, and raised the water level by 175 m (Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques 2022). Several roads and camps were also built with this infrastructure. This has had considerable impact on the composition of the fauna. For example, caribou habitat is being fragmented by the encroachment of roads and their accompanied settlements (Szor and Gingras 2020). This has resulted in an increased presence moose, which seems to adapt better to those changes (Commission régionale sur les ressources naturelles et le territoire de la Baie-James 2010). The reservoir also submerged significant biomass, releasing methyl mercury as it decomposes. The methyl mercury enters the aquatic food chain and bioaccumulates upwards, enough to affect the biome all the way to humans (Calder et al. 2016).

Communities located near the northern section of the study area include Chisasibi and Radisson, both downstream from LG-2, with Hydro-Quebec camps associated with each dam further up La Grande Rivière. The community of Whapmagoostui-Kuujjuarapik is located at the norther extremity of the study area. The latter is mainly inhabited by Eeyouch and Inuit whilst Chisasibi is Eeyou and Radisson is predominantly non-Indigenous. The northern section of the study area is free of mining exploitation, although a sand quarry is in activity near Radisson (Ministère de l'Énergie et des Ressources naturelles 2022).

3.2 PALEOENVIRONMENT

The last glacial Ice Age of the Wisconsinian ended in the study area with the retreat of the ice sheet starting after 8000 before present (BP). Coastal areas were first to be freed from the ice, but immediately submerged by the proglacial Lake Agassiz-Ojibway (Dyke 2004; Teller and Leverington 2004).

The southern part of the study area may still have been covered by a glacier until about 8500 - 7900 BP (Figure 3-1). Melt water accumulated at its southern margin, which reached a maximum level of about 460 m. Sudden drainage occurred between 8400 and 8000 BP, once the melting ice front that prevented water drainage opened a northern passage. Water levels then receded to a maximum of 250 m above current sea level, in the southern regions of James Bay, and up to 290 m, at the longitude of the Sakami moraine, in central parts of Eeyou Istchee. Saltwater penetrated to form the Tyrrell Sea, which bordered the ice front. Its maximum level may have remained until 7500 - 7000 BP. It receded to 175 m above current sea level around 7600 - 6500 BP (Figure 3-2) (Dyke 2004; Rousseau 2015a; M. Roy et al. 2010; Veillette 1994).

Further north, in Nunavik, maximum proglacial water reached 111 m above current sea level along the coast of the Tyrell Sea (current Hudson Bay). Lands formerly crushed under the weight of the glacier underwent an uplift phase of 4 to 6 m per century, between 6000 and 5800 BP, and then slowed down to 2-4 mm per year. Inland proglacial lake levels are uncertain after the Tyrrell Sea episode. Available data for the EM-1 area suggests that lands occupied by human groups reached decreasing levels over time as lake and river waters receded. The Nunavik ice cap, formally known as New Quebec or Quebec-Labrador ice cap, remained in place, but these last remnants of the Laurentide Ice Sheet disappeared at approximately 6000 – 4000 BP. The climate, going through the warmest episode of the Holocene (Hypsithermal), remained relatively colder in Nunavik and Western Labrador, due to the persisting ice cap (Cencig 2013; Daigneault 2008; Finkelstein 2016; Letendre 2015; Plourde 2015b).

Environments freshly freed from ice were initially devoid from tree vegetation. Periglacial desert conditions prevailed until grassy tundra, then scrub tundra took over. Progressively, the afforestation stage, associated with the establishment of trees, began in favourable environments. This stage lasted between 8000 and 6500 BP in Eastern and Southern regions of the Ungava Peninsula. Around 6000 BP, the vegetal cover was denser and climate warmer than today by about 1-2°C. A dense black spruce forest occupied the east side of the Tyrrell Sea (Figure 3-3). Environmental conditions may have been favourable to human occupation from then on in the southern part of the study area. The afforestation stage yet extended until 5000 BP on the east coast of Hudson Bay. Near Lake Caniapiscau, vegetation gradually evolved to reach its current configuration of open boreal forest with moss, lichen, black spruce, jack pine, birch, poplar, alder and willow until 4400 BP (Figure 3-3). Tree size, however, remained smaller than today and species were more diverse until 3200 BP. Between 5000 - 4500 BP, a major climate shift occurred. The relatively dryer and warmer climate became cooler, wetter and the days were not as sunny. This was the beginning of the Neoglacial period. Climate cooling continued with minor climatic shifts and led to near-contemporary environmental configurations by 2000 BP (Dyke 2005; Fréchette et al. 2018; McCaffrey 2006; P. J. H. Richard 1979; P. J. H. Richard and Grondin 2009; P. Richard et al. 2020; Rousseau 2015a).

The Neoglacial has had considerable influence on northernmost environments of the study area, especially towards 3500 BP, when the climate reached its coldest of the period. Winters became longer, coastal sea ice developed, and driftwood became scarce. Local conditions, however, varied considerably. In the Hudson Strait, near Kangiqsujuaq, the effects of climate cooling were perceptible only from 2700 BP. A second phase of climate warming began near 1050 - 900 BP, designated as the Medieval Warm Period. Again, its effects varied considerably from one locality to another and cannot be discerned near Hudson Strait. Finally, between 550 - 150 BP (1450 -1850 AD), known as the

Little Ice Age, climate cooled again to reach the coldest of the Holocene and was felt differently depending on the locality. Important ecological changes have been observed throughout the Arctic during this period and further south. Today, the climate is undergoing rapid warming because of global human activity and its impact is dramatic on Arctic and Subarctic environments. Despite all these changes, taiga and tundra-like environments have remained throughout the period in Nunavik and Northern Labrador (Boisson 2019; Cencig 2013; Finkelstein 2016).

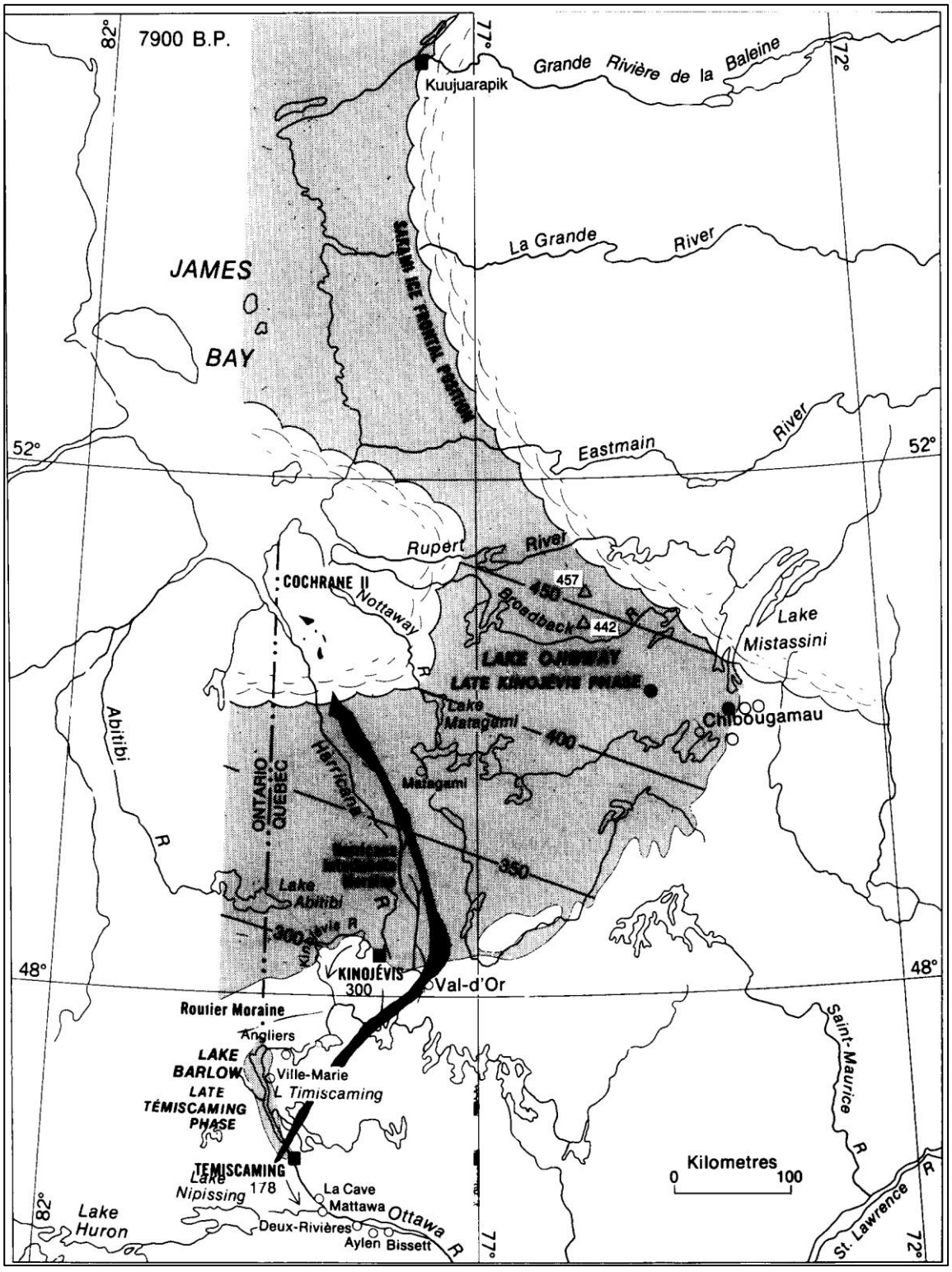


Figure 3-1 Lake Ojibway before its final drainage and position of the ice front at about 8000 BP (Veillette 1994)

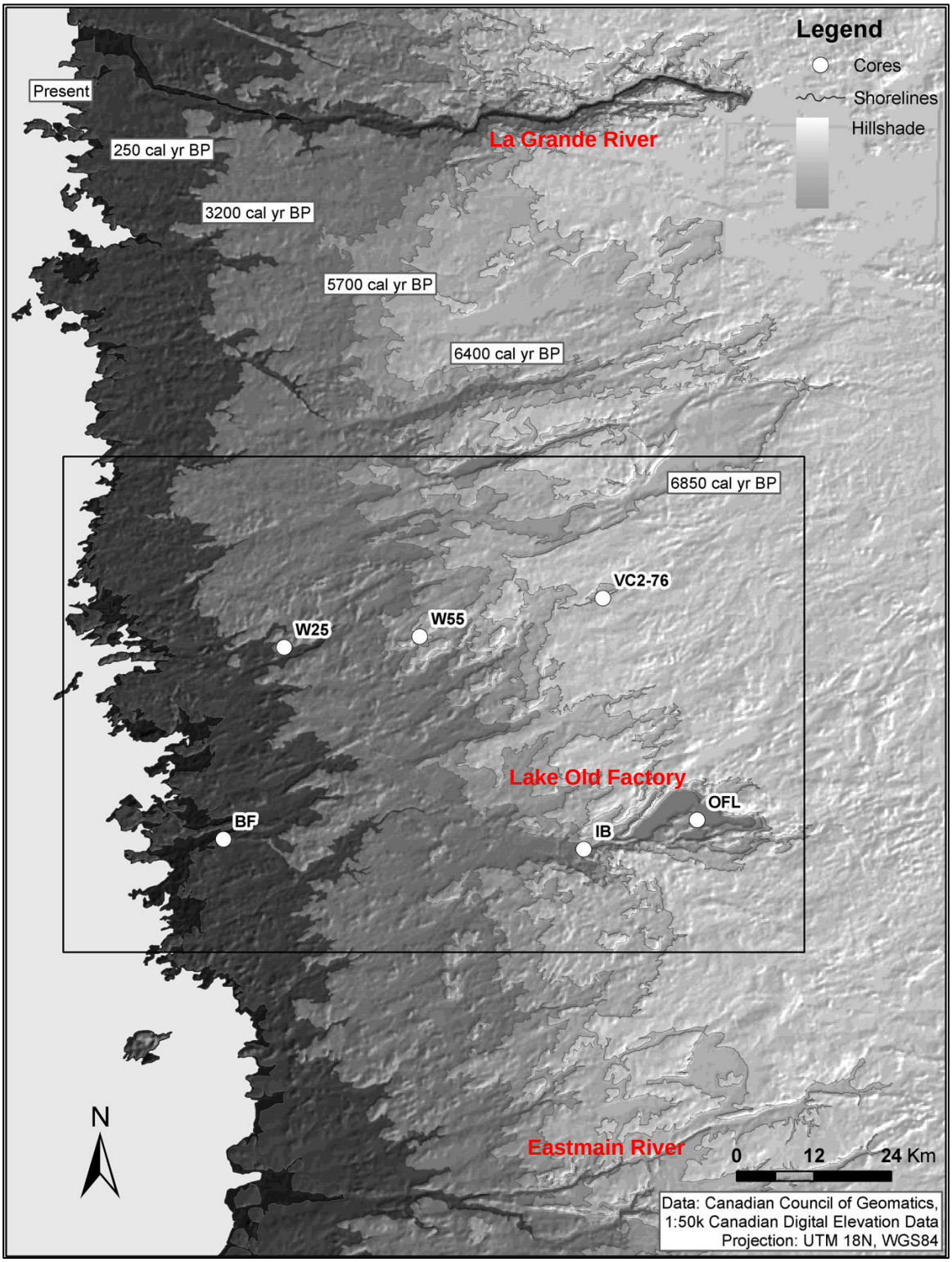


Figure 3-2 Tyrrell Sea shoreline regression from 7000 BP to present day, illustrated by the succession of pale to dark gray areas (text in red has been added by the author for clarity) (Pendea et al. 2010)

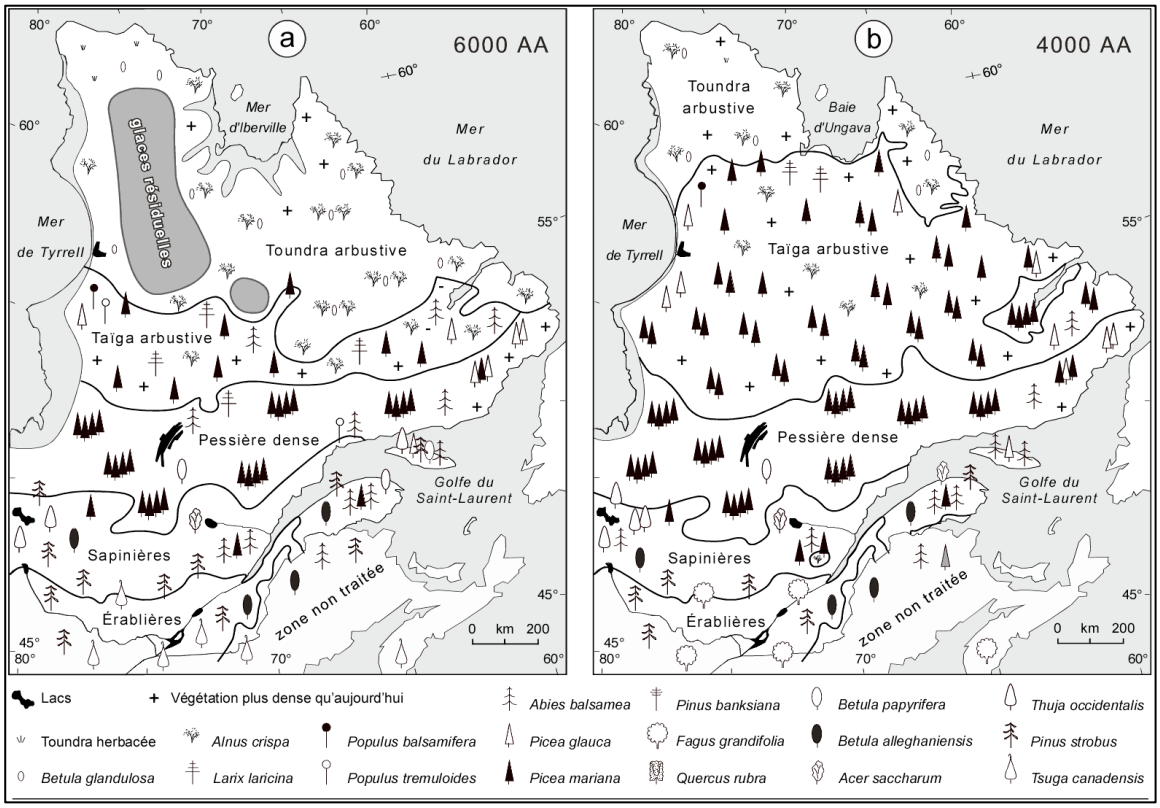


Figure 3-3 Vegetal cover at 6000 and 4000 BP (P. J. H. Richard and Grondin 2009)

Translation of map labels relating to vegetation:

- Toundra arbustive – Shrub tundra;
- Taiga arbustive – Shrub taiga;
- Pessière dense – Dense black spruce forest;
- Sapinière – Fir forest;
- Érablière – Maple forest.

4 HISTORICAL AND CULTURAL CONTEXT

The earliest occupants of the study area are Subarctic First Nations and Paleoinuit of the Arctic. Subarctic societies occupied the entire study area, whilst Paleoinuit were limited to its northwest, at the limits of the Arctic, along the coast of Hudson Bay. Each group underwent distinctive historical and cultural processes since their colonization of the territory.

Paleoenvironmental history suggests that human groups cannot have colonized the area before 8000 BP, when the land was still covered by ice and a proglacial lake. Environmental conditions, rapidly evolving between 8000 and 6000 BP, may have offered suitable conditions for human occupation, including a tundra or taiga, hosting a fauna that human groups could harvest, including land mammals, fish, birds, and plants. Environmental information, however, remain imprecise and recent archaeological research provides more clues to how far in time human presence may go back and how it changed over time.

4.1 SUBARCTIC SOCIETIES

4.1.1 EARLY PALEOHISTORY (5400 BP TO 2000 BP)

Recent archaeological research along the Eastmain River, as well as in coastal areas of the Broadback River, attests that southern Eeyou Istchee was occupied from at least 5400 to 4000 BP (Archéotec 2009; Denton 2012; Letendre 2015; Izaguirre et al. 2017). Current theories propose that human groups likely arrived from southern and eastern regions (Izaguirre et al. 2017; McCaffrey 2006), occupied from about 7000 or 8000 BP (Côté 1998; Fitzhugh 2006; McCaffrey 2006). However, the earliest known sites of the interior of the Quebec-Labrador Peninsula and Northern Eeyou Istchee date back to about 4000 BP (McCaffrey 2006; Samson 1981) and thus seem posterior to early occupations of southern Eeyou Istchee. This may cast doubt on an initial colonization from the east. Considering current research, migration may have begun from the south, followed by a westward movement from Labrador between the 5400 and 4000 BP (Denton 2012). However, chronological differences between the South and inland of Eeyou Istchee may result from sites sampling. Further field research could thus reveal that First Nation colonization is of the same age in the northern hinterland and in the southern regions.

During the initial stages of human colonization, known sites are small, very dispersed, and often at higher altitudes than later sites. Southern inland sites along the Eastmain River occupy surfaces at 1.5 to 11 m, whilst early sites of the Quebec-Labrador interior reach 16 to 35 m above current water levels. Near the James Bay coast, along paleoshores of the Tyrell Sea, the earliest known site hits 67 m above current sea level, but altitudes of early sites could reach higher elevations. Towards 3000 BP, inland sites attain lower altitudes, between 1.5 and 4 m above current water levels (Letendre 2015; Izaguirre et al. 2017; McCaffrey 2006). Elevation patterning is not as obvious towards Labrador, with caribou hunters sometimes favouring higher elevations. Nevertheless, observed patterns suggest decreasing water levels through time for both inland and coastal areas with groups often camping near the shores of water bodies and rivers.

Over the entire region, artifacts are mostly made from stone often shaped into crude flake tools. This impression of a cursory stone tool industry may be explained by organic materials dominating the toolbox of First Nations occupants throughout paleohistory. Rapid degradation of organic materials in the ground would explain their relative absence from the archaeological record (McCaffrey 2011).

On the earliest sites of this vast territory, stone tools are mostly made of locally acquired quartz. Various regional raw materials are yet present in small quantities (Denton 2012; McCaffrey 2006; 2011; Samson 1981). However, the Sanders Pond site (EhGo-1), dated to 4200 BP (Figure 4-1 and Figure 4-2), offers a rare and striking exception to quartz dominance in early records, with red and green slate making for 90% of all lithic raw materials. The site was

in fact a workshop dedicated to the fabrication of polished slate tools. Some artifacts show Maritime Archaic[3] influences and presence of Ramah chert also suggests connections with Labrador (Izaguirre et al. 2017). Groups from southern and northeastern regions of Eeyou Istchee thus seem to interact starting from the very beginning of human colonization. Observed regional differences over artifactual collections of the early paleohistory still support that the initial settlement of northern and eastern regions of Eeyou Istchee originated from Labrador, whilst southern regions were colonized by groups moving from the south.

In the south, Mistassini quartzite frequency rapidly surpasses quartz, particularly between 3600 and 3000 BP. However, the material is found throughout Quebec and in Northern New England since about 5000 - 4500 BP (Denton 1998). The quarry site of the *Waapushukamikw* (Figure 4-3 and Figure 4-4), and its surroundings along the Temiscamie River, may thus have been exploited since this period. On the Eastmain River, polished stone tools are also fabricated, but the toolbox shows stylistic influences from the south. Most stone implements are flake tools and unifacial fingernail-shaped scrapers, but bifacial reduction is also common, with projectile points, drills, and bifaces. Most projectile points are side notched, but corner notches become more frequent towards 3000 BP (Figure 4-4). Wedges, showing bipolar use wear, are also common. Hearths are generally oblong, with one case bearing traces of red ochre (Denton 1998; Denton and Pintal 2002; Letendre 2015; Rousseau 2015b).

In the north and east, the style of polished stone tools suggests connections with the Maritime Archaic tradition and Ramah quartzite, from Labrador, replaces quartz over time. Lithic production is mostly crude with retouched flakes, but bifacial reduction is also common, with lanceolate/foliate and stemmed projectile points being fabricated (Figure 4-5). Few unifacial tools are made, with scrapers showing fingernail or fanned shapes (Izaguirre et al. 2017; Letendre 2015; Samson 1981).

The 3000 to 2000 BP interval is poorly documented throughout the region (Denton 2012; McCaffrey 2011; Samson 1993). Archaeologist, Gilles Samson (1981), suggested that the period was affected by climate cooling and ecological changes, which may explain why occupations of the period are relatively less visible. From about 3000 BP, influences of the Maritime Archaic tradition remain in the north, and southern groups have stronger ties with southern regions. The latter participate in the Meadowood interaction sphere. Meadowood influences are generally recognized by stone tools made from triangular cache blades of Onondaga chert. Most blades and finished tools originate from southern Ontario, reaching the territory through trade. The finished tools include scrapers and box-base projectile points (Figure 4-6).

Box-base points made from local materials are also occasionally reported in the subarctic. Some locations seem to become focal points in the occupation of the land, as shown by recurring visits. Sites still cover very small surfaces, pointing to small nomadic groups moving from one short-term camp to another on the territory. Dwellings are usually small, with various shapes, but rarely elongated (Denton 2012; Guérette 2021; Letendre 2015; Pintal 2015; Taché 2010).

