

## **APPENDIX 4D**

### **PRELIMINARY ARCHAEOLOGICAL MITIGATION PLAN**

MARY RIVER PROJECT  
PRELIMINARY  
ARCHAEOLOGICAL MITIGATION PLAN

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## FOREWORD

This Preliminary Archaeological Mitigation Plan was prepared by Claude Pinard, an experienced arctic archaeologist and holder of a Nunavut archaeology permit for the Mary River Project in 2008, 2010 and 2011. Richard Cook of Knight Piésold Ltd. assisted in the document preparation, editing and review, and Amanda Moore of Knight Piésold Ltd. provided GIS support.

## EXECUTIVE SUMMARY

The Mary River Project ("the Project") is a proposed iron ore mine and associated facilities located on North Baffin Island, in the Qikiqtani Region of Nunavut. The Project involves the construction, operation, closure, and reclamation of an 18 million tonne-per-annum (Mt/a) open pit mine that will operate for 21 years. The high-grade iron ore to be mined is suitable for international direct shipment after crushing and screening with no secondary processing or concentrating required. A railway system will transport 18 Mt/a of the ore from the mine area to an all-season deep-water port and ship loading facility at Steensby Port where the ore will be loaded into ore carriers for overseas shipment through Foxe Basin. A dedicated fleet of cape-sized ice-breaking ore carriers and some non-icebreaking ore carriers and conventional ships will be used during the open water season to ship the iron ore to markets.

This Preliminary Archaeological Mitigation Plan has been prepared in support of an Environmental Impact Statement (EIS) for the Project, to be submitted by Baffinland to the Nunavut Impact Review Board (NIRB). It is anticipated that a more detailed mitigation plan will be submitted to the Department of Culture, Language, Elders and Youth (CLEY), Government of Nunavut, as part of future archaeological permit applications to carry out future archaeological investigation and mitigation programs described in this preliminary plan.

Archaeological studies were conducted in field seasons in 2006, 2007, 2008, 2010 and 2011 within a local study area for the Project that includes all land-based Project components, namely: Milne Port, the Milne Inlet Tote Road, Mine Site, proposed Railway alignment, and Steensby Port. This report summarizes the results of these studies and proposed actions to be undertaken with respect to archaeology as the project moves forward.

The sites recorded contain a variety of stone features, including circles that probably represent tent rings, caches, traps, cairns and inukshuit as well as more recent features such as wood cabins and modern artifacts such as a plastic sled runner. The remains found throughout the study area cover a long period of occupation from the Pre-Dorset culture (around 3500 years old) to the present. Some of the sites contain remains from a variety of stone tools and by-products of their manufacture. Several artifacts that may be attributable to the Pre-Dorset and Dorset cultures have been recovered. Mitigation measures implemented and proposed include systematic data recovery (SDR), including detailed mapping and excavation, as well as staking and flagging or roping off sites to facilitate avoidance and protection from disturbance.

These investigations have established that this general area has seen substantial degrees of use throughout the human past. Both Milne Port and Steensby Port have revealed high densities of archaeological remains indicating repeated use both now and in the past. The presence of large numbers of sites in the Phillips Creek valley has confirmed its importance as a travel corridor to the interior for a considerable time. No sacred places or burial sites were found. The knowledge gained from this work has been used to locate Project facilities away from important archaeological sites where possible; to assess any residual impacts and to formulate preservation and mitigation plans for any important archaeological resources to be affected by Project development.