[3] The Maritime Archaic Tradition is an archaeological manifestation that is recognized throughout Atlantic Canada, Maine, Labrador and the North Shore of the Gulf of the St. Lawrence. Their ground and polished stone tools are highly distinctive because of their esthetic qualities. In northern areas, the tradition existed between 8-7 000 and 3 500 BP (Tuck 1998).

Figure 4-1 The Sanders Pond site (EhGo-1) under excavation dated to the Archaic ca 4200 BP (Credits: Aanischaaukamikw Cree Cultural Institute and Cree Nation Government)

Figure 4-2 Stone projectile points of the Sanders Pond site (EhGo-1) (Credits: Aanischaaukamikw Cree Cultural Institute and Cree Nation Government)

Figure 4-3 Quarry of Mistassini quartzite (or Rogers Quarry) on top of Colline Blanche (Credits: François Guindon)

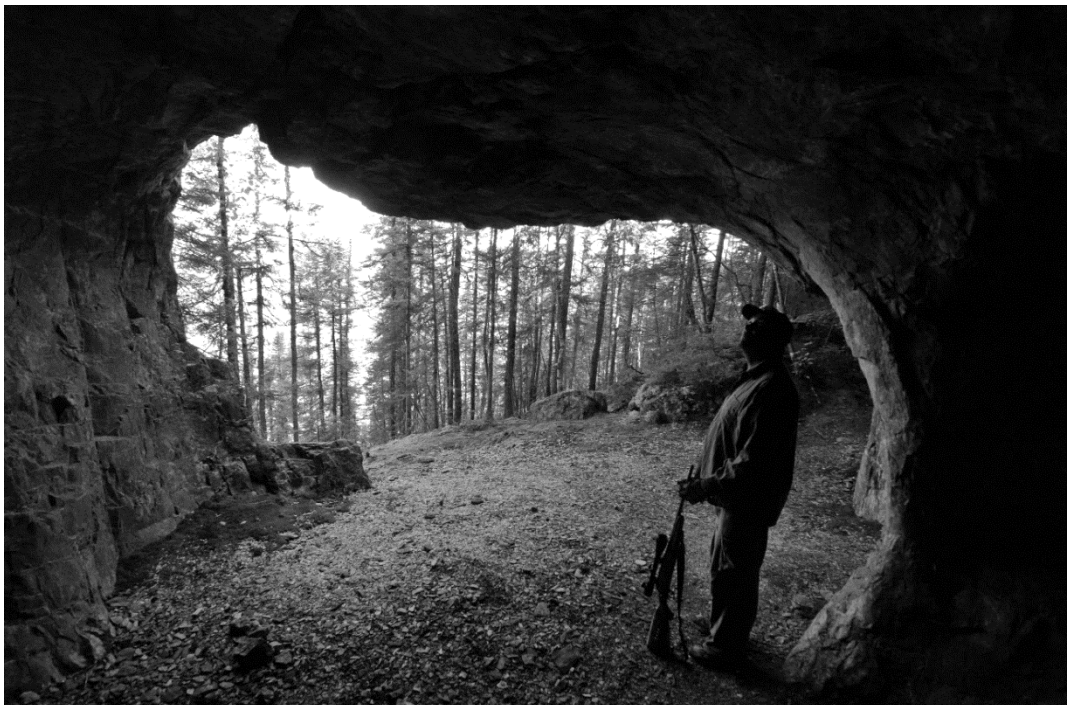


Figure 4-4 Antrum of the Waapushukamikw below the quarry of Mistassini quartzite (Credits: François Guindon)

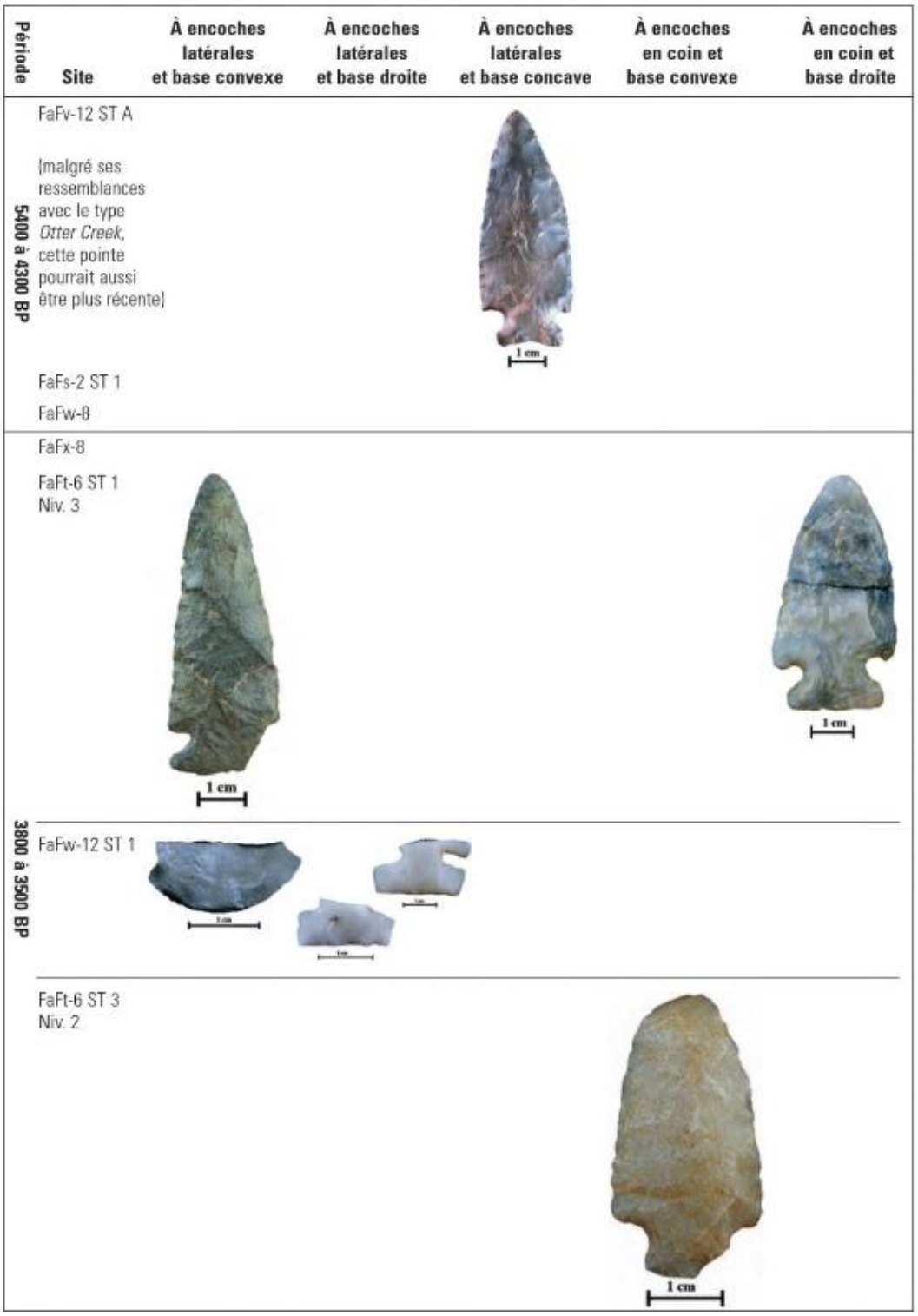


Figure 4-5 Early paleohistory projectile points from the Eastmain River and its surroundings (5400 BP to 3500 BP) (Letendre 2015)

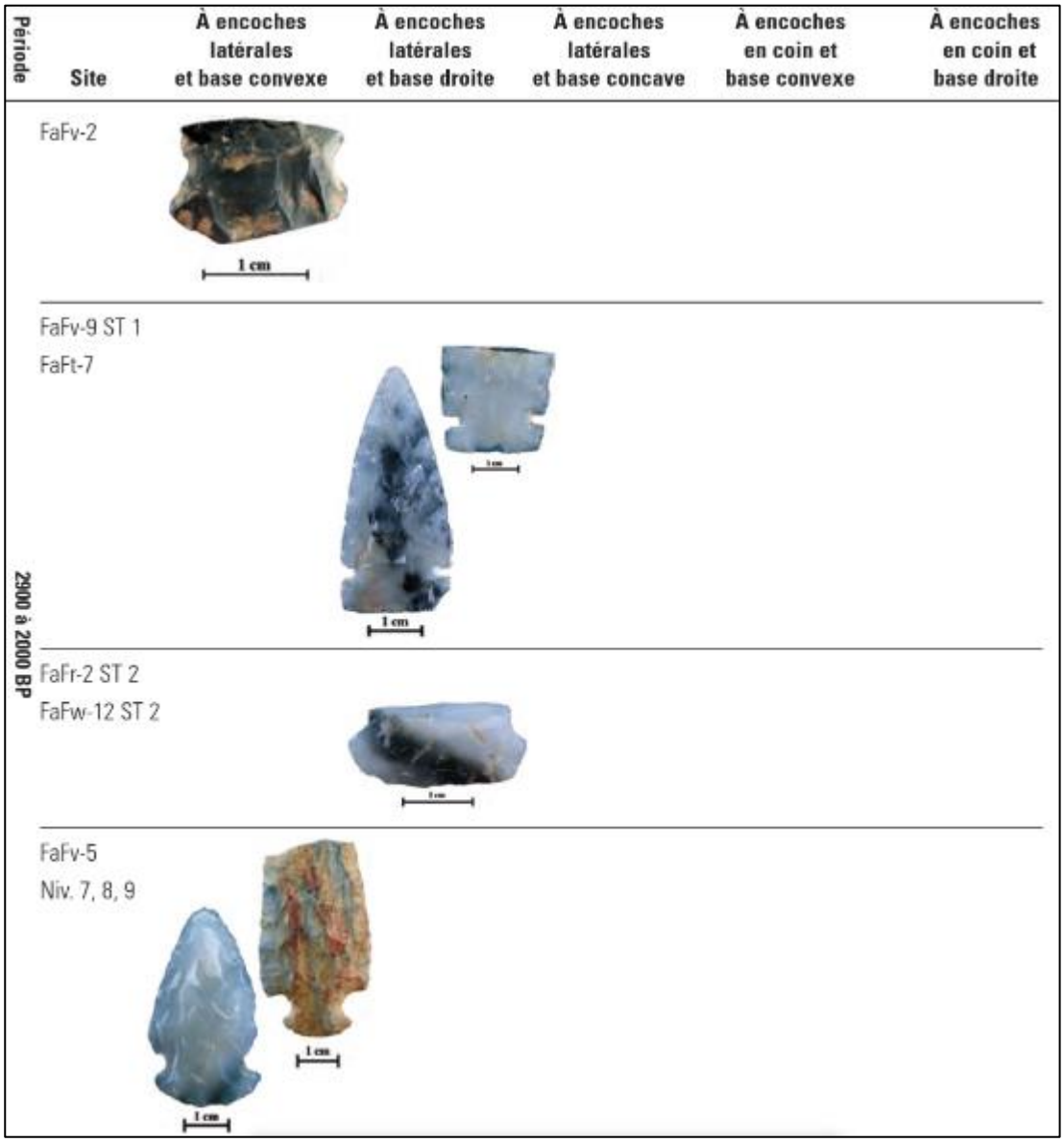


Figure 4-6 Early paleohistory projectile points from the Eastmain River and its surroundings (2900 BP to 2000 BP) (Letendre 2015)

4.1.2 LATE PALEOHISTORY (2000 BP TO 400 BP)

There is a common agreement amongst archaeologists that contemporary subarctic cultures, such as the Innu, Eeyouch and Naskapi, take root around 2000 BP (Denton 2012; Holly 2013; McCaffrey 2006; 2011).

In southern regions of Eeyou Istchee, human occupation intensifies. There is a higher number of known archaeological sites and summer gathering sites covering large spaces, are also more common. Larger elongated dwellings, hosting multiple families, also gain frequency. They are reminiscent of the *shaapuhtuwaan* built by the Innu, Eeyouch and Naskapi of the Quebec-Labrador Peninsula during the colonial period. The *Chisheyatishiskâu* site, at the confluence of the Rupert River and *Mistikawâsh* River, is a good example and the largest known archaeological site of the territory. Sites are generally located on points of land projecting into water courses or bodies, sheltered from northern winds, at generally less than 5 m above the water. Population growth and larger group sizes may be permitted by the exploitation of a larger spectrum of animal species. Beaver is then a staple for groups of southern regions, complemented notably by porcupine, fox, hare, muskrat, marten, skunk, bear, caribou, waterfowl, and various fish species (Denton 2012; McCaffrey 2006, 200; 2011; Plourde 2015b; St-Germain and Courtemanche 2015). Rock art, such as the impressive digital paintings of *Kaapehpeshapischinikanuuch* site, at Lake Nemiscau, may also date back to this period (Figure 4-7) (Arsenault 1995; 2008; Vaillancourt 2008).

Lithic artifact styles remain until first contacts with Europeans. Projectile points are made with lateral notches and show lanceolate or foliate forms. Their size decreases over time to become unequivocal arrowheads. Mistassini quartzite is most used for stone tools, but its frequency varies regionally. For instance, it gains prevalence in Northern Eeyou Istchee whilst becoming less abundant along the Eastmain River. It also loses importance in long-distance southerly trade. Cherts tend to be more common along the coast. Ceramic objects constitute a significant addition to the material culture. Laurel pottery and a later, perhaps locally made, style of punctuated pottery, as well as Huron-Wendat ceramics, have been found in the region. St-Lawrence Iroquoian pottery may also be present. Red ochre is observed in about 25% of all sites and is thus common (Crépeault 1983; Denton 1998; Pintal 2015; Plourde 2015a; 2015b; Rousseau 2015b).

These patterns contrast with northern regions, despite common trends such as increased population density and the larger size of groups. Differences are particularly obvious inland, around Caniapiscau and the *Mushuau Nipi* (George River), where caribou hunting is core to local lifeways. Groups gather into larger sites where they build multifamily dwellings, sometimes reaching up to 7 m long. The long dwellings are also like the *shaapuhtuwaan* of the colonial period. Families living together would have collaborated in large-scale caribou hunts, complementing their diet with various mammals, salmon, and gallinaceous birds. Cultural connections with maritime regions of Labrador seem to be maintained, since these particularities are shared throughout the broader region (McCaffrey 2011; Samson 1993).

Northern artifactual collections are mainly composed of stone objects dominated by debitage, the by-product of flint knapping. Common stone tools include, in order of frequency, flake tools and small to minuscule projectile points (triangular side-notched, lanceolate, and foliate). Inland, the most common raw material is Ramah quartzite, but grey cherts from the Labrador Trough and Mistassini quartzite gain popularity, thus suggesting closer connections throughout the territory or a more stable occupation of the interior (Samson 1993). Local quartz remain common and Nastapoka chert, originating from the east coast islands of Hudson Bay, near Whapmagoostui, may reach as far inland as Laforge and Caniapiscau. Potteries of similar styles and trends to the south are seen throughout the northern region but are rare. Joint presence of pottery, Hudson Bay Lowland chert, Nastapoka chert, and Mistassini quartzite is observed along the La Grande and Great Whale Rivers. Southern influences are thus more visible along northern rivers than in the northern interior (Leclerc 2013; McCaffrey 2011; Samson 1981, 198; 1993).

By the end of the paleohistoric period, during the approximate 1000 – 500 BP interval, local quartz gain popularity throughout the Quebec-Labrador Peninsula, whilst Ramah quartzite almost disappears from the northern interior. Mistassini quartzite, Labrador Trough chert, Hudson Bay Lowland chert and Nastapoka chert maintain a variable regional presence. Polished stone tools become uncommon around the Caniapiscau and *Mushuau Nipi* area. Despite this temporal evolution, regional trends are maintained into the early colonial period (Denton 2012; McCaffrey 2011; Samson 1981) (Figure 4-7 & Figure 4-8)).

Figure 4-7 Rock panel of the Kaapehpeshapischinikanuuch digital paintings, Lake Nemiscau (Credits: Daniel Arsenault in Vaillancourt 2008)

Figure 4-8 End scraper from the FeGj-02 site, dated to the end of the paleohistorical period (Credits: Wren et al. 2014)

4.1.3 COLONIAL PERIOD (1611 AD TO PRESENT)

First contact with Europeans occurs during the 17th century, with the arrival of Henry Hudson in 1611 AD. Though earlier indirect interactions may have taken place through existing trade networks, foreign items would have remained rare, with very low impact over the local lifeways. Earlier trends seem to endure, and the occupation of the territory appears to continue intensifying into the 17th century, based on the high number of sites and of long houses for the short interval of 400 years that is the colonial period (Denton 2012; Samson 1981). Iroquois raids in Eeyou Istchee were numerous during the 17th century (Francis and Morantz 1983) and may have temporarily affected settlement patterns of families needing to be less exposed to attacks.

With Europeans visiting the territory and then establishing themselves, foreign items such as glass beads, metal kettles, steel axes, firearms, and metal needles, integrate but rarely replace local technologies and material cultures (Figure 4-9). Ancient technologies, such as knapped stone tools and pottery, fade away in the process, until their complete disappearance during the 18th or 19th century. Pottery would have disappeared more quickly in the process. Places of spiritual importance, such as the *Waapushukamikw*, or the *Kaapehpeshapischinikanuuch* paintings, become somewhat distant cultural memories, possibly under the influence of missionary efforts of Christianization (Martijn and Rogers 1969). During the 18th and 19th centuries, trade posts mushroom across the territory, first on the coast and then inland, attracting Eeyouch families gradually further east and north. Trade posts were often established in ancient gathering places, but may also have reinforced attachments to these places, eventually influencing mobility patterns. European contact and early trade thus mark the beginning of slow and gradual changes to the regional cultural landscapes (Denton 1994; 2012; 2015; Francis and Morantz 1983; Samson 1981).

The *Matawaasis* (GhGk-01) site, located on the south bank of Great Whale River, across from Kuujjuuarapik, is an exceptional witness of the transformation of northern Eeyouch, from late paleohistory through the colonial period. It attests to beluga hunting, practised by the Eeyouch along the coast of James Bay and Hudson Bay, and to its transformation under the influence of developing interactions with European merchants. However, test pits have only been carried out over a small fraction of this very large site of 15.8 ha. Systematic evaluation may reveal yet little-known aspects of northern Eeyouch history until the 20th century. Research may also shed light on maritime hunting and watercraft technologies of the period (Denton 1993; 1995).

Despite observed changes, the material, social and spiritual transformations affecting subarctic societies would remain relatively subtle until the 20th century. In northern areas of the Quebec-Labrador Peninsula, caribou populations decreased during the first half of the 20th century, perhaps due to climate warming (Samson 1981). Fur prices on the market and depletion of some furbearers, such as beavers, also affected groups throughout the territory. Archaeologist, Bertrand Émard (1982), suggested that these changes may explain why the Caniapiscau area fell into disuse for the Innu. Gilles Samson (Samson 1981), working in the Naskapi territory, also links the early process of sedentarization of this group to the decreasing caribou population, starting from 1916, on the coast of Labrador. By the 1950s, caribou hunters almost stop occupying inland territories, with those left, eventually relocating at Schefferville in 1956 (Duguay 1994).

In fact, during the 20th century, and especially after 1945, the Federal and, subsequently, the Provincial governments, take considerable interest in the indigenous populations of Quebec and Labrador. Programs established during the period, though sometimes sustained local lifeways, largely degraded indigenous well-being. Policies and institutions responded to a general objective of social engineering, attempting to turn Indigenous peoples into Euro-Canadians (Morantz 2002). Boarding schools, forced sedentarization (reservations), and other government programs will thus disrupt Indigenous societies and cultures throughout the Quebec-Labrador Peninsula. Most Eeyouch reservations were created in that context (Adelson 2000; Girard 2012b; Guindon 2013a; 2015).

Going into the 1970s and 1980s, the sedentarization process and forced relocations continued attacking traditional economies, technologies, and lifeways. Roads eventually reached most communities and other infrastructure development accelerated, thus increasing contact with non-Indigenous Peoples and transforming occupation and mobility patterns. After 1975, traditional activities were partly maintained with subsidies obtained from the James Bay and Northern Quebec Agreement (JBNQA). Material cultures of sites of the last half of the 20th century attest, through various technological practices, to the resilience of the Eeyouch families enduring great turmoil (Figure 4-10) (Girard 2012b; Guindon 2013a; 2013b; 2015; Salisbury 1986; Tanner 2009).

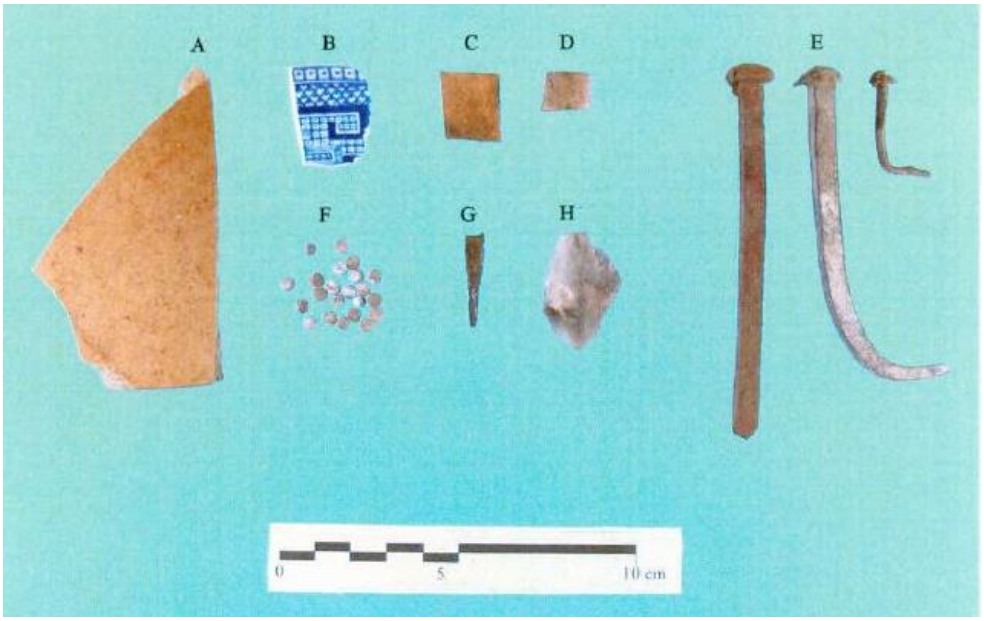


Figure 4-9 Selection of European artifacts from Indigenous occupations of the GlGe-8 site, on the Little Whale River (Credits: Marcoux and Roy 2008)

Figure 4-10 Sod house on the M25 hunting ground, Lac des Champs, built in the 1980s and adapting ancient construction techniques (Credits: François Guindon)

4.2 PALEOINUIT AND INUIT SOCIETIES

4.2.1 PREDORSET (4500 – 2700 BP)

From 4500 BP, Paleoinuit groups colonize the Eastern Arctic, taking advantage of a climate generally milder than the present day. In Nunavik, Labrador and Northern Eeyou Istchee, Paleoinuit are known as Predorset. This tradition persists during almost 2000 years, until 2700 BP. Groups associated with this period occupy coastal areas mostly during winter, but also sometimes in the summer and fall whilst inland environments are visited in the summer. On the former, sites are favoured along rocky shores gouged by long and narrow fjords or gravely beaches with smooth topography. Nowadays, these early locations reach considerable distance from the water because of isostatic rebound and marine regression (Milne and Park 2016).

Predorset dwellings are circular or oval tents built with wooden poles and animal skins, held at their bases by earth rims or stone blocks. Absence of rims suggests winter occupation. Some dwellings entail more extensive groundwork with semi-subterranean features (Figure 4-11) (Milne and Park 2016; Nagy 2015). Material culture includes knapped and polished stone tools, but bone, ivory, antler, leather, and driftwood are also transformed into a variety of objects. Lithic implements are generally considered most diagnostic and include burins, engravers, microblades, side scrapers, scrapers, knives, adzes, and drills (Figure 4-12). Ornaments are generally made from organic materials and decorated with incised geometric and zoomorphic figures. A tiny maquette from the Tyara site shows facial tattoos like those made by the Inuit of the colonial period. Similar maquette shapes have been reproduced in petroglyphs of the region from about 1000 BP (Milne and Park 2016).

The Predorset use harpoons and spears when hunting sea mammals. Harpoons can be hafted with toggling heads or not. Bows and arrows are also used for hunting land mammals. The projectiles are equipped with stone points with concave or straight bases, straight blades, biface and bipoint blades. Dogs may be involved in hunts but are most likely uncommon and probably do not haul sleds. Seal is a staple food source, but waterfowl, fish and land mammals are also consumed (Milne and Park 2016).

Figure 4-11 Predorset semi-subterranean dwelling from the GhGk-04 site, dated to ca 3300 BP, near Kuujjuarapik (Credits: Institut culturel Avataq 1992b)

Figure 4-12 Stone adzes from the Predorset GhGk-04 site, near Kuujjuarapik (Credits: Gendron and Pinard, 2000)

4.2.2 DORSET (2750 – 700 BP)

From 2750 to 2450 BP, Predorset cultures undergo rapid transformations leading to the Dorset period (Milne and Park 2016; Nagy 2015). The geographic origin of the Dorset cultures is controversial, but current research tends to support local development within Eastern Arctic, or at least within the Quebec-Labrador Peninsula (Nagy 2015; Ryan 2016).

Some sites from the previous period are reoccupied, but the settlement pattern substantially changes during Dorset. The beginning coincides with an episode of climate cooling leading to sea ice growth, thus favouring some sea mammal species, such as ringed seal and walrus. Subsistence strategies consequently evolve, with greater emphasis over marine and coastal resources. Mobility is more limited because sites are occupied over longer periods than before (Ryan 2016).

Dwellings are mainly semi-subterranean, but surficial structures are still built. Their ground layout varies from circular to triangular and they are sometimes large enough to host more than one family (Ryan 2016).

Dorset technology also evolves with ice cleats, various hunting instruments, ivory and sled runners made of whale bone, snow knives and numerous square recipients carved into soapstone and into which whale blubber is burnt. Artistic productions are also abundant, including realistic zoomorphic sculptures. Anthropomorphic figures are also occasionally seen, as well as incised animal skeletons. Watercrafts are still uncommon. Stone implements mainly include pseudo-burins, adzes, microblades and bifaces with lateral notches. Polished stone tools are particularly common. Raw stone materials mainly include cherts, quartz crystal, and nephrite. Fine-grained quartzite, such as Diana and Ramah, are also often used. The diversity of lithic materials is higher than during Predorset, which supports the impression that Dorset groups maintain a wide social network at the scale of the Eastern Arctic (Labrèche 2015; Ryan 2016).

During the 2300 – 1500 BP interval, the Dorset almost abandoned northern regions of the Arctic and colonize southern regions, such as the coast of Labrador and Newfoundland. Stone tools also evolve during the period, with declining productions of polished stone tools and microblades (Ryan 2016).

The end of Dorset, between 1500 and 700 BP, shows a marked emphasis over specific localities offering exceptional opportunities, sometimes described as oases of abundance. Caribou herds grow considerably and may play a transformative role because of an augmented capacity to support more stable and larger groups, sometimes living in long houses, reaching tens of metres. Some may even be reoccupied over several centuries. Meteoric iron and native copper are also found on sites of the interval. Norse artifacts are also sporadically recognized throughout the Eastern Arctic, attesting to occasional encounters between Dorset and Norse societies circa AD 1000 (Appelt, Damkjar, and Friesen 2016).

4.2.3 THULE (700 BP – AD 1610)

From a rapid eastward migration, Thule groups arrive in Eastern Arctic around 700 BP. Current scenarios suggest that they either shared the territory with the Dorset or colonized abandoned spaces after the disappearance of the latter. Radiometric dates support the hypothesis of a shared occupation for a few centuries and trade may explain observed signs of acculturation in their material culture. However, radiometric dating in the Arctic is often unreliable due to various environmental processes. Some archaeologists cite this issue to argue against cohabitation and propose that the Dorset had abandoned Eastern Arctic upon the arrival of the Thule. Cultural borrowings, in this view, may only be the result of ground disturbances in sites occupied by both Dorset and Thule. The latter could also have adopted Dorset cultural traits by taking inspiration from artifacts left behind. Thule arrival at about 700 BP is, however, widely accepted and appears to be linked to the environmental changes of the Medieval Warm Period (1050 – 900 BP) (Labrèche 2015; Park 2016).

The Thule would be the direct ancestors of contemporary Inuit. They were nomadic hunters moving from one site to the other following seasonal cycles. On winter sites, the most distinctive dwellings are sod houses, or *iglu*, with their

complex interior layout. *Igluviak* – dome shaped snow houses – left little durable traces but were also very frequent. Instruments used for their construction, such as knives, shovels, and snow probes, are ubiquitous and attest to the frequency of this architectural type. Summer dwellings include skin-covered tents, named *tupik* (Figure 4-13). They occasionally have shallow excavated floors and are then named *qarmaq*. All dwelling types, however, have circular floors and all, except the *tupik*, have an entrance corridor. Many other features can be found in one same site, including storage caches (stone piles), made between summer and fall, burials, hearths, boat caches and walking paths. Others can also be built at the periphery of the sites, including *inuksuit* (cairns), traps, *saputit (*dikes) and hunting blinds (Labrèche 2012a; Whitridge 2016).

Thule sites also stand out by their abundant and diverse material culture. This is explained by the exceptional conditions of preservations affecting most sites. Transformed materials notably include, bone, antler, ivory, horn, leather, baleen, feathers, fat, driftwood, plants, stone (ex. nephrite, soapstone, and slate), minerals (ex. meteoric iron and native copper). These materials are involved in a wide variety of productions, often with composite materials. Stone is used to produce sharp tools, more often polished than knapped. Fine grain quartzites (ex. Diana, Ramah) are seldom used by the Thule. Pottery made in Western Arctic does not seem to reach its eastern regions, such as the Quebec-Labrador Peninsula. Instead, *kudlik* (soapstone recipients) are fabricated and serve as lamps and cooking pots into which blubber is burnt. Toys, miniature weapons, and other symbolic objects are fabricated in addition to utilitarian objects. Watercrafts (*qaiaq* and *umiaq*), as well as *kometik* (dogsleds) are also built and used (Whitridge 2016).

Hunting implements (ex. bows, arrows, darts, and spears) involve sophisticated techniques of fabrication and subsistence. Harpoon heads are particularly good chronological indicators because of known transformations over time and space. They are specialized artifacts for the capture of sea mammals, of central importance in the Thule economy and diet. Waterfowl, Arctic char and caribou are also important for the Thule. Arctic char is captured with *saputit* (stone weirs), and caribou is hunted on land with bows and arrows. Caribou can also be trapped at water crossings using *qajaqs* (Whitridge 2016).

The increased size of Thule population, along with larger sites and more complex social organization rests on the exploitation of bowhead whales. Favourable living conditions of the period may also explain the complexity and richness of the material culture of the Thule. During the Little Ice Age, bowhead whale population collapses with catastrophic effect upon the Thule way of life. The Inuit that the first Europeans met during the 17th century may thus have been considerably different from their ancestors (Whitridge 2016). However, this environmental change may have had varying regional impact, depending on bowhead whale distributions.

Figure 4-13 Thule or Inuit dwelling from the HaGe-21 site, Little Whale River (Credits: Marcoux and Roy 2008)

4.2.4 INUIT OF THE COLONIAL PERIOD (AD 1610 TO PRESENT)

Inuit groups of the Quebec-Labrador Peninsula may have met Europeans for the first time in AD 1610, when Henry Hudson, seeking the Northwest passage, crossed the strait that came to bear his name. Early European merchants faced considerable challenges in their attempts to develop relationships with the Inuit and to establish enduring trade posts. Interactions with the Inuit yet remained sporadic until 1850. Few metal objects made their way into local material cultures and lifeways remained relatively unchanged (Labrèche 2012a; Lachance 1979).

Fur trade in Nunavik truly kicks off after 1830, helped by Anglican and Catholic missionary efforts. Major ecological changes take place during the period, partly caused by human activity. Whalers come in increasing numbers, depleting whale stocks in Arctic waters. The Inuit will be forced to turn away from traditional activities and take a more active role in the capitalist economy. Salaried work begins and trade posts become focal points in the Inuit seasonal cycle. Trade goods become ubiquitous on Inuit campsites (Figure 4-14). However, fur prices collapse with the economic crisis of the 1930s and Inuit economies will be severely affected (Labrèche 2012a; Lachance 1979).

From the 1940s, Northern Quebec is the object of increasing state interventionism. The family allowances scheme and compulsory schooling until the age of 16 years old force the nomadic Inuit to become increasingly attached to trade posts. The first schools and clinics gradually transform posts into villages. Growing population in Nunavik also diminishes the capacity of the Inuit to live off the land and increasing dependency develops towards government subsidies. New villages are occupied on a more permanent basis with Inuit families living in rectangular shacks often made from scrap materials. The first prefabricated houses are delivered around 1960 and snowmobile makes an appearance at about the same moment. After 1975, traditional activities are partly supported by subsidies obtained from the James Bay and Northern Quebec Agreement (JBNQA) (Labrèche 2012b; Lachance 1979).

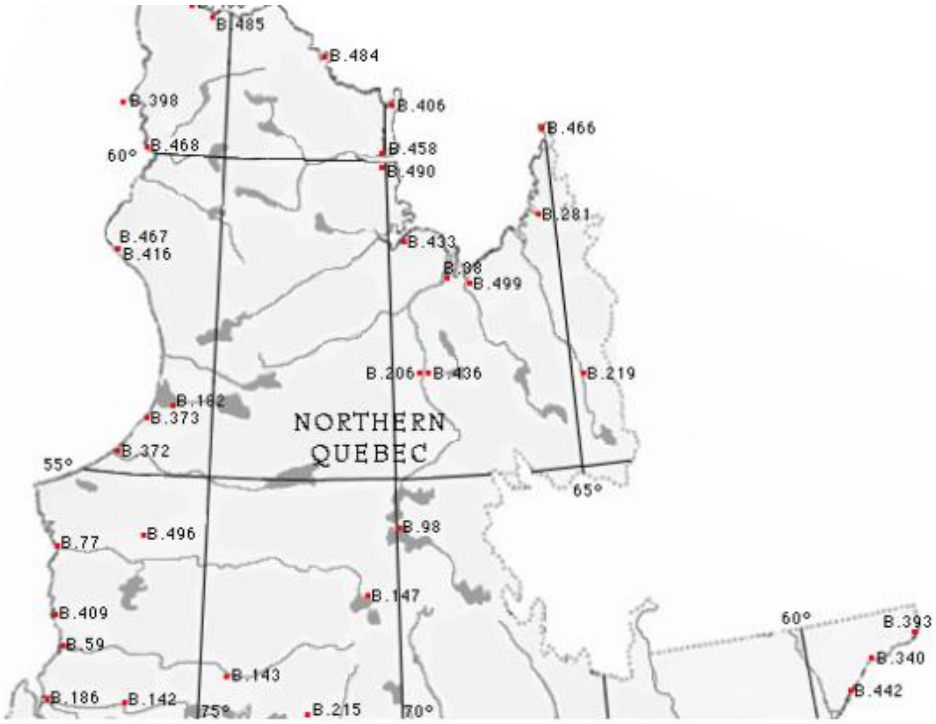
Figure 4-14 Inuit family near Great Whale River in 1896, possibly staged with local material culture (note the barrels acquired from the post on the left) (Low 1896)

4.3 NON-INDIGENOUS OCCUPATION

After the initial incursion of Henry Hudson by sea, in 1611, over 50 years pass for the next Europeans to visit Eeyou Istchee and thus, the study area. French archives mention that a fort was built on the Nemiscau or Rupert River in 1661, but the information remains doubtful. In 1663, Guillaume Couture, Pierre Duquet, and Jean Langlois lead an expedition of 44 canoes from New France and reach Lake Nemiscau, then known as a major trading place. They return to New France after trading with local occupants. The British open the first trade post along the coast in 1668, near the mouth of the Rupert River (Figure 4-15) and the Hudson Bay Company is founded two years later, in 1670. Soon after, the French undertake numerous attempts to undercut British efforts and open their own posts inland, in locations capable of intercepting fur supplies before they reach the coast. The first inland trade post of Eeyou Istchee, and throughout the study area, is most probably at Lake Nemiscau, founded in 1685 under the leadership of Zacharie Jolliet, hired by the newly formed *Compagnie du Nord*. With the enduring competition for furs between the French and British, the number of trade posts continues growing and reaching further inland during the 18th century. After the conquest, this rivalry continues, with the North West Company taking the place of the French, until merging with the HBC in 1821. This leads to major reorganizations of posts across the territory – some closing and others opening – with an overall increase, especially inland, to face competition from independent traders, along the heights of land. Anglican missionary efforts of Christianization, supported by the HBC, also increases non-Indigenous presence over the territory, though still limited to trade posts (Collette 2012; Francis and Morantz 1983; Great Britain. Privy Council. Judicial Committee 1926; C. Roy 2009; Voorhis 1930).

In Nunavik, the first establishment opens much later than Eeyou Istchee, circa 1749, at Lake Tasiujaq (Guillaume Delisle), under the control of the HBC (Figure 4-15). Fur trade will grow considerably from then on, along with missionary efforts, thus increasing non-Indigenous presence in Nunavik. The post of Lake Tasiujaq transferred to Little Whale River in 1758 but closed the year after. It became active again during the intervals of 1787-ca. 1819, ca. 1851-1880 and 1882-1890. The company then maintained seasonal outposts at Lake Tasiujaq from 1833 and reopened during the intervals of 1921-1932 or 1942, and 1954-1956. Another post was in activity at the mouth of Great Whale River from 1813-1822 and ca. 1854-1987 (Archives of Manitoba 2022a; 2022b; 2022; Great Britain. Privy Council. Judicial Committee 1926; Voorhis 1930). Starting from 1903, Revillon Frères also brought many new trade posts to life throughout Eeyou Istchee and Nunavik. The number of active trade posts thus increased until 1936, when the HBC acquired his competitor (Labrèche 2012a; Morantz 2002).

Non-Indigenous encroachment over Eeyou Istchee takes considerable expansion with the creation of the first *Jamésien* communities, starting from the 1950s. The first towns – Chibougamau, Chapais and Matagami – take non-Indigenous presence beyond the limits of trade posts, driven by forestry and mining. Roads, train tracks and other infrastructure will follow. At the eastern limits of the study area, mining activities are also connected to the creation of Schefferville. Hydroelectric development, during the 1970s, also leads to the creation of a permanent *Jamésien* community beyond the southern limits of Eeyou Istchee, with Radisson, near LG-2, in 1974. Temporary working camps will be built throughout areas under development. Mines will also eventually take root in Nunavik (Girard 2012a).



B.38 Fort Chimo (aka Fort Good Hope, Kuujjuaq)

B.59 Eastmain

B.77 Fort George (aka Big River, Great River, Shayseppy, Keeshay)

B.98 Kaniapiskau

B.142 Nemiskau (aka Nemiska)

B.143 Neoskweskau

B.147 Nichikum

B.182 Fort Richmond

B.186 Rupert House

B.206 South River House

B.215 Temiskamay

B.219 Fort Trial (George River)

B.227 Waswanipi (not on map)

B.281 Georges River

B.340 St. Augustine

B.368 Wolstenholme

B.372 Great Whale River

B.373 Little Whale River

B.393 Blanc-Sablon

B.398 Cape Smith

B.406 Diana Bay

B.409 Factory River

B.416 Port Harrison Fox Farm

B.433 Leaf River

B.436 Fort McKenzie

B.442 Mutton Bay

B.458 Payne Bay

B.467 Port Harrison

B.468 Povungnituk Bay

B.484 Stupart's Bay

B.485 Sugluk East

B.486 Sugluk West

B.490 U-Y Outpost

B.496 Kanaaupscow

B.499 Whale River

Figure 4-15 Map of Hudson Bay Company trade posts established within the study area (Archives of Manitoba 2022)

5 OVERVIEW OF HERITAGE SITES

Heritage sites include any land or marine location occupied by human groups and with a cultural or historical significance. This non-renewable resource is preserved within 221 known archaeological sites of the study area. All sites are located on land, but coastal areas and some riverine and lacustrine environments may also hold archaeological resources. Recorded land heritage sites are briefly presented followed by general considerations regarding potential underwater and maritime sites.

A preliminary remark must, however, be made regarding the absence of sites. If geographic concentrations can attest to the heritage value of specific areas, their absence does not necessarily mean a lack of heritage value or that concerned areas have not been occupied by Indigenous groups. It may simply mean that field research has not yet been carried out there. In context of development, verification regarding the existence of research (i.e., potential archaeological study or field survey) in areas without archaeological sites should thus be performed before concluding to the absence of archaeological potential.

5.1 LAND HERITAGE SITES

From a very broad perspective, the 221 known land archaeological sites have almost exclusively been occupied by Indigenous groups (97.7%) (Table 5-1), more often during the colonial period (57.0%, versus 32.1% for paleohistorical) (Table 5-2). Investigation on these sites is predominantly cursory, with only few excavated sites (Table 5-3). A possible explanation for the observed limitations in research is that most interventions have been led in the context of development projects (74.7%), where archaeology fieldwork often stops after the survey (Table 5-4). The resource is overall in a good state of preservation, with 73.8% of sites reported in a good to intact state of preservation. The rest (26.2%) is partially to entirely destroyed, flooded by hydroelectric impoundments, or in an undetermined state (Table 5-5). Most sites are located within Eeyou Istchee (98.2%), concentrating on territories of Whapmagoostui (GW, 38.5%), Chisasibi (FG, 28.4%) and Wemindji (VC, 14.5). One and two sites are respectively associated with Eastmain and Waskaganish (Table 5-7). %). The four sites that fall outside of Eeyou Istchee are located on islands off the coast of Hudson Bay and represent 1.8% of the total (Table 5-7).

Despite limited research carried out within the study area, many sites show significant heritage value. 20.8% is rated high, 57.0% moderate and 19.5% low. The heritage value of 2.7% of the sites could not be established with the available information (Table 5-6). Common practice in archaeology is to recommend mitigation measures for sites with moderate to high heritage value, which means that 77.8% of the 221 sites would require considerable precautions in case of an impact. Low heritage value does not, however, exclude the possibility of mitigation. Eeyou Istchee thus holds archaeological resources with relatively high value and should not be neglected. Areas of Heritage Interest (AHI) defined in the following chapter provide more details on the nature of this value.

Maps 1 to 14 in the appendix A localize the sites according to cultural affiliation, period, maximum level of expertise, context of intervention, state of preservation, hunting ground, and heritage value.

Table 5-1 Cultural affiliation of the sites

ATTRIBUTE	N	%
Indigenous	216	97.7
Non-Indigenous	1	0.5
Both	4	1.8
Total	221	100.0

Table 5-2 Chronology of the sites

ATTRIBUTE	N	%
Paleohistorical	71	32.1
Colonial	126	57.0
Both	17	7.7
Undetermined	7	3.2
Total	221	100.0

Table 5-3 Highest level of expertise performed on the sites

ATTRIBUTE	N	%
Surface collection	3	1.4
Excavation	12	5.2
Visual inspection	21	9.5
Visual inspection and surface collection	3	1.4
Survey (visual inspection and test pits)	167	75.6
Air survey	9	4.1
Air survey and surface collection	1	0.5
Air survey and visual inspection	5	2.3
Total	221	100.0

Table 5-4 Context of site intervention

ATTRIBUTE	N	%
Research project	26	11.8
Community-based project	2	0.9
Development project	165	74.7
Undetermined	28	12.7
Total	221	100.0

Table 5-5 State of preservation of the sites

ATTRIBUTE	N	%
Intact	34	15.4
Good	129	58.4
Partly destroyed	27	12.2
Destroyed	10	4.5
Flooded	15	6.8
Undetermined	6	2.7
Total	221	100.0

Table 5-6 Heritage value of the sites

ATTRIBUTE	**N**	**%**
Low	43	19.5
Moderate	126	57.0
High	46	20.8
Undetermined	6	2.7
Total	221	100.0

Table 5-7 Sites per hunting ground

ATTRIBUTE	N	%
FG02	10	4.5
FG09	15	6.8
FG10	12	5.4
FG11	16	7.2
FG12	1	0.5
FG26	6	2.7
GW01	64	29.0
GW03	10	4.5
GW06	2	0.9
GW21	36	16.3
N23	1	0.5
R13	1	0.5
RE02	1	0.5
VC03	2	0.9
VC04	24	10.9
VC13	2	0.9
VC14	2	0.9
VC17	1	0.5
VC18	3	1.4
VC33	7	3.2
VC35	1	0.5
Outside Eeyou Istchee	4	1.8
Total	221	100.0

5.2 UNDERWATER AND MARITIME HERITAGE SITES

Despite their current absence from the archaeological record, heritage sites could also be found in underwater and maritime contexts. Ships, docks, and other waterside infrastructure are most common, but traces of Indigenous presence, including stone fish weirs, bark canoes, dugout canoes, *qaiaqs*, *umiaqs*, and various artifacts could also be found. In addition, cold temperatures of the water within the study area could have helped preserve organic materials, such as wood, bone or leather, that otherwise vanishes quickly on land.

Available data regarding possible maritime heritage is however scant. Consulted databases only provided one possible shipwreck along the east coast of James Bay, near Rupert River, in the 20th century. The ship, built in 1908, was named the Chrissie C. Thomey and belonged to the Canadian Government. Epidemics were then widespread, and the ship may have served as a mobile medical facility, vaccinating Indigenous families along the coast (Morantz 2002). The wreck of the Eldorado steamer may also have left traces along the coast, near Fort George, in 1903 (Denton 2014). More ships may also have wrecked along eastern James Bay and Hudson Bay, but consulted sources are geographically unspecific.

Maritime heritage sites can be expected near areas of higher traffic, such as the Great Whale and Little Whale rivers, where two major trade posts were established, and which also served as wintering sites for ships. Indigenous groups also left possible traces along the coast, rivers, and waterbodies through the millennia. Such traces may, however, be difficult to find. Chances to encounter such sites would be higher where human groups gathered. In this respect, the Great Whale and Little Whale estuaries stand out again. Special care for documenting possible underwater and maritime heritage should thus be taken there, during the upcoming phases of La Grande Alliance, even if this type of heritage resource is yet undocumented within the study area.

6 AREAS OF HERITAGE INTEREST (AHI)

In total, 10 AHIs have been identified within the study area (Table 6-1, Figure 1-1). Six intersect the narrow 20 km corridor and are therefore more likely to be affected by the proposed infrastructures. They are CHI01, WEM01 to 04, and WHA01. Five AHIs have a high priority level of intervention (avoidance, mitigation, compensation). They are CHI01, WEM01, WEM03, WEM04 and WHA01. Their presence within the narrow 20 km corridor and exceptional heritage, such as high site concentrations, cultural practices and historical events explain their level of sensitivity. The other five AHIs have a moderate priority of intervention, because they do not crosscut the narrow corridor, or sites have moderate importance, or a combination of both.

Some AHIs contain human burial sites which must be avoided by any kind of development. They are WHA01, WHA02, WHA04. Two other burial sites are now underwater due to hydroelectric development. It was decided that they should not be part of an AHI due to the low risk of impact in these locations and that burials have likely been destroyed.

Each AHI is presented in the following pages, with a summary sheet and comprehensive list of all known sites included in Table 6-2 to Table 6-11.

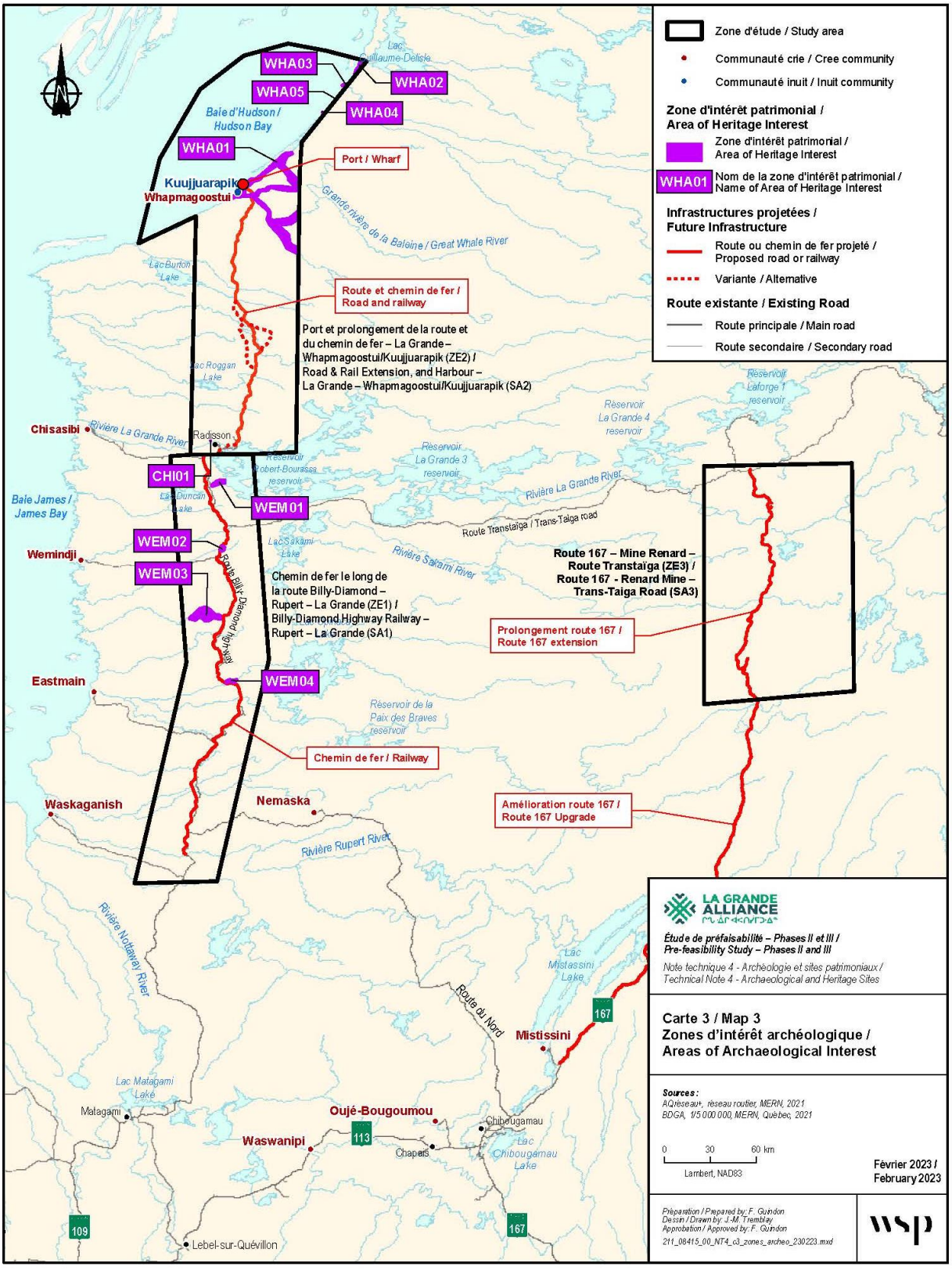


Figure 6-1 Areas of Archaeological Interest

Table 6-1 Areas of Heritage Interest (AHI) in the Study Area

AHI	PHASE	CORRIDOR	NARROW CORRIDOR	HUNTING GROUND	AREA (KM^2)	PRIORITY	OVERVIEW OF HERITAGE VALUE
CHI01	II and III	Kuujjuarapik - BD Hwy.	- 40 km and + 40 km	FG02	0.1	High	Concentration of paleohistorical sites
WEM01	II	Waskaganish - BD Hwy.	- 40 km	VC04	26.0	High	20th century occupations and end of Cree nomadic lifeway
WEM02	II	Waskaganish - BD Hwy.	- 40 km	VC13	10.3	Moderate	Concentration of late paleohistorical sites
WEM03	II	Waskaganish - BD Hwy.	- 40 km and + 40 km	VC14, VC17-19	115.4	High	Unique sites showing the transition between paleohistory and colonial era, and stone quarrying
WEM04	II	Waskaganish - BD Hwy.	- 40 km	VC33	13.8	High	Concentration of occupations ranging from the Archaic period to the colonial era
WHA01	II and III	Kuujjuarapik - BD Hwy.	- 40 km and + 40 km	GW01, GW02, GW03, GW21	555.6	High	Multi-millennial gathering for Inuit/Paleoinuit, Indigenous and non-Indigenous for 4000 years, including two burial sites
WHA02	II and III	Kuujjuarapik - BD Hwy.	+ 40 km	GW21	28.7	Moderate	Several burials and a unique site attesting of the forced deportation and sedentarization of the Lake Tasiujaq Inuit
WHA03	II and III	Kuujjuarapik- BD Hwy.	+ 40 km	GW21	6.7	Moderate	Cohabitation of Inuit, Cree and non-Indigenous during the early colonial era. Exploitation of marine mammals, fur trade, copper mining and wintering of ships in connection with the Little Whale River trading post
WHA04	II and III	Kuujjuarapik- BD Hwy.	+ 40 km	GW21	0.1	Moderate	Burial site on a small piece of land at the mouth of the Second River
WHA05	II and III	Kuujjuarapik - BD Hwy.	+ 40 km	GW21	0.1	Moderate	Possibly very old occupation, perhaps linked to the colonization of the territory by Eeyouch ancestors

No	Corridor	Phase	Hunting Ground	Study Area
CHI01	+ 40 km, - 40 km	Phase II, Phase III	FG02	Kuujjuarapik- BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	FkGk4-5	0.1	High
Cultural Affiliation	Indigenous	Period	Paleohistorical
		Chronology	Unknown
Characteristic Features	Concentration of paleohistorical occupations		

Descriptive Summary

CHI01 is located at the confluence of La Grande Rivière and a secondary watercourse, just west of the Robert-Bourassa Reservoir. Rapids at this location may have created a mandatory portage for travellers. The two sites included in this area were occupied at an unknown time during paleohistory. A previous survey suggests a high research potential for these sites. They may have been spared by hydroelectric development, a rare occasion in the region. However, hydroelectric development may have changed the hydric systems in place and accentuated erosion in the AHI.

Recommendations

1) Avoid as much as possible impact on the sites within the AHI.
2) Investigate the state of erosion with visual inspection of the banks and occasional test pits.
3) Mitigate the impact of the portions of the AHI that cannot be avoided, through potential archaeological study, survey, and archaeological excavation, integrating local stakeholders.
4) Plan compensatory measures in the event of a development project, including scientific publication and public outreach, dissemination of knowledge and maximum integration of local stakeholders.

Stakeholders	Informant	
Comments		

Table 6-2 CHI01 - Archaeological Sites

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATIONS
FkGk-04	(Beaudin 1985b; 1985a)	High	Indigenous	Paleohistorical	Five positive test pits out of a total of 24. One bifacial roughout, 14 lithic flakes and 153 burnt bones were found. Fire-cracked rocks were found in one of the test pits and interpreted as a combustion area. The surface area is estimated at 50 m^2.	Archaeological Site excavation and specialized analysis
FkGk-05	(Beaudin 1985b; 1985a)	High	Indigenous	Paleohistorical	Two test pits were positive. Two lithic flakes and 66 faunal remains were found. A combustion feature with fire-cracked rocks was also identified.	Site excavation and specialized analysis

TECHNICAL NOTE 4 – ARCHAEOLOGY AND CULTURAL HERITAGE SURVEY

No	Corridor	Phase	Hunting Ground	Study Area
WEM01	- 40 km	Phase II	VC04	Waskaganish - BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	FjGj1-15, 17-20	26	High
Cultural Affiliation	Indigenous	Period	Colonial, Paleohistorical
		Chronology	20th century; Unknown
Characteristic Features	20th century occupations and end of Eeyouch nomadic lifeway		

Descriptive Summary

WEM01 encompasses Desaulniers Lake. It represents one of the few bodies of water with archaeological potential spared by the Robert-Bourassa Reservoir. Sixteen of the 19 sites of this AHI have moderate heritage value and most of them were occupied during the 20th century. Two sites have high heritage value and were occupied during paleohistory. Only one site has low heritage value. Several 20th century sites were only briefly described, probably because scientific approaches related to recent sites (20th century) were still poorly developed at the time of the interventions, in the early 1970s.

WEM01 attests to the intensive 20th century occupation of the Desaulniers Lake region where most sites have been flooded by hydroelectric development. The cursory state of research suggests a significant potential for additional insights into the end of the Eeyouch nomadic lifeway.

Recommendations

1) Avoid as much as possible impact on archaeological sites with moderate or high heritage value.
2) Mitigate impact on sections of the AHI that cannot be avoided, through potential archaeological studies, surveys, and archaeological excavations, integrating local stakeholders.
3) Plan compensatory measures in the event of a development project, including scientific publications and public outreach, dissemination of knowledge and maximum integration of local stakeholders.

Stakeholders	Informant	
Comments		

Table 6-3 WEM01 - Archaeological Sites

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATIONS
FjGj-01	(Beauchemin 1973; Chism 1973; 1974)	High	Indigenous	Paleohistorical	Archaeological site where stone tools and hundreds of lithic flakes were found. An area of 5 m^2 was excavated. Various raw materials were present in the assemblage and burnt bones were found. No radiocarbon dating was done.	None in the report. Complete the archaeological survey with systematic test pits and thorough archaeological excavation if needed.
FjGj-02	(Beauchemin 1973; Chism 1973; 1974)	High	Indigenous	Paleohistorical and colonial	Multicomponent site. An area of 1 m^2 was excavated. Eight burnt bones and 34 lithic flakes were found. Three tent rings with central hearths and one triangular feature were identified.	None in the report. Survey with systematic test pits to evaluate the area of the site and its conservation state. Archaeological Site excavation if needed.
FjGj-03	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Paleohistorical	Site consisting of a cairn-type stone feature associated with bird bones.	None in the report. Survey with systematic test pits. Ethnographical inquiry with local stakeholders to understand the potential spiritual value of the site.
FjGj-04	(Chism 1973; 1974)	Moderate	Indigenous	Colonial	Multiple dwellings (two log cabins and a tent ring), refuse areas, storage areas with one storage feature and woodchopping areas were identified. The site may have been used during the cold season, somewhere between the 1940s and the 1960s.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-05	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site with a single collapsed circular tent with a central hearth. Poles are still visible. It is a contemporary site, but the seasonality of the occupation is unknown.	None in the report. Comprehensive recording of the feature (plans and photographs). Gather evidence to identify the seasonality of the site. Ethnographical inquiry with local stakeholders.
FjGj-06	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Recent site (1970s) used as a storage area during winter. It is a small feature made of wooden poles, too small to be a house.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-07	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site consisting of a single collapsed circular tent that would have been occupied during the winter.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-08	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site with a semi-underground wooden cabin, a rectangular feature used as a cache and a collapsed circular tent. The site may have been used twice: once during the cold season (cabin) and once during the warm season (circular tent).	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-09	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site consisting of two collapsed circular tents. No artifacts were found. It is a contemporary site used during the warm season.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-10	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Paleohistorical and colonial	Storage site with two rectangular features. One weathered utilized flake made from chert was found nearby.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-11	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Storage site with a single rectangular feature.	None in the report. Comprehensive recording of the feature (plans and photographs). Ethnographical inquiry with local stakeholders
FjGj-12	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site with four circular tent features. A metal stove was found in one of the tents. Two rectangular features, possibly caches or smoking areas, were identified. Bear and beaver skulls were found.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-13	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site with a collapsed circular tent and a rectangular tent. A triangular feature and a depression in the ground were noted and were interpreted as a cache. A metal stove, beaver bones and bear bones were found. The site was probably used during the cold season.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-14	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site consisting of a single circular tent with a central hearth. This is a 20th-century occupation, but no season of occupation can be determined.	None in the report. Comprehensive recording of the features (plans and photographs). Gather evidence to identify the seasonality of the site. Ethnographical inquiry with local stakeholders.
FjGj-15	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	20th century site used as a storage place, near a portage. A canoe and some equipment were found.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATIONS
FjGj-17	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site with one circular tent with a central hearth. The occupation season is unknown.	None in the report. Comprehensive recording of the features (plans and photographs). Gather evidence to identify the seasonality of the site. Ethnographical inquiry with local stakeholders.
FjGj-18	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site with two temporary dwellings; one collapsed circular tent with a central hearth and one rectangular tent with sleeping areas.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-19	(Beauchemin 1973; Chism 1973; 1974)	Low	Indigenous	Colonial	Site consisting of two collapsed circular tents.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
FjGj-20	(Beauchemin 1973; Chism 1973; 1974)	Moderate	Indigenous	Colonial	Site with a single rectangular tent with sleeping areas.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.

TECHNICAL NOTE 4 – ARCHAEOLOGY AND CULTURAL HERITAGE SURVEY

No	Corridor	Phase	Hunting Ground	Study Area
WEM02	- 40 km	Phase II	VC13	Waskaganish - BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	FhGi-2	10.3	Moderate
Cultural Affiliation	Indigenous	Period	Paleohistorical
		Chronology	600-500 BP
Characteristic Features	Late paleohistorical occupation		

Descriptive Summary

WEM02 contains only one archaeological site but includes the entire Kaychikwapichu Lake to highlight the possible importance of this area at the end of paleohistorical times, when FhGi-2 was occupied. A radiocarbon date suggests an occupation of the site around 600-500 BP. The main site area was excavated, and faunal remains were analyzed. Further excavation could complete our understanding of this site with data of low or moderate archaeological interest.

Recommendations

1) Avoid impact as much as possible on FhGi-2.
2) Mitigate the impact on sections of the AHI that cannot be avoided, through potential archaeological studies, surveys, and archaeological excavations, integrating local stakeholders.
3) Plan compensatory measures in the event of a development project, including scientific publications and public outreach, dissemination of knowledge and maximum integration of local stakeholders.

Stakeholders	Informant	
Comments		

Table 6-4 WEM02 - Archaeological Sites

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
FhGi-02	(Mandeville 1985)	High	Indigenous	Paleohistorical	Four test pits were positive out of a total of 58. Fifteen lithic flakes were found, 14 were in quartzite and one in chert. Burnt bones were also found in association with a possible combustion feature. The surface area of the site covers 78 m^2.	Archaeological excavation and specialized analysis
	(Mandeville and Chevrier 1987)	High	Indigenous	Paleohistorical	39.5 m^2 were excavated. A total of 1,156 flakes and nine tools were found, including a notched projectile point. The excavation confirmed the presence of a hearth. An occupation between 600-500 BP was suggested.	Archaeological excavation and specialized analysis
	(Ostéothèque de Montréal 1988)	High	Indigenous	Paleohistorical	Analysis of faunal remains indicates the presence of caribou, beaver and porcupine in the collection.	Archaeological excavation and specialized analysis

TECHNICAL NOTE 4 – ARCHAEOLOGY AND CULTURAL HERITAGE SURVEY

No	Corridor	Phase	Hunting Ground	Study Area
WEM03	- 40 km, + 40 km	Phase II	VC14, VC17-19	Waskaganish - BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	FeGi1, FeGj1-2, FeGk-1	115.4	High
Cultural Affiliation	Indigenous	Period	Colonial, Paleohistorical
		Chronology	AD 1450–1650, Unknown
Characteristic Features	- Stone extraction (FeGi-1) - Transition between paleohistorical and colonial periods (FeGj-2)		

Descriptive Summary

WEM03 includes four archaeological sites of which two have high heritage value. They show a unique historical context that portrays the transition between paleohistorical and colonial periods (FeGj-2) or technological practices (stone extraction at FeGi-1). The AHI encompasses Old-Factory Lake, an area which has a high cultural value for the Wemindji Eeyouch. The designation of the entire lake as an AHI highlights the historical roots of this cultural value.

Recommendations

1) Avoid as much as possible impact on archaeological sites with moderate or high heritage value.
2) Mitigate the impact on sections of the AHI that cannot be avoided, through potential archaeological studies, surveys, and archaeological excavations, integrating local stakeholders.
3) Plan compensatory measures in the event of a development project, including scientific publications and public outreach, dissemination of knowledge and maximum integration of local stakeholders.

Stakeholders	Informant	
Comments		

Table 6-5 WEM03 - Archaeological Sites

CODE BORDEN	INTERVENTION (SOURCE)	VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
FeGi-01	(Wren et al. 2014)	High	Indigenous	Paleohistorical	Site with a 30 m quartz outcrop. Stone tool fabrication took place.	None in the report. Survey to delineate site boundaries and preservation state. Excavation of the impacted areas.
FeGj-01	(Wren et al. 2014)	Moderate	Indigenous	Paleohistorical and colonial	Site with a single hearth. A total of 708 lithic flakes and three stone tools, including a scraper. The site is partially disturbed by a recent Cree camp.	None in the report. Survey to delineate site boundaries and site preservation state. Excavation of the impacted areas. Comprehensive recording of recent features (plans and photographs). Ethnographical inquiry with local stakeholders.
FeGj-02	(Wren et al. 2014)	High	Indigenous	Paleohistorical	Site with at least three hearths. Burnt bones, lithic flakes and indigenous ceramic sherds were found. Ceramic style suggests an occupation during the 16th or 17th centuries and a connection with the Great Lakes (Huron-Wendat influence). Radiocarbon dating of faunal remains indicates an occupation between 1450 and AD 1650. The site may have been occupied on multiple occasions.	None in the report. Survey to delineate site boundaries and preservation state. Excavation of impacted areas.
FeGk-01	(Wren et al. 2014)	Low	Indigenous	Paleohistorical	Two pits were identified, but no artifact was found. Flat rocks were at the bottom of the features. One test pit was excavated but turned out negative.	None in the report. Complete the archaeological survey with systematic test pits.

TECHNICAL NOTE 4 – ARCHAEOLOGY AND CULTURAL HERITAGE SURVEY

No	Corridor	Phase	Territory	Study Area
WEM04	- 40 km	Phase II	VC33	Waskaganish - BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	FcGg4; FcGh1-3	13.8	High
Cultural Affiliation	Indigenous, Non-Indigenous	Period	Colonial, Paleohistorical
		Chronology	Archaic, 17th-18th centuries, 20th century
Characteristic Features	- Indigenous occupation from early paleohistory (Archaic) to the colonial period - Portage (FcGh-1)		

Descriptive Summary

WEM04 stands out because of its geographical context that favoured Indigenous occupation from the end of the Archaic to the late colonial period. Archaeological sites concentrate around a widening of the Opinaca River, bounded to the west by non-navigable rapids and to the east by the confluence of Petite Opinaca River. The rapids forced nomadic travellers to camp upstream of the rapid through the millennia (FcGh-1), but others settled a little higher on the river, near the confluence of Petite Opinaca River. Four archaeological sites are in the AHI, three of which have a high heritage value. However, many sites are located very close to the flooded banks of the Opinaca Reservoir. Some may now be underwater.

Recommendations

1) Avoid as much as possible impact on sites with high heritage value until their state of preservation is confirmed.
2) Visual inspections and test pits on sites with high heritage value to verify their integrity.
3) Adjust the priority level and recommendations based on field inspections.
4) Include local stakeholders in mitigation and compensation efforts.

Stakeholders	Informant	
Comments		

Table 6-6 WEM04 - Archaeological Sites

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
FcGg-04	(Mandeville 1985)	High	Indigenous	Paleohistorical	Site with 181 lithic flakes including two projectile points of the Late Archaic or Point Revenge complex. The site covers an area of 30 m by 70 m. 128 test pits were excavated and nine were positive.	Archaeological excavation
FcGg-04	(Cérane 1986)	High	Indigenous	Paleohistorical	A total of 139 m^2 was excavated with 4,223 lithic flakes and 38 tools collected.	Archaeological excavation
FcGh-01	(Cérane 1986)	High	Indigenous and non-indigenous	Paleohistorical and colonial	The site was divided into five areas. A dozen tent rings, and one elongated tent were identified. One of the tents may have been used by prospectors. Paleohistorical artifacts were also found in area D. A total of 616 flakes and 10 stone tools were collected.	Protection of the site. Each area could have been recorded under different Borden codes. Additional survey to delineate site boundaries and conservation state. Excavation of paleohistorical component with a comprehensive recording of features (plans and photographs). Ethnographical inquiry with local stakeholders.
FcGh-02	(Cérane 1986)	Moderate	Indigenous	Paleohistorical and colonial	Paleohistorical component (17 flakes and four stone tools on the ground surface) and recent component (workers' camp with refuse area) were identified. A fine white clay smoking pipe was collected.	Complete field survey
FcGh-03	(Cérane 1986)	High	Indigenous	Paleohistorical and colonial	Site from the 17th century or the first half of the 18th century. Five glass beads, a gun flint, 23 lithic artifacts including a chert scraper fragment were found.	Archaeological excavation

TECHNICAL NOTE 4 – ARCHAEOLOGY AND CULTURAL HERITAGE SURVEY

No	Corridor	Phase	Territory	Study Area
WHA01	+ 40 km; - 40 km	Phase II; Phase III	GW01, GW02, GW03, GW21	Kuujjuarapik- BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	GhGj1; GhGk1-20, 23-24, 35-36, 44-45, 47, 63, 66, 78, 81-84, 87-96; GiGi1-3, 6, 8-9, 11, 13, 15-17, 19-21, GiGj4-6, 8, 10-15; GiGk1; GjGh3-7; GjGi5	555.6	High
Cultural Affiliation	Indigenous, Non-Indigenous	Period	Colonial, Paleohistorical, Unknown
		Chronology	4000 BP to present
Characteristic Features	- Ancient meeting place for Inuit/Paleoinuit, First Nations and Non-Indigenous groups - Evidence of occupations during all main periods and events of the last 4,000 years - Two burial sites from the colonial period		

Descriptive Summary

WHA01 includes 76 known sites, of which 22 with high heritage value, 40 with moderate value and 14 with low value. The AHI is generally well preserved and is evidence of continuous occupation of the Whapmagoostui area over 4,000 years. It is located at the confluence of major hydrographic basins, including Great Whale, near Hudson Bay. Both Paleoinuit and First Nation occupations could be old and sites from all periods are represented. The ensemble shows the evolution of lifeways and a diversity of cultural practices, including stone tool making, fur trade, canoe construction, hunting, fishing, and burial rites. Beluga whale hunting also stands out for the area. This is attested by hundreds of dwelling components of various shapes and numerous artifacts. Major sites are part of WHA01 and could be evidence of large gatherings where multiple families met during their annual nomadic cycle. Some sites have high potential to highlight the characteristic features of the AHI, which has so far been the object of cursory research. It is therefore a unique space in the Eeyou-Istchee.

Recommendations

1) Protect all burial sites and keep any development projects at a safe distance from them.
2) Avoid as much as possible impact on archaeological sites with moderate or high heritage value.
3) Mitigate the impact on sections of the AHI that cannot be avoided, through potential archaeological studies, surveys, and archaeological excavations, integrating local stakeholders.
4) Plan compensatory measures in the event of a development project, including scientific publications and public outreach, dissemination of knowledge and maximum integration of local stakeholders.

Stakeholders	Informant	
Comments		

Table 6-7 WHA01 - Archaeological Sites

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GhGj-01	(Chevrier 1978)	Low	Indigenous	Paleohistorical	Site with six dwellings which could have been in use during summer and/or during the cold season.	Comprehensive recording of recent features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-01	(Harp 1967)	High	Indigenous	Colonial	Site with approximately 30 tent rings.	Comprehensive recording of the recent features (plans and photographs). Ethnographical inquiry with local stakeholders. Archaeological excavation of several features to generate a representative sample of cultural material and spatial layouts.
	(Denton 1993)	High	Indigenous	Paleohistorical and colonial	Identification of 362 features including 342 dwellings (rings or rectangular) and nine features associated with canoe construction. Forty-two m^2 were excavated. A total of 694 lithic flakes of various raw materials, a projectile point made of Hudson Bay Lowland chert, copper and iron objects, Indigenous and non-Indigenous ceramic sherds and glass beads were found. The site may have been occupied on several occasions, but an occupation during the 19th century is clearly identifiable.	Comprehensive recording of the recent features (plans and photographs). Ethnographical inquiry with local stakeholders. Archaeological excavation of several features to generate a representative sample of cultural material and spatial layouts.
GhGk-02	(Chevrier 1978)	High	Indigenous	Paleohistorical	Site with a dozen lithic tools (one scraper, one biface, three bifacial tool fragments and six utilized flakes). Three hundred and forty-one lithic flakes, a ground stone tool fragment and a hammer stone were also found. A hearth was also identified.	None in the report. Survey with systematic test pits to define site layout and conservation state. Excavation and specialized analysis if necessary.
GhGk-03	(Harp 1967)	High	Indigenous	Paleohistorical	Several weathered chert flakes found on the surface. Despite the absence of diagnostic tools, an association with the Archaic is suggested.	None in the report. Survey with systematic test pits to define site layout and conservation state.
GhGk-04	(McKenzie 1971)	High	Indigenous	Paleohistorical	Four dwellings identified in boulder fields. All dwellings are made of stones.	None in the report. Archaeological excavation and specialized analysis.
	(Plumet 1976)	High	Indigenous	Paleohistorical	Pre-Dorset site found in boulder fields. A total of 14 dwelling features and seven secondary features were identified. The dwellings are all semi-subterranean. A total of 180 lithic artifacts including microblades, flakes and chisels were found. A radiocarbon date of 3300 +- 110 BP was obtained. Cursory recording of structures.	None in the report. Archaeological excavation and specialized analysis.
	(Harp 1972)	High	Indigenous	Paleohistorical	Identification of 18 dwellings. Excavation of four features which led to the discovery of Pre-Dorset lithic artifacts.	None in the report. Archaeological excavation and specialized analysis.
	(Gosselin, Plumet, and Salaün 1974)	High	Indigenous	Paleohistorical	Photographs of the visible features were taken.	None in the report. Archaeological excavation and specialized analysis.
	(Institut culturel Avataq 1992a)	High	Indigenous	Paleohistorical	Excavation of 105 m^2. A total of 17 dwellings, including five subterranean houses and seven secondary features were recorded. 4,734 lithic artifacts were found, including 24 projectile points. Three radiocarbon dates were obtained: 3260 ± 100 BP, 3360 ± 90 BP and 3790 ± 70 BP.	Site excavation
	(Institut culturel Avataq 1992b)	High	Indigenous	Paleohistorical	Excavation of 167 m^2. More than 14,215 additional artifacts were found, including 454 lithic tools.	Archaeological excavations of the remaining portions of the site. Yearly monitoring and salvage excavation if necessary.
GhGk-05	(Plumet 1976)	Low	Indigenous	Indeterminate	Site located in a boulder field where boulders were removed to prepare a clearing	None
	(Harp 1972)	Low	Indigenous	Indeterminate	Confirmation of site location. No description in the report.	None
	(Gosselin, Plumet, and Salaün 1974)	Low	Indigenous	Indeterminate	Site not found. It could have been destroyed by heavy machinery and development projects.	None
GhGk-06	(Plumet 1976)	Low	Indigenous	Paleohistorical	Site with three features. Two are piles of stones. No material culture was found. The third feature is a circular dwelling, but no artifact was found.	None
	(Harp 1972)	Low	Indigenous	Paleohistorical	Confirmation of site location. Identification of paleohistorical dwelling features.	None
	(Gosselin, Plumet, and Salaün 1974)	Low	Indigenous	Paleohistorical	Excavation of the site. No archaeological soil was identified, and no artifact was found. A comprehensive recording of the feature was done.	None

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GhGk-07	(Gosselin, Plumet, and Salaün 1974)	High	Indigenous	Paleohistorical and Colonial	Site with two components. Three projectile points, including one with side notches, lithic flakes, a hammerstone, three gravers, one scraper and blades were found. A recent modern component with a single tent ring was also identified.	None in the report. Survey with systematic test pits to define site layout and conservation state. Excavation and specialized analysis if necessary. Comprehensive recording of recent features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-08	(McKenzie 1971)	High	Indigenous	Paleohistorical	No description in the report, but the site is associated with a Dorset occupation	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
	(Harp 1972)	High	Indigenous	Paleohistorical	Visual inspection confirmed the location of the site. Several chert flakes were found on the surface. Even though no diagnostic artifact was found, the Dorset association is deemed valid.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-09	(Harp 1972)	High	Indigenous	Paleohistorical	Several chert flakes were found on the surface. The site is associated with the Dorset period.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-10	(Plumet 1976)	Moderate	Indigenous	Paleohistorical	Site with a rectangular dwelling made of rocks. No artifact was found. Preliminary recording of the feature.	Site excavation
	(Gosselin, Plumet, and Salaün 1974)	Moderate	Indigenous	Paleohistorical	Confirmation of site location with photographs. The site is interpreted as a Pre-Dorset of Paleoinuit occupation, based on isostatic data.	Site excavation
GhGk-11	(Gosselin, Plumet, and Salaün 1974)	Moderate	Indigenous	Paleohistorical	Surface finds include eight projectile points, a scraper, a burin and lithic flakes.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
	(Adams 1976)	Moderate	Indigenous	Paleohistorical	Surface finds include eight projectile points, a scraper, a burin, and lithic flakes.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-12	(Gosselin, Plumet, and Salaün 1974)	Moderate	Indigenous	Paleohistorical	Chance discovery of a projectile point fragment made of chert.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-13	(Chevrier 1978)	Moderate	Indigenous	Paleohistorical	12 flakes made of chert or quartz in five test pits.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-14	(Chevrier 1978)	Moderate	Indigenous	Paleohistorical	312 lithic flakes found in eight test pits. Site associated with the Dorset period and may have been occupied between 800 – 1200 AD.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-15	(Chevrier 1978)	Moderate	Indigenous	Paleohistorical	90 lithic flakes found in five test pits. The site is associated with the Dorset period and may have been occupied between 800 – AD 1200.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-16	(Chevrier 1978)	Moderate	Indigenous	Paleohistorical	Two utilized flakes, 53 lithic flakes and burnt bones found in four test pits.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-17	(Chevrier 1978)	Low	Indigenous	Paleohistorical	Two utilized flakes, 53 lithic flakes and burnt bones found in four test pits.	None
GhGk-18	(Chevrier 1978)	Moderate	Indigenous	Paleohistorical	Four flakes made of chert found on the surface.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-19	(Chevrier 1978)	Moderate	Indigenous	Paleohistorical	A total of 354 lithic flakes were found in six test pits.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-20	(Chevrier 1980)	High	Indigenous	Paleohistorical	A total of four flakes made of chert found on the surface.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
	(Chevrier 1982)	High	Indigenous	Paleohistorical	Excavation of 45 m^2 on an estimated area of 75 m^2. A total of 21 stone tools, including seven points, 6,023 flakes and 154 burnt bones were found. Artifacts from the colonial period were also found (glass shards, glass beads, ceramic sherds, and metal fragments). A hearth made of stones and the adjacent area are interpreted as a domestic occupation. The site would be anterior to 4500 BP.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
	(Arkéos 1991)	High	Indigenous	Paleohistorical	Excavation of the site indicates that the 5 m-wide feature was composed of three levels of stones. No additional artifact or feature was found.	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
	(Badgley 1984)	High	Indigenous	Paleohistorical	Technological analysis of lithic artifacts	None in the report. Survey with systematic test pits to define site layout and conservation state. Archaeological excavation and specialized analysis if needed.
GhGk-23	(Chevrier 1980)	Low	Indigenous	Paleohistorical	Site consisting of two dwelling features made of stones. A quartzite flake was found.	Site now destroyed. Specialized analysis of the lithic artifacts with scientific and public outreach.
	(Arkéos 1991)	Low	Indigenous	Paleohistorical	Intervention showed that the site is now destroyed (sand and rock extraction).	Site now destroyed. Specialized analysis of the lithic artifacts with scientific and public outreach.
GhGk-24	(Chevrier 1980)	Moderate	Indigenous	Paleohistorical	Site with two intact dwellings made with stone blocks. One of the dwellings showed two circular depressions in the ground.	None
	(Arkéos 1991)	Moderate	Indigenous	Paleohistorical	No new discovery on the site, but the dwellings identified by Archéotec were located. No artifact was found. Comprehensive recordings of the dwellings were done. The two depressions identified previously were treated as two distinct features. The occupation is associated with the Neoinuit period (850 BP - contact).	No more work needed on the site, but a visual inspection of nearby block fields should be done.
GhGk-35	(Chevrier 1981)	Moderate	Indigenous	Colonial	Site with two collapsed temporary dwellings. One is circular, the other is rectangular. The site would have been occupied during the 1940s or 1950s, during wintertime.	In the report: avoid all impact. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-36	(Chevrier 1981)	Moderate	Indigenous	Colonial	Site with a single circular dwelling with a central hearth made with stones. The site would have been occupied during the 1940s or 1950s during fall.	In the report: avoid all impact. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-44	(Chevrier 1981)	High	Indigenous	Colonial	Site with 26 temporary dwellings (15 circular, seven elliptical and four rectangular). A central hearth and/or stove stakes were identified in many dwellings. The site would have been occupied during the cold season.	In the report: avoid all impact. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
	(Arkéos 1991)	High	Indigenous	Colonial	Confirmation of the site location. 15 dwellings and one hearth were identified.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders. Conduct visual inspection of nearby block fields.
	(Arkéos 1992)	High	Indigenous	Colonial	Confirmation of 27 dwellings with a central hearth or stove. Eight secondary features were also identified (two exterior hearths, three wood chopping areas, two refuse areas and one rack). The site could have been occupied multiple times since the 1940s, at different seasons. The site is Eeyouch and has been used as a hunting base. Five dwellings were excavated and recorded.	No additional work needed.
GhGk-45	(Chevrier 1981)	High	Indigenous	Paleohistorical	Visual inspection and 19 test pits were done. Two test pits were positive. 273 flakes made of chert and four quartz flakes were found. Two stone tools made of chert were found, including an expedient projectile point with retouches on the margin. Three possible hearths were identified.	Avoid impact as much as possible. Survey with systematic test pits to delimit the site and evaluate its conservation state. Archaeological excavation if needed.
	(Badgley 1984)	High	Indigenous	Paleohistorical	Technological analysis of lithic artifacts.	None.
GhGk-47	(Chevrier 1978)	Low	Indigenous	Colonial	Site with four temporary dwellings occupied between 1880 and 1930.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-63	(Badgley 1987)	High	Indigenous	Paleohistorical	Visual inspection and seven test pits were done. All test pits were negative, but three subterranean houses, two tent rings and one cache were identified. Lithic artifacts were also found (31 lithic flakes and nine tools made of chert or rhyolite). The site is associated with the pre-Dorset period.	Avoidance and mitigation measures. Impact studies should be conducted before any development project takes place in the area.
	(Institut culturel Avataq 1991)	High	Indigenous	Paleohistorical	44.5 m^2 were excavated. A total of ten dwellings (three subterranean houses and seven tent rings) and four exterior features (two caches and two stone piles) were identified. 4,514 lithic artifacts were found, including 322 tools or tool fragments. A radiocarbon date of 2050 ± 100 BP was obtained. New data suggests an occupation during the Middle Dorset period.	Excavation and specialized analysis.
	(Institut culturel Avataq 1992c)	High	Indigenous	Paleohistorical	A total of 82.5 m^2 were excavated. 7,721 lithic artifacts were found, including 340 stone tools, 813 burnt bones and 16 charcoal samples. Two radiocarbon dates were obtained and confirmed the middle Dorset association.	Specialized analysis of lithic artifacts with scientific and public outreach.
	(Arkéos 1992)	High	Indigenous	Paleohistorical	Seven positive test pits out of a total of 62 were excavated near the areas investigated by Avataq. 29 lithic artifacts were found in the test pits and 148 were found on the surface. The site covers an area of more than 4,000 m^2.	Complete the excavation. Specialized analysis of lithic artifacts with scientific and public outreach.

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GhGk-66	(Laforte, Morneau, and Roy 1993)	High	Indigenous	Colonial	Burial site. Planks and stones were found in association with juvenile bones. Test pits were excavated nearby, but no artifact was found.	Avoid any type of development in the vicinity of the site. Contact concerned Indigenous communities and proceed with the reburial if needed.
GhGk-78	(Laforte, Morneau, and Roy 1993)	Moderate	Indigenous	Colonial	Site with a single oval feature made of stones, interpreted as a tent ring. A central hearth, more recent than the tent ring, was identified. Four test pits were excavated nearby but were negative.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-81	(Laforte, Morneau, and Roy 1993)	Moderate	Indigenous	Colonial	Site with a single feature made of stones, interpreted as a tent ring. A test pit was excavated nearby but was negative. A comprehensive plan of the feature was made.	Ethnographical inquiry with local stakeholders.
GhGk-82	(Laforte, Morneau, and Roy 1993)	Moderate	Indigenous	Colonial	Site with a single oval feature made of stones. A central hearth made of stone was located. A test pit was excavated nearby. Wood charcoal and burnt bones were found. A comprehensive plan of the feature was made.	Ethnographical inquiry with local stakeholders.
GhGk-83	Elsa Cencig (personal communication)	High	Indigenous and non-Indigenous	Colonial	Chance find during the execution of a construction project in Kuujjuarapik leading to the expertise by an archaeologist confirming that this is the old post of Great Whale.	To be confirmed upon receipt of the research report of Cencig.
GhGk-84	(Laforte and Denton 1990)	Moderate	Indigenous	Colonial	An oval feature interpreted as a tent ring was found during a visual inspection. An ethnographic inquiry with local stakeholder was completed.	None in the report. Archaeological survey with systematic test pits and visual inspection of the area.
	(Laforte, Morneau, and Roy 1993)	Moderate	Indigenous	Colonial	Four circular features, seven hearths and a pile of recent caribou bones were identified. A total of 4 test pits were done, but no artifact was found.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-87	(Arkéos 1991)	Moderate	Indigenous	Colonial	Identification of a modern site with a tent ring and a secondary feature. No comprehensive recording of the feature was done.	Visual inspection of the area and archaeological excavation if needed. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-88	(Laforte, Morneau, and Roy 1993)	Moderate	Indigenous	Colonial	Site with a single oval feature made of stones and wood stakes. Two test pits were excavated nearby but no artifact was found.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-89	(Arkéos 1992)	Low	Indigenous	Colonial	Site with five temporary dwellings (one circular, four elongated). A hearth, a stove and a refuse area were identified. Objects associated with domestic activities were found. Nearby trees had been cut down and wood stakes were found.	None in the report. No additional work needed.
GhGk-90	(Arkéos 1992)	Moderate	Indigenous	Colonial	Site associated with goose hunting and fall occupation. Six dwellings were identified (four circular and two elongated). Two hearths and two wood stoves were found. The site had been occupied at least twice, during the 1950s and the 1980s.	None in the report. No additional work needed.
GhGk-91	(Arkéos 1992)	Moderate	Indigenous	Colonial	Site with ten dwellings (six circular and four quadrangular tents). Five combustion areas were identified. Four secondary features, including two exterior hearths and two refuse areas were found. The site is associated with an Eeyouch occupation during summer and fall.	None in the report. No additional work needed.
GhGk-92	(Arkéos 1992)	Moderate	Indigenous	Colonial	Site with four circular dwellings and a refuse area. The site was probably occupied during the summer.	Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-93	(Arkéos 1992)	Moderate	Indigenous	Colonial	Site with four temporary dwellings (two circular, two elongated) and a refuse area. The site could have been occupied twice during the fall, during the 1960s and the 1980s.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GhGk-94	(Arkéos 1992)	High	Indigenous	Paleohistorical	912 lithic artifacts were found, including three scrapers, a notched projectile point base and 796 lithic flakes made of chert or quartzite.	None in the report. Comprehensive excavation of the site ahead of active site erosion.
	(Arkéos 1993)	High	Indigenous	Paleohistorical	28 lithic concentrations identified through visual inspection of the surface.	Avoid impact as much as possible. Survey with systematic test pits to define site layout and conservation state. Comprehensive recording of site features (plans and photographs). Archaeological excavation if needed.
GhGk-95	(Arkéos 1992)	Moderate	Indigenous	Colonial	19 dwellings and one secondary feature were found, including 11 circular dwellings, six elongated dwellings and two untyped dwellings. Most of the dwellings have a central hearth or wood stove stakes. The site could have been used occasionally during summer or fall on a period of 20 to 50 years.	No additional work needed

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GhGk-96	(Denton 1993)	High	Indigenous	Colonial	Site with a shaapuhtuwaan (elongated dwelling) with four hearths aligned along the central axis. 11 quartz flakes and ocher nodules were found. No colonial artifact was found. The site could date back to the 18th century or earlier.	Archaeological excavation
GiGi-01	(Chevrier 1978)	Low	Indigenous	Paleohistorical	Two lithic flakes (chert and quartz) out of context, in the archaeologists' material.	No additional work needed
GiGi-02	(Chevrier 1980)	High	Indigenous	Colonial	Site with a high density of recent temporary dwellings. At least thirty conical or rectangular dwellings were found. They would have been occupied between the 1950s and 1980s. A chert source is located nearby.	Avoid impact as much as possible. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
	(Arkéos 1991)	High	Indigenous	Colonial	A total of 27 tents, seven refuse areas, two exterior hearths, two skin racks and a radio communication station were identified.	None in the report. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-03	(Chevrier 1978)	Moderate	Indigenous	Colonial	Site with six temporary dwellings, occupied at different times between the end of the 19th century and the 1970s. Three are semi-spherical tents, two are spherical tents and one is rectangular.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-06	(Chevrier 1978)	Moderate	Indigenous	Colonial	Site with three temporary dwellings, occupied during the first half of the 20th century. Two dwellings are elliptical and the third one is oblong with outbuildings.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-08	(Arkéos 1993)	Moderate	Indigenous	Paleohistorical	A total of four positive test pits led to the discovery of 18 chert flakes and two bifacial fragments. The surface area of the site is estimated at 2,000 m^2. Dozens of flakes were also visible on the surface.	Archaeological excavation.
GiGi-09	(Chevrier 1978)	Low	Indigenous	Colonial	Site with six temporary dwellings occupied at different times between the first quarter of the 20th century and the 1970s. Three dwellings are circular tents and three are elliptical tents.	None in the report. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-11	(Chevrier 1978)	Moderate	Indigenous	Colonial	Site with two temporary dwellings occupied during the first half of the 20th century. The first one is a round tent and the second is elliptical.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-13	(Chevrier 1978)	Moderate	Indigenous	Colonial	Site with a high density of recent temporary dwellings of various forms (round, elliptical or rectangular). Dwellings dating back to the second half of the 19th century and the 1970s.	Avoid impact as much as possible. Survey with systematic test pits to define site layout and conservation state. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
	(Chevrier 1978)	Moderate	Indigenous	Colonial	Site with six round or elliptical tents, occupied between the 1930s and the 1970s.	Avoid impact as much as possible. Survey with systematic test pits to define site layout and conservation state. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-15	(Chevrier 1978)	Low	Indigenous	Colonial	Sites with a circular tent, occupied during the 1940s, during the cold season.	Avoid impact as much as possible. Survey with systematic test pits to define site layout and conservation state. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-16	(Institut culturel Avataq 1990)	Moderate	Indigenous	Colonial	Site with 10 temporary dwellings (circular or rectangular). The site could have been occupied between the second half of the 19th century and the 1970s, during the cold season.	Avoid impact as much as possible. Survey with systematic test pits to define site layout and conservation state. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGi-17	(Chevrier 1978)	Low	Indigenous	Colonial	Site with a single circular tent, occupied during the 1930s.	No additional work needed
GiGi-19	(Arkéos 1993)	Moderate	Indigenous	Paleohistorical	A total of 27 chert artifacts were found in two positive test pits and on the surface. The surface area of the site is estimated to be 150 m^2.	None in the report. Complete excavation.
GiGi-20	(Arkéos 1993)	Moderate	Indigenous	Paleohistorical	A total of 24 chert artifacts were found in four test pits. The surface area of the site is estimated to be 350 m^2.	None in the report. Complete excavation.
GiGi-21	(Arkéos 1993)	Moderate	Indigenous	Paleohistorical	A total of 25 chert artifacts were found in seven test pits. The surface area of the site is estimated to be 650 m^2. Dozens of flakes were also found on the surface.	None in the report. Complete excavation.
GiGj-04	(Chevrier 1980)	High	Indigenous	Colonial	Burial of a man named Tookaluk according to a local informant. The burial dates to the 1940s.	Avoid any type of development in the vicinity of the site. Contact concerned Indigenous communities and proceed with the reburial if needed.
GiGj-04	(Arkéos 1991)	High	Indigenous	Colonial	Confirmation of the identity of the deceased (Tookaluk) by informant Geannie Muloto.	Avoid any type of development in the vicinity of the site. Contact concerned indigenous communities and proceed with the reburial if needed.

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GiGj-05	(Chevrier 1980)	High	Indigenous	Paleohistorical	Site with a circular feature made of stones with a central depression. The feature is interpreted as a Pre-Dorset dwelling.	Avoid any type of development in the vicinity of the site. Comprehensive recording of site features (plans and photographs).
	(Arkéos 1991)	High	Indigenous	Paleohistorical	Complete excavation of the dwelling found in 1980 and identification of 16 additional features including four dwellings and 12 secondary features. A radiocarbon date of 2100 +- 90 BP was obtained. No artifact was found.	Additional mitigation including complete excavation of dwellings #2 and #3.
GiGj-06	(Chevrier 1980)	High	Indigenous	Paleohistorical	Site with a circular feature made of stones interpreted as a Pre-Dorset dwelling.	Avoid impact as much as possible. Survey with systematic test pits to define site layout and conservation state. Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.
GiGj-08	(Chevrier 1981)	Low	Indigenous	Paleohistorical	Two lithic flakes found during a surface inspection. A total of 24 test pits were excavated and all were negative.	No additional work needed.
	(Arkéos 1991)	Low	Indigenous	Paleohistorical	A total of 303 test pits were excavated and a visual inspection of the surface was done. No artifact was found.	No additional work needed.
GiGj-10	(Arkéos 1991)	High	Indigenous	Paleohistorical	Site with 12 dwellings and five temporary hunting blinds. A total of 20 chert flakes were found. The site belongs to either the Independance I phase or to the Early Pre-Dorset period. A datation between 4000 and 3600 BP is suggested.	Site excavation.
GiGj-11	(Arkéos 1991)	High	Indigenous	Paleohistorical and Historical	Site with two features (temporary hunting blind and cache) and possibly a tent location. A total of 29 grey chert flakes were found through a visual inspection.	Archaeological survey and visual inspection recommended for areas where flakes were found.
GiGj-12	(Arkéos 1991)	Moderate	Indigenous	Paleohistorical	Site with a single circular feature made of stones, with a central depression.	Site excavation.
	(Arkéos 1992)	Moderate	Indigenous	Paleohistorical	The excavation showed three layers of stones. The feature has a diameter of 5 m. No artifact was found, and no additional feature was identified.	No additional work needed.
GiGj-13	(Institut culturel Avataq 1992d)	Low	Indigenous	Paleohistorical	Three lithic flakes and a side scraper made from a flake, all made of fine-grained chert, were found during a visual inspection. It was impossible to excavate test pits.	No additional work needed.
GiGj-14	(Institut culturel Avataq 1992d)	Moderate	Indigenous	Paleohistorical	Circular depression interpreted as a dwelling. No artifact was found.	Site excavation.
GiGj-15	(Institut culturel Avataq 1992d)	Moderate	Indigenous	Paleohistorical	Site with three features made of stones, one possibly bilobate. The last feature is tentatively interpreted as a Paleoinuit dwelling.	Site excavation.
GiGk-01	(Chevrier 1981)	Moderate	Indigenous	Colonial	Site with a single collapsed tent with wood stove stakes.	Avoid impact as much as possible. Ethnographical inquiry with local stakeholders.
GjGh-03	(Institut culturel Avataq 1990)	Moderate	Indigenous	Colonial	Site with two features: an elliptical tent with a metal stove and a circular tent with a central hearth made of stones. The site is recent and could have been occupied at the end of the 1970s, during the winter, by a dozen people.	Avoid impact as much as possible. Ethnographical inquiry with local stakeholders.
	(Arkéos 1993)	Moderate	Indigenous	Colonial	The two features identified in 1981 were located, but no hearth or stove was found. Refuse from the second half of the 20th century, a utilized chert flake and chert nodules without any anthropic traces were found during a visual inspection of the site. Four test pits were excavated but were all negative.	Complete the survey of the site and of its vicinity. Ethnographical inquiry with local stakeholders.
GjGh-04	(Institut culturel Avataq 1990)	Low	Indigenous	Paleohistorical	Lithic artifacts were found on the surface on an area of 8 m^2. Three bifacial fragments and 15 lithic flakes (chert and quartz) were found. A total of 44 test pits were excavated and they were all negative.	No additional work needed
GjGh-05	(Institut culturel Avataq 1990)	Moderate	Indigenous	Paleohistorical	Site with a tent feature with a possible exterior hearth made of an alignment of stones. Five chert flakes and a possible scraper were found during a surface inspection. 31 test pits were excavated and were negative.	Salvage excavation on an area of 175 m^2.
GjGh-06	(Arkéos 1993)	Moderate	Indigenous	Paleohistorical and Colonial	Lithic artifacts were found on the surface, just under *cladonia*. A gun flint from the 17th or 18th century was also found. Four test pits were positive. The surface area of the site is estimated to be 350 m^2.	Site excavation.
GjGh-07	(Harp 1972)	Moderate	Indigenous	Colonial	Site with a temporary dwelling with a central hearth made of sand and stones. It is a modern Cree site, occupied during the first half of the 20th century.	Comprehensive recording of site features (plans and photographs). Ethnographical inquiry with local stakeholders.

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GjGi-05	(Institut culturel Avataq 1990)	High	Indigenous	Paleohistorical	Site with two distinct areas. A total of 113 artifacts were found on the surface and in three test pits, out of a total of 27. The first area is a concentration of lithic artifacts. The second area consists of a subrectangular dwelling, possibly Paleoinuit, with lithic artifacts. The surface area of the site is estimated to be 4,500 m^2. A total of 113 chert artifacts were collected. Of that total, 17 are stone tools, including two projectile point fragments.	Salvage excavation.

TECHNICAL NOTE 4 – ARCHAEOLOGY AND CULTURAL HERITAGE SURVEY

No	Corridor	Phase	Territory	Study Area
WHA02	+ 40 km	Phase II; Phase III	GW21	Kuujjuarapik- BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	HaGd-17, 19-24, 27-31, 33; HaGe-11-13, 16	28.7	High
Cultural Affiliation	Indigenous, Non-Indigenous	Period	Colonial, Paleohistory
		Chronology	Paleohistorical to mid-20th century
Characteristic Features	- Seven burial sites with at least 34 graves - Evidence of forced sedentarization of Inuit and end of nomadism in the mid-20th century (HaGe-11)		

Descriptive Summary

WHA02 includes 17 sites located at the mouth of Tasiujaq Lake (Guillaume-Delisle), on the shores of Hudson Bay. Eight sites have a high heritage value, seven have a moderate value and two, a low value. The importance of this area is mainly due to the high concentration of burials, on seven of the eight high heritage value sites. The only high-value site without burial, HaGe-11, offers a high concentration of diverse structures where 45 Inuit spent the winter in 1956, before being deported to Kuujjuarapik. Most of the remains known in the AHI are associated with the Inuit occupation in the 20th century. The sites' conservation state is very good since all are considered intact. Research remains cursory since only surveys were conducted. Sites without burials offer great opportunities for research and bringing forth characteristic elements of the AHI. The theme of forced sedentarization can also be an opportunity for sharing and healing for the local population within a thoughtful collaborative approach.

Recommendations

1) Protect all burial sites and keep any development project at a safe distance from them.
2) Avoid as much as possible impact on archaeological sites with moderate or high heritage value.
3) Mitigate the impact of the portions of the AHI that cannot be avoided, through potential archaeological studies, surveys, and archaeological excavations, integrating local stakeholders.
4) Plan compensatory measures in the event of a development project, including scientific publications and public outreach, dissemination of knowledge and maximum integration of local stakeholders.

Stakeholders	Informant	
Comments		

Table 6-8 WHA02 - Archaeological Sites

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
HaGd-17	(Institut culturel Avataq 2005)	Moderate	Indigenous	Colonial	Site with two temporary dwellings. One is a tent and the other is rectangular. Piles of stones and a cache were also identified.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
HaGd-19	(Institut culturel Avataq 2005)	Moderate	Indigenous	Colonial	Site with 15 dwellings, four geese hunting blinds, three caches and a wooden canoe.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
HaGd-20	(Institut culturel Avataq 2005)	Moderate	Indigenous	Colonial	Site with four temporary dwellings and a cache.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
HaGd-21	(Institut culturel Avataq 2005)	Moderate	Indigenous	Colonial	Site with three recent dwellings and five caches.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
HaGd-22	(Institut culturel Avataq 2005)	High	Indigenous	Colonial and paleohistorical	Site with a concentration of features, such as seven tent structures, several caches, a fox trap and four graves. A concentration of lithic flakes was also identified.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders. Contact concerned Indigenous communities and proceed with the reburial if needed.
HaGd-23	(Institut culturel Avataq 2005)	High	Indigenous	Colonial	Site with a concentration of seven graves. One is eroded and remains were visible on the surface.	None in the report. Contact the concerned Indigenous communities and proceed with the reburial if needed.
HaGd-24	(Institut culturel Avataq 2005)	Moderate	Indigenous	Paleohistorical and colonial	Site with six Inuit dwellings of the colonial period. Refuse areas with lithic flakes visible on the surface in association with European objects.	None in the report. Archaeological survey to assess the state of preservation. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders. Contact the concerned Indigenous communities and proceed with the reburial procedures if needed. Site excavation if needed.
HaGd-27	(Institut culturel Avataq 2005)	High	Indigenous	Colonial	Site with three graves.	None in the report. Contact the concerned Indigenous communities and proceed with the reburial if needed.
HaGd-28	(Institut culturel Avataq 2005)	Moderate	Indigenous	Paleohistorical	Presence of lithic flakes and stones that could have belonged to an unidentified feature. A secondary deposit of chert was identified.	None in the report. Archaeological survey to assess the state of preservation. Site excavation if needed.
HaGd-29	(Institut culturel Avataq 2005)	Low	Indigenous	Colonial	Site with a depression interpreted as foundations of a wooden house. A metal container from the 1950s was also found.	None in the report. Archaeological survey to confirm the presence of archaeological fabric still present. Site excavation if needed. Comprehensive recording of the feature (plans and photographs).
HaGd-30	(Institut culturel Avataq 2005)	Moderate	Indigenous	Colonial and paleohistorical	A scraper and more than a hundred chert flakes were collected in test pits.	None in the report. Archaeological survey to confirm the presence of archaeological fabric still present. Site excavation if needed. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.
	(Institut culturel Avataq 2010)	Moderate	Indigenous	Colonial and paleohistorical	A single tent structure and lithic flakes found on the surface.	None in the report. Archaeological survey to confirm the presence of archaeological fabric still present. Site excavation if needed.
HaGd-31	(Institut culturel Avataq 2005)	Low	Indigenous	Paleohistorical	Lithic flakes found on the surface.	None in the report. Archaeological survey to confirm the presence of archaeological fabric still present. Site excavation if needed.
HaGd-33	(Institut culturel Avataq 2005)	High	Indigenous	Colonial	Site with an Eeyouch grave from the second half of the 20th century.	None in the report. Contact the concerned Indigenous communities and proceed with the reburial if needed.
HaGe-11	(Institut culturel Avataq 2005)	High	Indigenous	Colonial	Concentration of tent features with objects from the 1950s, including a kayak. The site is a small village. The informant for the stydy was Williw Kumarluk. It is the location where 45 people spent winter in 1956.	None in the report. Comprehensive recording of the features (plans and photographs). Ethnographical inquiry with local stakeholders.

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
HaGe-12	(Institut culturel Avataq 2005)	High	Indigenous	Colonial	A wooden bowl was found.	None in the report. Avoid all impact in the vicinity of the site. Monitor the conservation of the site with the collaboration of local Indigenous communities. Comprehensive recording of the features (plans and photographs). Contact the concerned indigenous communities and proceed with the reburial if needed.
	(Institut culturel Avataq 2010)	High	Indigenous	Colonial	Site with seven tent rings, four caches and one funerary feature. Objects found suggest two occupations: a recent occupation from the 1950s and an early one from the colonial period.	None in the report. Avoid all impact in the vicinity of the site. Monitor the conservation of the site with the collaboration of local Indigenous communities. Comprehensive recording of the features (plans and photographs). Contact the concerned indigenous communities and proceed with the reburial if needed.
HaGe-13	(Institut culturel Avataq 2005)	High	Indigenous	Colonial	Site with 11 graves and two caches. One of the graves belongs to the stillborn child of Sepora, wife of Willie Kumarluk.	None in the report. Avoid all impact in the vicinity of the site. Monitor the conservation of the site with the collaboration of local Indigenous communities. Comprehensive recording of the features (plans and photographs). Contact the concerned indigenous communities and proceed with the reburial if needed.
HaGe-16	(Institut culturel Avataq 2005)	High	Indigenous	Colonial	Site with seven graves, 12 caches and three sleeping areas.	None in the report. Avoid all impact in the vicinity of the site. Monitor the conservation of the site with the collaboration of local Indigenous communities. Comprehensive recording of the features (plans and photographs). Contact the concerned indigenous communities and proceed with the reburial if needed.

TECHNICAL NOTE 4 – ARCHAEOLOGY AND CULTURAL HERITAGE SURVEY

No	Corridor	Phase	Territory	Study Area
WHA03	+ 40 km	Phase II; Phase III	GW21	Kuujjuarapik- BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	GlGe3, 8-9; HaGe1, 3, 21	6.7	Moderate
Cultural Affiliation	Indigenous, Non-Indigenous	Period	Colonial, Paleohistorical, Unknown
		Chronology	Unknown, 18th-19th centuries
Characteristic Features	- Inuit, Eeyouch and non-Indigenous cohabitation during the early colonial era -Fur trade, copper mining and exploitation of marine mammals - Little Whale River Post and ship wintering site (1749-1759, 1787-ca 1819, ca 1851-1880, 1882-1890)		

Descriptive Summary

WHA03 includes six archaeological sites. Three sites have a high heritage value, two have a moderate value and one has a low value. They are mainly associated with the colonial era when the Hudson's Bay Company (HBC) maintained intermittent activity at the Little Whale River post for almost 150 years, from the mid-18th century to the late 19th century. The post participated in fur trade and other activities uncommon for HBC posts such as ship overwintering and copper mining. Conservation state of all sites is very good, but research is limited since only visual inspection and occasional surveys were conducted. Characteristic elements of the AHI are related to non-Indigenous commercial activities, involvement of Indigenous groups in those commercial activities and its effect on Indigenous lifeways.

Recommendations

1) Avoid as much as possible impact on archaeological sites with moderate or high heritage value.
2) Mitigate the impact on the portions of the AHI that cannot be avoided, through potential archaeological studies, surveys, and archaeological excavations, integrating local stakeholders.
3) Plan compensatory measures in the event of a development project, including scientific publications and public outreach, dissemination of knowledge and maximum integration of local stakeholders.

Stakeholders	Informant	
Comments		

Table 6-9 WHA03 - Archaeological Sites

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GlGe-03	(Harp 1972)	Unknown	Indigenous	Unknown	Site not described.	None in the report. Conduct a survey to locate the site and verify its condition. If needed, comprehensive recording of features (plans and photographs) and ethnographical inquiry with local stakeholders.
GlGe-08	(Marcoux and Roy 2008)	High	Indigenous and non-indigenous	Paleohistorical and Colonial	Site with two distinct areas. At the first, Indigenous and non-Indigenous presence from the colonial period is observed.76 dwellings were recorded, including Eeyouch mitshuaap and Inuit tupiks. One feature is rectangular and could be non-Indigenous. The material culture suggests presence during the colonial period. The second area is a paleohistorical occupation. 75 lithic flakes were found on the ground surface.	Conduct survey to delineate site boundaries and assess preservation state. Comprehensive recording of features (plans and photographs) and ethnographical inquiry with local stakeholders.
GlGe-09	(C. Roy 2008)	High	Non-indigenous	Colonial	Little Whale River trade post of the HBC. Surface inspection brought some archaeological evidence, including an iron projectile point. Metal try-pots that would have been used to store whale oil were also found.	None in the report. Archaeological survey and visual inspection. Comprehensive recording of features (plans and photographs) and ethnographical inquiry with local stakeholders.
HaGe-01	(Marcoux and Roy 2008)	High	Indigenous and non-indigenous	Paleohistorical and Colonial	Site with eight to ten temporary dwellings, one of which was excavated. Excavation of the feature led to the discovery of several lithic flakes, gun flints, and trade items.	None in the report. Complete the archaeological survey and excavate the remaining features. Comprehensive recording of features (plans and photographs) and ethnographical inquiry with local stakeholders.
	(Harp 1967)	High	Indigenous and non-indigenous	Paleohistorical and Colonial	Site with three areas. The first is a concentration of 55 Cree and non-indigenous dwellings from the colonial period. The second is an area where lithic flakes and burnt bones were found. The third includes a hearth where 10 lithic flakes were found on the surface.	None in the report. Complete the archaeological survey and excavate the remaining features. Comprehensive recording of features (plans and photographs) and ethnographical inquiry with local stakeholders.
HaGe-21	Marcoux and Roy 2008)	Moderate	Indigenous	Paleohistorical	Site with two concentrations of lithic flakes (n=23) found near erratic blocks of raw material. One whale bone was also found.	Complete the archaeological survey with additional test pits and visual inspection.
HaGe-03	(Harp 1967)	Moderate	Indigenous	Colonial	Site with several tent rings. Possibly a seal hunting and fishing camp.	None in the report. Complete the archaeological survey and excavate the remaining features. Comprehensive recording of features (plans and photographs) and ethnographical inquiry with local stakeholders.

No	Corridor	Phase	Territory	Study Area
WHA04	+ 40 km	Phase II; Phase III	GW21	Kuujjuarapik- BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	GkGf-1	0.1	Moderate
Cultural Affiliation	Indigenous	Period	Colonial
		Chronology	Unknown
Characteristic Features	- Burial site (human grave)		

Descriptive Summary

WHA04 encompasses a small point of land at the mouth of the Second River in Hudson Bay. Two funerary cairns were located during a visual inspection in 1967. Four recent dwellings were also found nearby. Conservation is probably good but may have changed since 1967. Other archaeological remains may be present on the rest of the point.

Recommendations

1) Protect the burial site and keep any development project at a safe distance from it.
2) Avoid as much as possible impact on the archaeological site.
3) Reinspect the whole point of land to verify the conservation state and update recommendations accordingly.

Stakeholders	Informant	
Comments		

Table 6-10 WHA04 AHI - Archaeological Site

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GkGf-01	(Harp 1967)	High	Indigenous	Colonial	Site with four recent dwellings and two funerary cairns.	None in the report. Avoid as much as possible and keep all work to a safe distance from the funerary site. In case of impact, mitigate with the collaboration of the concerned Indigenous communities. Comprehensive recording of the dwelling features (plans and photographs). Ethnographical inquiry with local stakeholders.

No	Corridor	Phase	Territory	Study Area
WHA05	+ 40 km	Phase II; Phase III	GW21	Kuujjuarapik- BD Hwy.

AHI Overview		Area (km2)	Priority
Site Included	GlGf-1	0.1	Moderate
Cultural Affiliation	Indigenous	Period	Paleohistorical
		Chronology	Possibly Archaic
Characteristic Features	- Indigenous occupation during the Archaic		

Descriptive Summary

WHA05 corresponds to a single site for which we have little information, but research and outreach potential could be very high. The site consists of stone artifacts with two clusters of granite pebbles, where a heated stone hearth was recorded. This information comes from the work of Harp who conducted a visual inspection in the area in 1967. If the occupation turns out to be as old as he suggested, then the site would be rare evidence of the first occupations of the area by Eeyouch ancestors.

Recommendations

1) Avoid as much as possible impact on the archaeological site until it is better understood.
2) Conduct an archaeological survey with test pits spaced by a maximum of 10 m to delimit the site and artifact concentrations, as well as the nature of the site and its chronology.
3) Include as much as possible local stakeholders in eventual research projects.
4) Update the recommendations for this AHI in the light of data gathered during surveys.

Stakeholders	Informant	
Comments		

Table 6-11 WHA05 - Archaeological Site

BORDEN CODE	INTERVENTION (SOURCE)	HERITAGE VALUE	CULTURAL AFFILIATION	PERIOD	RESULT	RECOMMENDATION
GlGf-01	(Harp 1967)	High	Indigenous	Paleohistorical	Site consisting of two piles of granite pebbles where a hearth with fire-cracked rocks was found. Lithic flakes, mostly made of banded chert, were collected. A biface, two scrapers, and flakes are part of the assemblage. The site is believed to be from the Archaic period.	None in the report. Survey with systematic test pits to evaluate the site's limits, layout, and conservation state. Excavation and specialized analysis may be necessary.

7 ARCHAEOLOGICAL POTENTIAL

The narrow study area of the feasibility study (Figure 1-1), covering a total surface area of 623.87 km^2, was analyzed by a combination of remote sensing, archival sources and on-site validation. On a total of 1,422 zones, 218 were considered high potential and 550 moderate, totaling 36,91 km^2 or 5.92 % of the study area with recommended mitigation. The remaining zones are low or nil potential and no mitigation is recommended for them. The list of all zones of archaeological potential is provided in the technical file and shown on the maps of appendix A.

From a general perspective, the narrow study area bears considerable interest regarding Indigenous occupation, with the Eeyouch and their ancestors living throughout the study area, and the Inuit and Paleo-Inuit living at the northern end. Traces of their presence may concentrate along main rivers and lakes, close to travelling routes and resources that could sustain their way of life, such as game, fish, plants, minerals and stones. The northern extremity of the study area is encompassed by the WHA01 Area of Heritage Interest (AHI), defined in the previous chapter. This AHI is particularly sensitive for its archaeological and heritage, encompasses 40 archaeological potential zones, and should be the object of greater efforts regarding avoidance, mitigation and compensation strategies.

Available historical data has shown nil to low potential for non-Indigenous occupation, except for the northern portion of the narrow study area, around Great Whale River. Starting in the early 1800s, the Hudson Bay Company (HBC) operated posts at multiple locations along the Hudson Bay coast, and around 1880, operations were centralized at the site of modern Kuujjuarapik. Documentation shows that non-Indigenous employees of the posts, as well as Eeyouch, occupied and exploited the south side of Great Whale River, all the way to Qurlutuq falls. A portage also ran along the south side of the Qurlutuq falls (Delwaide and Filion 1987). Traces of non-Indigenous activity may thus be found in this general area.

8 CONSTRAINTS, LIMITATIONS AND RECOMMENDATIONS

This technical Note 4 covered both prefeasibility and feasibility studies of La Grande Alliance, phases II and III. The former provided an assessment of the heritage sites component of proposed transportation corridors located in the three study areas, namely the Billy-Diamond Highway Railway – Rupert – La Grande (SA1), Road & Rail Extension, and Harbour – La Grande – Whapmagoostui/Kuujjuarapi (SA2), and Route 167 - Renard Mine – Trans-Taiga Road (SA3). The latter assessed the archaeological potential and the risk of impact over the archaeological heritage of a proposed road corridor connecting La Grande to Whapmagoostui//Kuujjuarapik, within SA2. Both prefeasibility and feasibility stages aimed at providing information for the preventive management of heritage sites when planning future steps of La Grande Alliance.

8.1 SUMMARY RESULTS AND RISK OF IMPACT

The synthesis about the heritage sites of Eeyou Istchee and adjacent areas, provided at the prefeasibility stage, offered a general overview of the known resources and the historical contexts in which they are rooted. A total of 221 sites have been recorded within the study area and its four corridors. All known sites are located on land, but maritime and underwater sites may also be present in coastal, riverine and lacustrine environments. This resource can be described very succinctly as highly valuable, but poorly investigated.

AHIs highlight the most sensitive areas of Eeyou Istchee under study, where proposed infrastructures present a higher risk of impact over heritage places. Ten have been identified throughout the area under study. They concentrate near Whapmagoostui and inland from Wemindji. Most AHIs near Whapmagoostui also hold human burials, which are the most sensitive of all cultural sites. However, the breath of research is uneven across this vast territory. Research thus remains insufficient to accurately define the limits of the sensitive areas and more accurate data may help propose more specific recommendations.

Also, absence of sites or of AHIs in parts of the study area may not necessarily mean that it has low or no heritage value. This apparent void may simply be consequent to a lack of data. That is particularly striking in the marine and estuarine environments of the Hudson Bay coast, where traffic may have been notable during the fur trade era. Additional research may thus help refine current AHIs, as well as defining other sites and AHIs across the study area. Such effort will especially be important over impacted areas of La Grande Alliance, to accurately assess the risk of impact and propose specific avoidance, mitigation, and compensation strategies. We therefore strongly recommend continuing this work in future phases to inventory in a more exhaustive manner to avoid excluding any sites that may have been missed at this stage of the work.

The feasibility study identified 1,422 zones of archaeological potential. Most of the area has nil to low potential, due to extensive disturbances, other unfavourable attributes, or few favourable attributes. The rest comprises 550 zones with moderate and 218 with high archaeological potential. These zones are sensitive because they could hold traces of past Indigenous occupation, including the Inuit, Paleo-Inuit, Eeyouch and their ancestors. Several dozens of these zones are also located within the WHA01 AHI, at the northern end of the study area, near Whapmaagoostui-Kuujjuarapik and Great Whale River. Traces of non-Indigenous activity may also be found in this northernmost portion of the study area due to the proximity of a former Hudson's Bay Company trade post. In context of road construction, any kind of ground-level work or site layout within a moderate of high potential zone is at risk of impacting heritage sites. This is because most sites lay at very low depth into the ground and are thus vulnerable to any kind of site layout, even the most surficial. Recommendations specific to each zone of archaeological potential are provided in the list of zones in the technical file.

8.2 DATA LIMITATIONS, ORGANIZATION AND CONSOLIDATION

Future stages of the proposed infrastructures development may include further work to highlight additional information regarding inventoried sites of the study area. This work should provide authorities and project proponents with a more complete archaeological database, including valued sites within the 40 km corridor. Distinguishing Inuit/paleo Inuit from First-Nation sites was not always possible due to limited data. Any site survey or excavation should attempt to provide this distinction if data becomes sufficient to allow such an exercise.

Although no marine heritage site was identified, the Great Whale and Little Whale estuaries stand out for their interest regarding potential marine heritage. Any proposed infrastructure within their vicinity will require further investigation in the future. Engagement of local community members and authorities is strongly recommended as part of such an exercise.

8.3 AVOIDANCE AND MITIGATION

The following elements will help generate quality archaeological potential studies and field surveys, which will be necessary for developing reliable avoidance and mitigation strategies:

1. State-of-the-art methodologies integrating recent and past research in Eeyou Istchee, integrating both land and underwater environments. An example of methodology for both potential study and field survey has been provided to the client.
2. Specialized analyses of material culture, animal bones, soil samples or charcoal samples.
3. Complementary ethnographic interviews with land users documenting all locations with potential heritage value and events, including field visits.
4. Archival research focused on potential land and underwater sites, notably trade posts journals.
5. High definition and recent Lidar and satellite imagery currently partially available for the study area.
6. Remote sensing, including sidescan, multibeam sonar, and possibly magnetometer, in impacted underwater areas with higher potential (e.g., Little Whale River and Great Whale River estuaries and the coast in their vicinity).
7. On-site validation of selected zones of archaeological potential, including land and underwater locations.

Avoidance should be considered for sites with moderate or high heritage value. If this is not possible, excavation may be required. When relevant, the following should also be considered to help interpret the excavated sites and guide the next phases of the proposed infrastructure development.

1. Paleoenvironmental site reconstruction through, chiefly, geomorphology, palynology, dendrochronology and/or macro vegetal remains.
2. On-site ethnographic interviews with their occupants and/or descendants exploring themes of specific interest for each site.
3. Laboratory interviews with the occupants and artifacts exploring themes connected to recent material culture (e.g., technology, autonomy, skills, learning, wellbeing).
4. Archival research about the historical context of the excavated sites (e.g., fur trade, cohabitation with other cultural groups, experience of colonialism and forced sedentarization).
5. Specialized analyses of material culture, animal bones, soil samples, charcoal samples, etc.

WHA01 is most sensitive to development considering that it has rich archaeological heritage and potential. Impact could be established if the road itself or any other associated infrastructure would crosscut moderate or high potential zones. It is consequently recommended that zones of moderate and high archaeological potential within WHA-01 be

avoided. If avoidance is not possible, impacted zones of this AHI should be the object of further mitigation. In these situations, mitigation should begin with an archaeological survey, entailing visual inspection and test pits, with spacing of no more than 10 m, and 5 to 3 m in the vicinity of archaeological sites (<100 m). This methodology will provide data required to properly assess site presence, concentrations and peripheral limits. It will also help determining if further mitigation is necessary. The scale of the effort required for further mitigation could also be established in the process.

Outside WHA01, zones with moderate and high archaeological potential should also be the object of further mitigation if the planned road should have an impact. In this case, an archaeological survey with visual inspection and test pits is recommended. Spacing between test pits should ideally be the same as within WHA01.

On zones of low to nil potential, impact risk on the archaeological heritage is considered insufficient to recommend any further mitigation. However, an archaeologist should be consulted if the planned road and associated infrastructure should deviate outside of the study area.

8.4 COMPENSATION

Compensation should be considered for impacted sites with higher heritage value, but also outside of impacted areas, beyond the 40 km corridor and Areas of Heritage Interest, where places of significant heritage value may already be identified. These measures are expected to help generate support towards La Grande Alliance and possibly facilitate acceptability for other aspects of the proposed infrastructure by responding to local needs.

1. Select and design specific compensation measures with community stakeholders.
2. Develop an integrated strategy of community mobilization with other disciplines involved in La Grande Alliance, for the design and execution of mitigation work.
3. Favour in-community expenditures such as hiring local workers and rent locally available equipment.
4. Burial site monitoring and stabilization of areas at risk.
5. Commemoration at burial sites (e.g., ceremony and commemorative plaque).
6. Outreach, promotion, and development of heritage sites supporting the culture, health, economy and tourism of concerned communities (e.g., outreach activities promoting community bonds, healing and shared history, exhibitions, tourist circuits and excursions, interpretation panels, as well as research and publications supporting local development).

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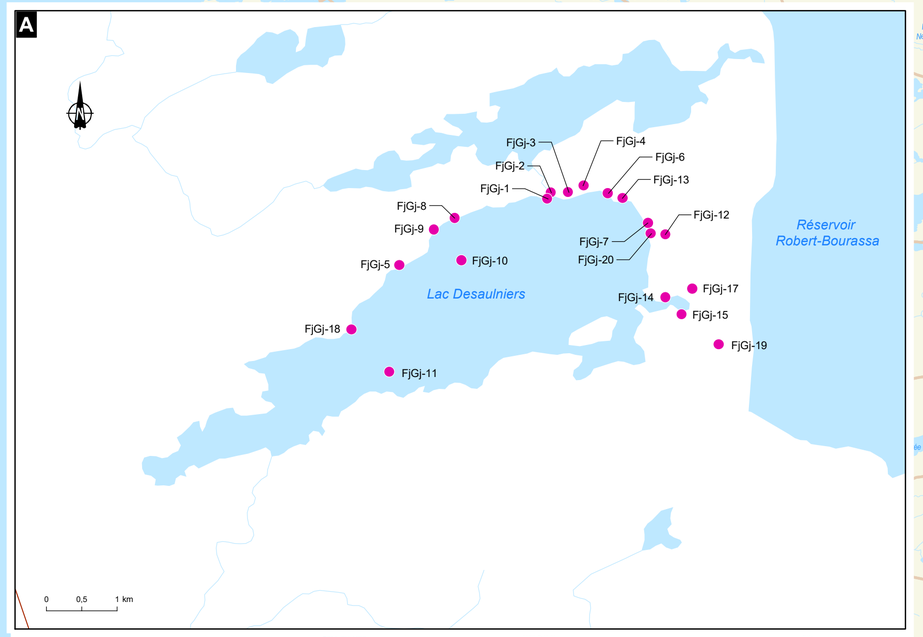
APPENDIX

A MAPS



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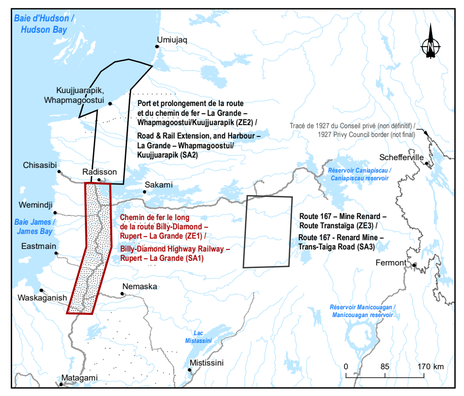

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 4 - ZE1 Portrait des sites archéologiques et patrimoniaux – Affiliation culturelle

Map 4 - SA1 Overview of Archaeological and Heritage Sites – Cultural Affiliation

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
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Approbation / Approved by : F. Guindon
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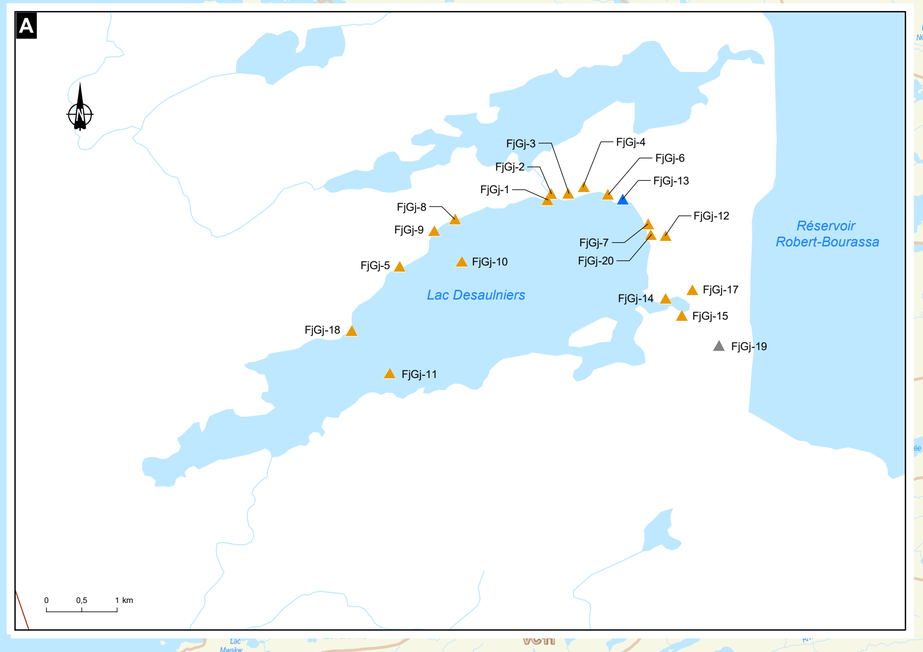

État / Preservation State

GhGk-89 — Numéro du site (code Borden) / Site number (Borden code)

- Intact / Intact
- Bon / Good
- Inondé / Inundated
- Partiellement détruit / Partially damaged
- Détruit / Damaged

Limites / Limits

- RE02 — Terrain de piégeage / Trapline
- Corridor de 40 kilomètres / 40 kilometer corridor
- Zone d'étude / Study area

Infrastructure / Infrastructure

- B-610 — Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 5 - ZE1 Portrait des sites archéologiques et patrimoniaux – État des sites

Map 5 - SA1 Overview of Archaeological and Heritage Sites – Site Preservation State

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

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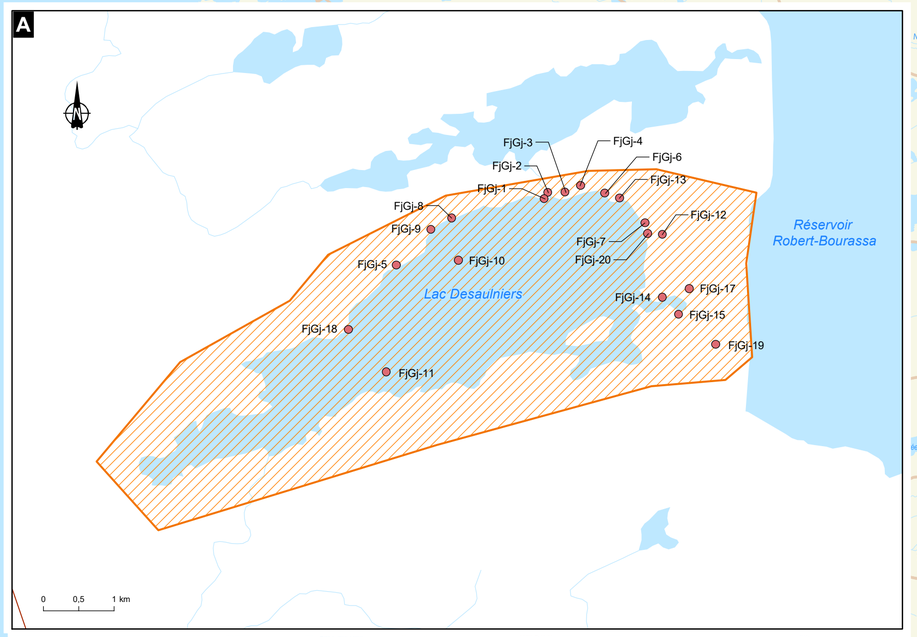

Site archéologique

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

Zone d'intérêt patrimonial / Area of archaeological heritage

WHA01 Nom de la zone d'intérêt patrimonial / Name of the area of heritage interest

Limites / Limits

RE02 Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-610 Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

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LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 6 - ZE1 Portrait des sites archéologiques et patrimoniaux – Zones d'intérêt patrimonial

Map 6 - SA1 Overview of Archaeological and Heritage Sites – Areas of Heritage Interest

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

Février / February 2023

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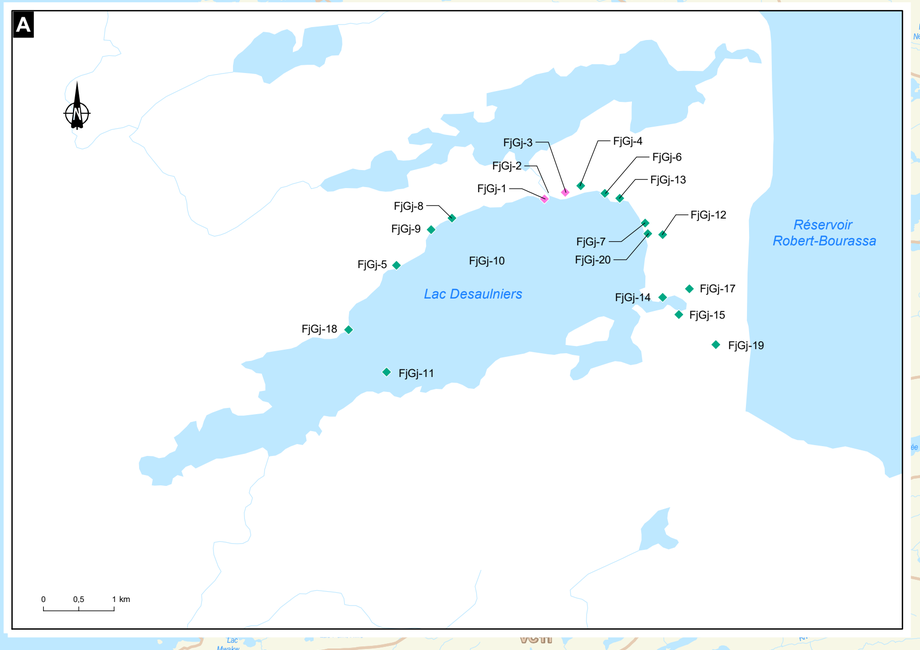

Périodes / Periods

GhGk-89 — Numéro du site (code Borden) / Site number (Borden code)

Coloniale / Colonial

Paléohistorique / Paleohistorical

Limites / Limits

RE02 — Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-610 — Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux / Technical Note 4 / Archaeological and Heritage Sites

Carte 7 - ZE1 Portrait des sites archéologiques et patrimoniaux – Périodes

Map 7 - SA1 Overview of Archaeological and Heritage Sites – Periods

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

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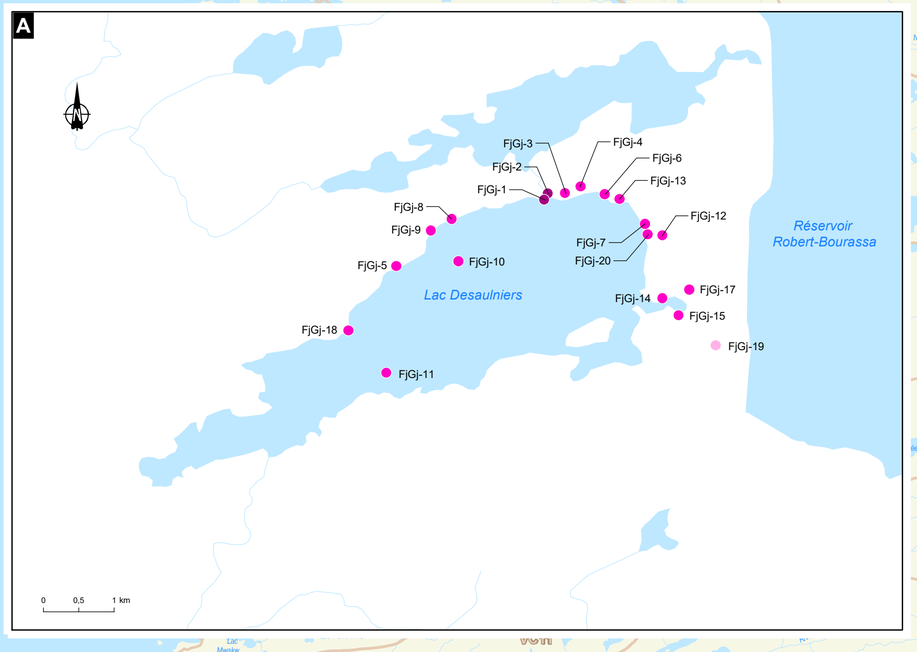

Valeur / Heritage

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

Fort / Hign

Moyen / Moderate

Faible / Low

Limites / Limits

RE02 Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-610 Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 8 - ZE1 Portrait des sites archéologiques et patrimoniaux – Valeur patrimoniale

Map 8 - SA1 Overview of Archaeological and Heritage Sites – Heritage Value

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

Février / February 2023

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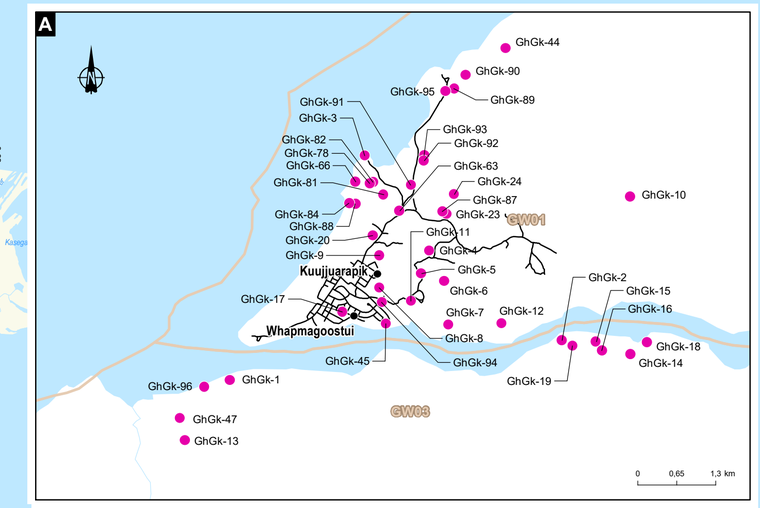

Occupations / Occupations

GhGk-89 — Numéro du site (code Borden) / Site number (Borden code)

- Autochtone / Indigenous People
- Allochtone / Non-Indigenous People
- Autochtone et allochtone / Indigenous People and Non-Indigenous People

Limites / Limits

RE02 — Terrain de piégeage / Trapline

- Corridor de 40 kilomètres / 40 kilometer corridor
- Zone d'étude / Study area

Infrastructure / Infrastructure

B-610 — Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 9 - ZE2 Portrait des sites archéologiques et patrimoniaux – Affiliation culturelle

Map 9 - SA2 Overview of Archaeological and Heritage Sites – Cultural Affiliation

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,25 6,5 9,75 km
Lambert, NAD83

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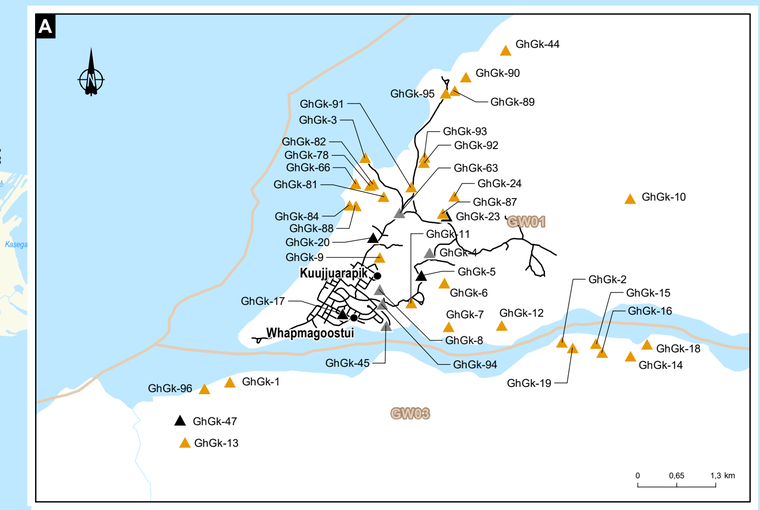

État / Preservation State

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

- Intact / Intact
- Bon / Good
- Inondé / Inundated
- Partiellement détruit / Partially damaged
- Détruit / Damaged

Limites / Limits

- RE02 Terrain de piégeage / Trapline
- Corridor de 40 kilomètres / 40 kilometer corridor
- Zone d'étude / Study area

Infrastructure / Infrastructure

- B-610 Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 10 - ZE2 Portrait des sites archéologiques et patrimoniaux – État des sites

Map 10 - SA2 Overview of Archaeological and Heritage Sites – Site Preservation State

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,25 6,5 9,75 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
Dessin / Drawn by : D. Gagné
Approbation / Approved by : F. Guindon
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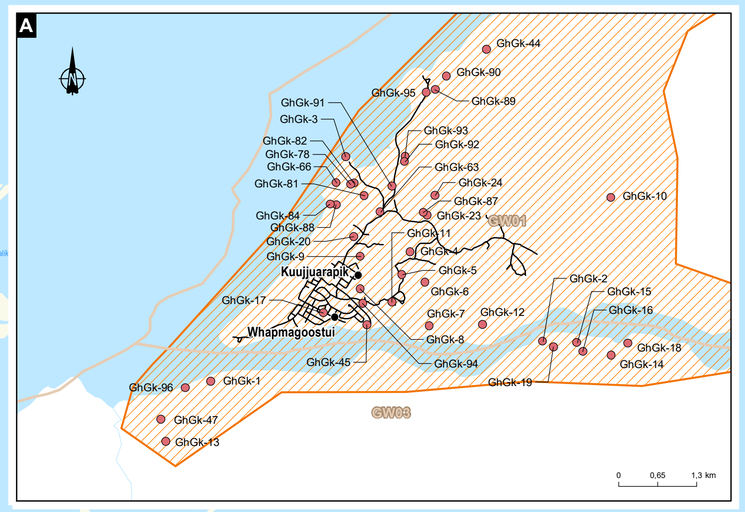

Site archéologique

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

Zone d'intérêt patrimonial / Area of archaeological heritage

WHA02 Nom de la zone d'intérêt patrimonial / Name of the area of heritage interest

Limites / Limits

RE02 Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-610 Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 11 - ZE2 Portrait des sites archéologiques et patrimoniaux – Zones d'intérêt patrimonial

Map 11 - SA2 Overview of Archaeological and Heritage Sites – Areas of Heritage Interest

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,25 6,5 9,75 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
Dessin / Drawn by : D. Gagné
Approbation / Approved by : F. Guindon
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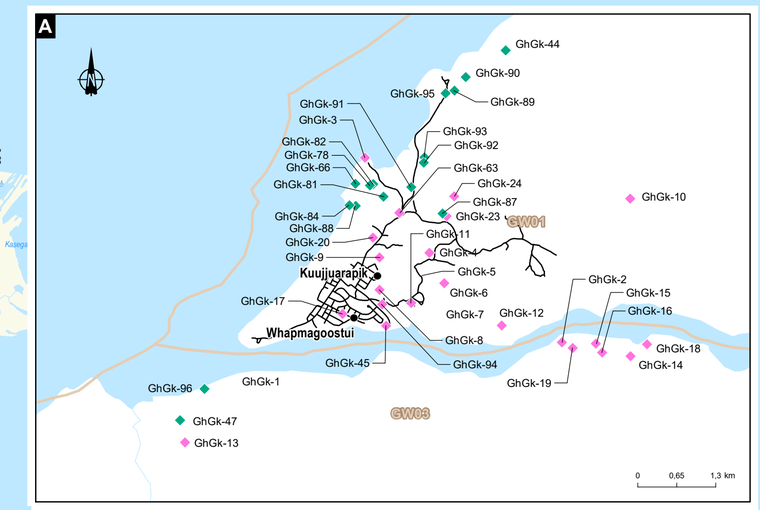

Périodes / Periods

GhGk-89 — Numéro du site (code Borden) / Site number (Borden code)

Coloniale / Colonial

Paléohistorique / Paleohistoric

Limites / Limits

RE02 — Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-610 — Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

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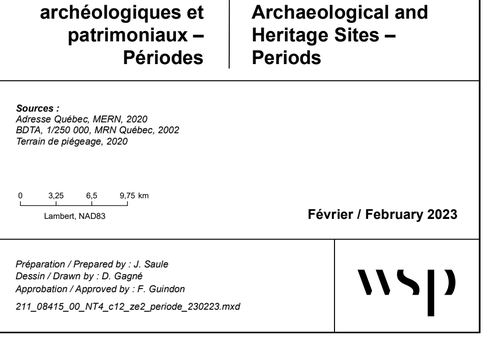

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 12 - ZE2 Portrait des sites archéologiques et patrimoniaux – Périodes

Map 12 - SA2 Overview of Archaeological and Heritage Sites – Periods

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,25 6,5 9,75 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
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Approbation / Approved by : F. Guindon
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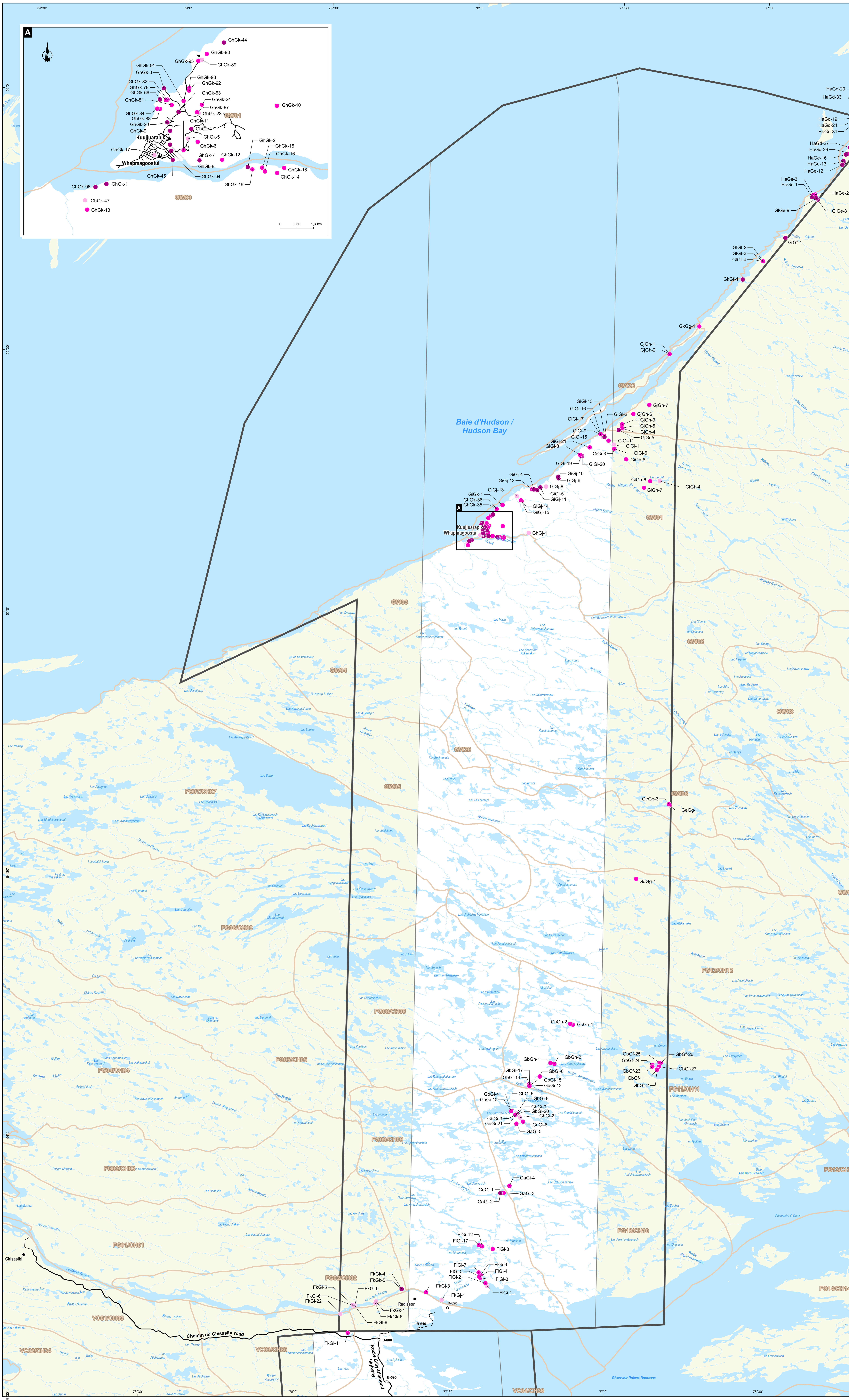

Valeur / Heritage

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

- Fort / High
- Moyen / Moderate
- Faible / Low

Limites / Limits

- RE02 Terrain de piégeage / Trapline
- Corridor de 40 kilomètres / 40 kilometer corridor
- Zone d'étude / Study area

Infrastructure / Infrastructure

- B-610 Route Billy-Diamond et borne kilométrique / Billy-Diamond highway and kilometre point

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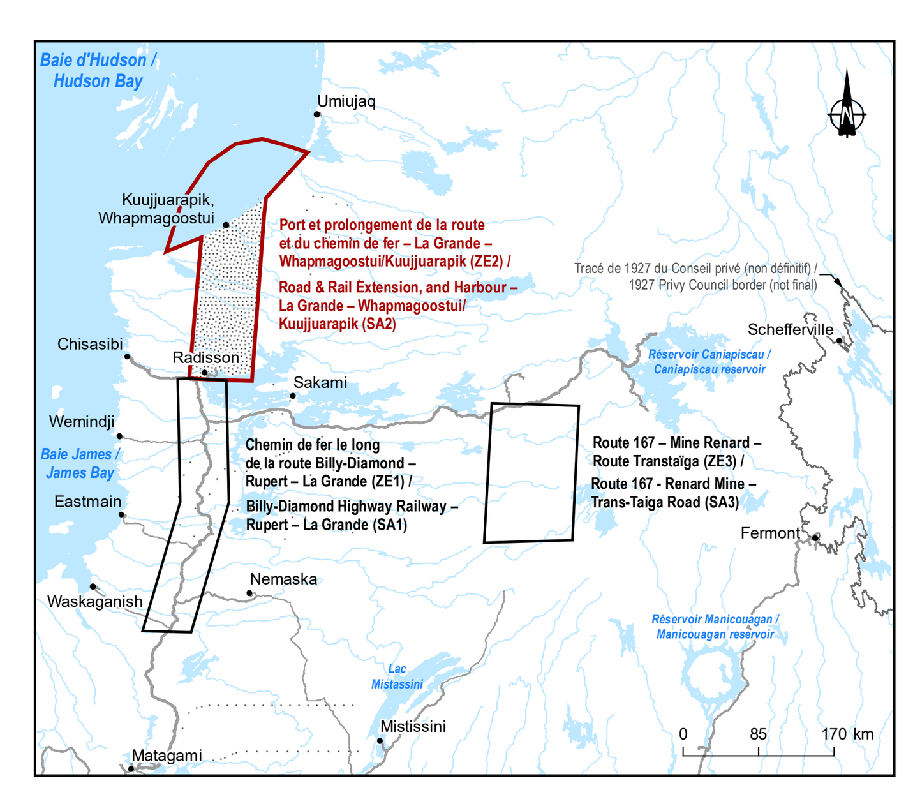

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux
Technical Note 4 / Archaeological and Heritage Sites

Carte 13 - ZE2 Portrait des sites archéologiques et patrimoniaux – Valeur patrimoniale

Map 13 - SA2 Overview of Archaeological and Heritage Sites – Heritage Value

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,25 6,5 9,75 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
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Approbation / Approved by : F. Guindon
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Occupations / Occupations

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

Autochtone / Indigenous People

Allochtone / Non-Indigenous People

Autochtone et allochtone / Indigenous People and Non-Indigenous People

Limites / Limits

RE02 Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-400 Route Transtaïga et borne kilométrique / Trans-Taiga road and kilometre point

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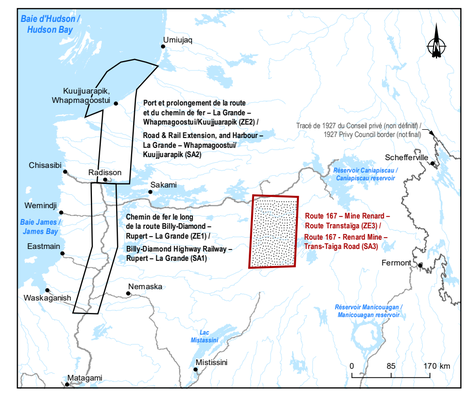

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 14 - ZE3 Portrait des sites archéologiques et patrimoniaux – Affiliation culturelle

Map 14 - SA3 Overview of Archaeological and Heritage Sites – Cultural Affiliation

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
Dessin / Drawn by : D. Gagné
Approbation / Approved by : F. Guindon
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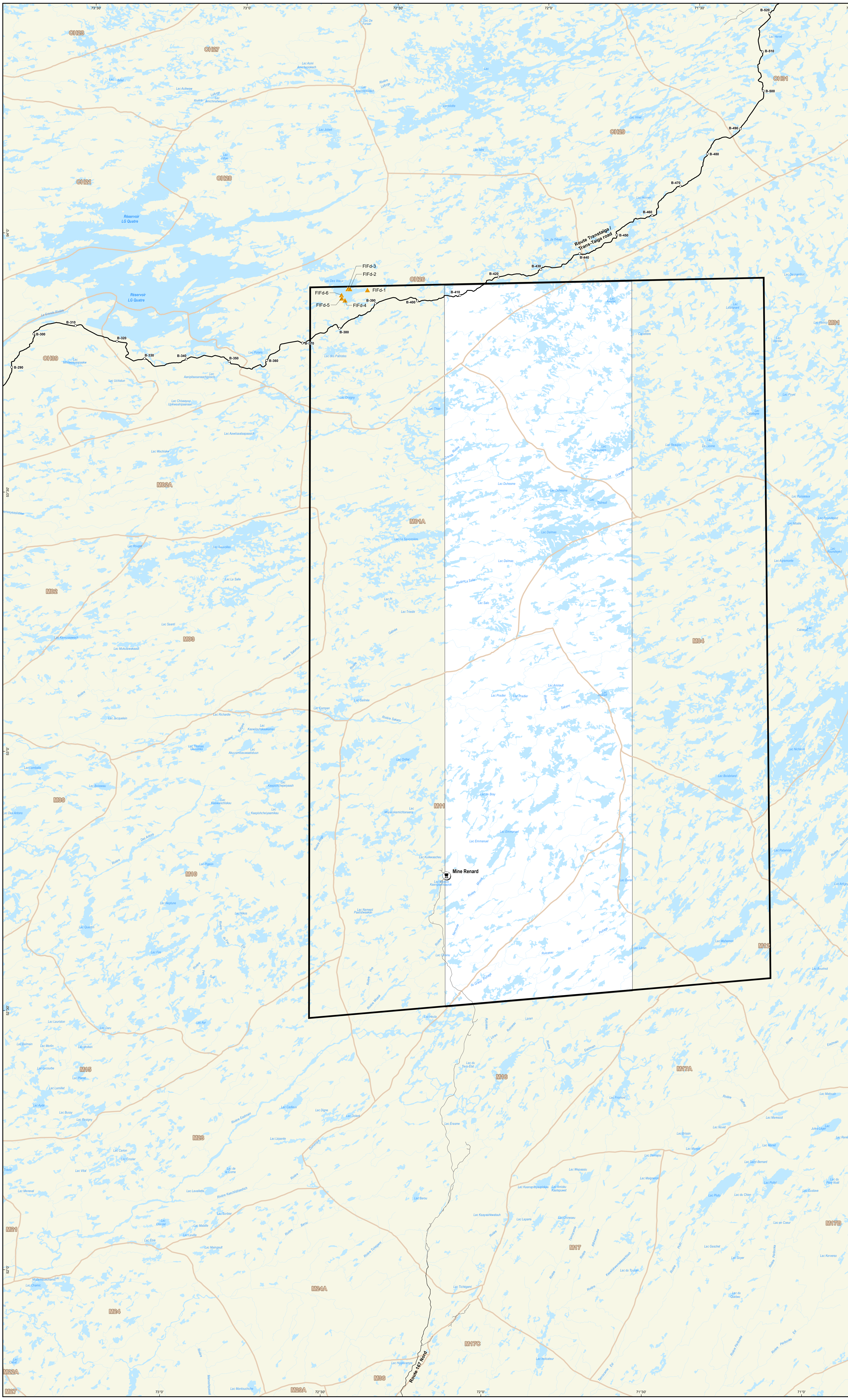


État / Preservation State

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

Intact / Intact

Bon / Good

Inondé / Inundated

Partiellement détruit / Partially damaged

Détruit / Damaged

Limites / Limits

RE02 Terrain de piégeage / Trapline

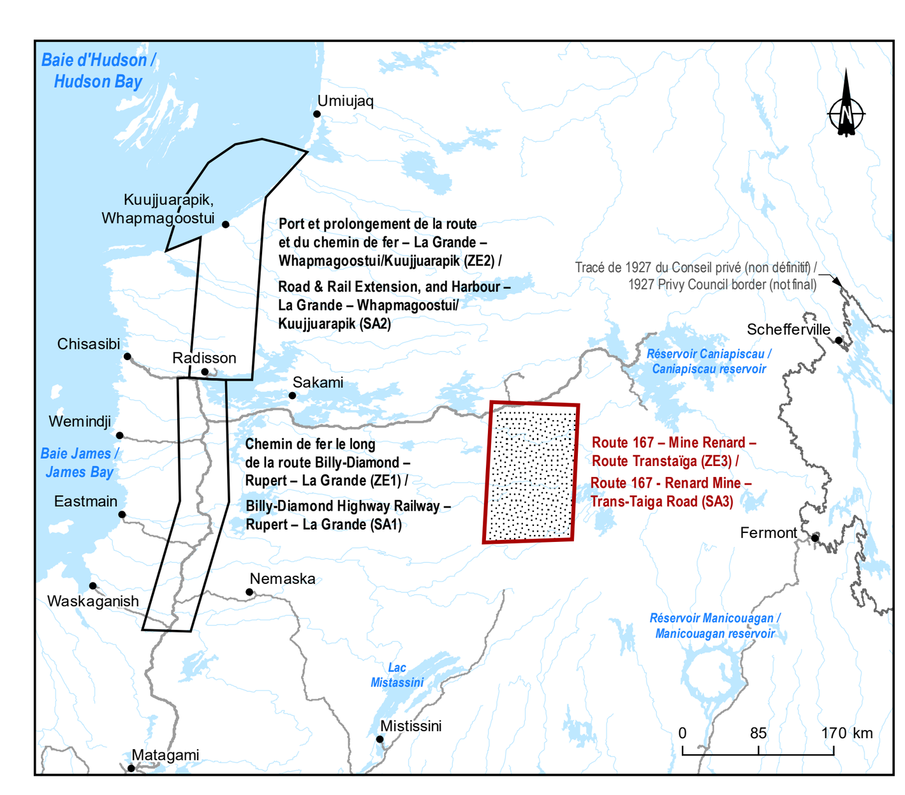
Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-400 Route Transtaïga et borne kilométrique / Trans-Taiga road and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.



LA GRANDE ALLIANCE
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Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux
Technical Note 4 / Archaeological and Heritage Sites

Carte 15 - ZE3 Portrait des sites archéologiques et patrimoniaux – État des sites	Map 15 - SA3 Overview of Archaeological and Heritage Sites – Site Preservation State

Préparation : J. Saule
Dessin : D. Gagné
Approbation : F. Guindon
211_08415_00_NT4_c15_ze3_etat_230223.mxd

0 3,55 7,1 10,65 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
Dessin / Drawn by : D. Gagné
Approbation / Approved by : F. Guindon
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FIFd-1
FIFd-2
FIFd-3
FIFd-4
FIFd-5
FIFd-6
Route Transtaïga / Trans-Taiga road
Route 167 Nord
Mine Renard
Réservoir LG Quatre
B-290
B-300
B-310
B-320
B-330
B-340
B-350
B-360
B-370
B-380
B-390
B-400
B-410
B-420
B-430
B-440
B-450
B-460
B-470
B-480
B-490
B-500
B-510
B-520
B-560
B-570
CH21
CH23
CH24
CH25
CH26
CH27
CH28
CH29
CH31
CH39
M01
M01A
M02
M02A
M03
M04
M06
M07
M09
M10
M11
M12
M15
M16
M17
M17A
M17B
M17C
M21
M22A
M23
M24
M24A
M27
M29A
M36
73°30'
73°0'
72°30'
72°0'
71°30'
71°0'
70°30'
54°0'
53°30'
53°0'
52°30'
52°0'

Périodes / Periods

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

Coloniale / Colonial

Paléohistorique / Paleohistoric

Limites / Limits

M06 Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-400 Route Transtaïga et borne kilométrique / Trans-Taiga road and kilometre point

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Baie d'Hudson / Hudson Bay
Umiujaq
Kuujjuarapik, Whapmagoostui
Port et prolongement de la route et du chemin de fer – La Grande – Whapmagoostui/Kuujjuarapik (ZE2) / Road & Rail Extension, and Harbour – La Grande – Whapmagoostui Kuujjuarapik (SA2)
Tracé de 1927 du Conseil privé (non définitif) / 1927 Privy Council border (not final)
Schefferville
Chisasibi
Radisson
Sakami
Wemindji
Baie James / James Bay
Eastmain
Chemin de fer le long de la route Billy-Diamond – Rupert – La Grande (ZE1) / Billy-Diamond Highway Railway – Rupert – La Grande (SA1)
Route 167 – Mine Renard – Route Transtaïga (ZE3) / Route 167 - Renard Mine – Trans-Taiga Road (SA3)
Fermont
Nemaska
Waskaganish
Matagami
Mistissini
Réservoir Caniapiscau / Caniapiscau reservoir
Réservoir Manicouagan / Manicouagan reservoir
0 85 170 km

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux / Technical Note 4 / Archaeological and Heritage Sites

Carte 16 - ZE3 Portrait des sites archéologiques et patrimoniaux – Périodes

Map 16 - SA3 Overview of Archaeological and Heritage Sites – Periods

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
Dessin / Drawn by : D. Gagné
Approbation / Approved by : F. Guindon
211_08415_00_NT4_c16_ze3_periode_230223.mxd

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Valeur / Heritage

GhGk-89 Numéro du site (code Borden) / Site number (Borden code)

Fort / Hign

Moyen / Moderate

Faible / Low

Limites / Limits

RE02 Terrain de piégeage / Trapline

Corridor de 40 kilomètres / 40 kilometer corridor

Zone d'étude / Study area

Infrastructure / Infrastructure

B-400 Route Transtaïga et borne kilométrique / Trans-Taiga road and kilometre point

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. /
The accuracy of the limits and the measurements shown in this document should not be used for engineering purposes or land delimitation. No property analysis was carried out by a land surveyor.

Baie d'Hudson / Hudson Bay
Umiujaq
Kuujjuarapik, Whapmagoostui
Port et prolongement de la route et du chemin de fer – La Grande – Whapmagoostui/Kuujjuarapik (ZE2) / Road & Rail Extension, and Harbour – La Grande – Whapmagoostuir Kuujjuarapik (SA2)
Tracé de 1927 du Conseil privé (non définitif) / 1927 Privy Council border (not final)
Chisasibi
Radisson
Schefferville
Sakami
Réservoir Caniapiscau / Caniapiscau reservoir
Wemindji
Baie James / James Bay
Chemin de fer le long de la route Billy-Diamond – Rupert – La Grande (ZE1) / Billy-Diamond Highway Railway – Rupert – La Grande (SA1)
Route 167 – Mine Renard – Route Transtaïga (ZE3) / Route 167 - Renard Mine – Trans-Taiga Road (SA3)
Eastmain
Fermont
Nemaska
Waskaganish
Réservoir Manicouagan / Manicouagan reservoir
Matagami
Mistissini
0 85 170 km

LA GRANDE ALLIANCE

Étude de préfaisabilité – Phases II et III / Pre-feasibility Study – Phases II and III

Note technique 4 / Archéologie et sites patrimoniaux Technical Note 4 / Archaeological and Heritage Sites

Carte 17 - ZE3 Portrait des sites archéologiques et patrimoniaux – Valeur patrimoniale

Map 17 - SA3 Overview of Archaeological and Heritage Sites – Heritage Value

Sources :
Adresse Québec, MERN, 2020
BDTA, 1/250 000, MRN Québec, 2002
Terrain de piégeage, 2020

0 3,55 7,1 10,65 km
Lambert, NAD83

Février / February 2023

Préparation / Prepared by : J. Saule
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Approbation / Approved by : F. Guindon

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