## TABLE OF CONTENTS

	<u>PAGE</u>
EXECUTIVE SUMMARY .....	3
SECTION 1.0 - INTRODUCTION .....	7
SECTION 2.0 - BACKGROUND .....	12
2.1    NATURAL ENVIRONMENT .....	12
2.2    CULTURAL HISTORY .....	13
2.3    PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS BY OTHERS .....	14
2.3.1    Concept of a “Core” Area of Occupation in Northern Foxe Basin .....	18
2.4    PROJECT-RELATED ARCHAEOLOGICAL INVESTIGATIONS .....	19
2.5    TRADITIONAL KNOWLEDGE .....	21
SECTION 3.0 - METHODS .....	25
3.1    ARCHAEOLOGICAL INVESTIGATION AND MITIGATION METHODS .....	25
3.2    CONSIDERATION OF POTENTIAL EFFECTS ON CULTURAL RESOURCES .....	29
SECTION 4.0 - MILNE PORT .....	30
4.1    RESULTS OF INVESTIGATIONS .....	31
4.2    PROPOSED MITIGATION AT MILNE PORT .....	32
4.3    SUMMARY OF FINDINGS AT MILNE PORT .....	32
SECTION 5.0 - MILNE INLET TOTE ROAD .....	36
5.1    RESULTS OF INVESTIGATIONS ALONG MILNE INLET TOTE ROAD .....	36
5.2    PROPOSED MITIGATION ALONG MILNE INLET TOTE ROAD .....	48
5.3    SUMMARY OF FINDINGS ALONG MILNE INLET TOTE ROAD .....	48
SECTION 6.0 - MINE SITE .....	50
6.1    RESULTS OF INVESTIGATIONS AT MINE SITE .....	50
6.2    PROPOSED MITIGATION AT MINE SITE .....	50
6.3    SUMMARY OF FINDINGS AT MINE SITE .....	50
SECTION 7.0 - RAILWAY .....	52
7.1    RESULTS OF INVESTIGATIONS ALONG THE PROPOSED RAILWAY .....	52
7.2    PROPOSED MITIGATION ALONG RAILWAY .....	63
7.3    SUMMARY OF FINDINGS ALONG RAIL CORRIDOR .....	63
SECTION 8.0 - STEENSBY PORT .....	64
8.1    RESULTS OF INVESTIGATIONS AT STEENSBY PORT .....	64
8.2    PROPOSED MITIGATION AT STEENSBY PORT .....	72
8.3    SUMMARY OF FINDINGS AT STEENSBY PORT .....	72
SECTION 9.0 - DISCUSSION .....	74

SECTION 10.0 - CONCLUSIONS .....	76
SECTION 11.0 - REFERENCES .....	77

### TABLES

Table 2.1	List of Project-related Archaeological Investigations
Table 4.1	Sites at Milne Port with Potential for Direct Effects
Table 4.2	Sites at Milne Port with Increased Risk of Indirect Effects
Table 4.3	Sites Mitigated at Milne Port
Table 5.1	Sites at the Milne Inlet Tote Road with Potential Direct Effects
Table 5.2	Sites on the Milne Inlet Tote Road with Increased Risk of Indirect Effects
Table 5.3	Sites Mitigated on Milne Inlet Tote Road
Table 6.1	Sites at Mine Site for with Increased Risk of Indirect Effects
Table 6.2	Mitigated Site at the Mine Site
Table 7.1	Sites along the Railway Alignment with Potential Direct Effects
Table 7.2	Sites along the Railway Alignment with Increased Risk of Indirect Effects
Table 8.1	Sites at Steensby Port with Potential for Direct Effects
Table 8.2	Sites at Steensby Port with Increased Risk of Indirect Effects
Table 8.3	Mitigated Sites at Steensby Port

### FIGURES

Figure 1.1	Archaeological Sites
Figure 2.1	Paleo-Eskimo Site in the Pond Inlet Area
Figure 2.2	Distribution of Paleo-Eskimo Sites in Northern Foxe Basin
Figure 2.3	Location of Archaeological Sites Recorded by Savelle on Jens Munk Island
Figure 2.4	The Core Area of Occupation
Figure 2.5	Location of Main Settlement Areas 1900-1970
Figure 2.6	Special Places - North Baffin Region (Workshop Results)
Figure 2.7	Historic Sites - North Baffin Region (Workshop Results)
Figure 2.8	Gravesites - North Baffin Region (Workshop Results)
Figure 4.1	Milne Inlet Archaeology Sites
Figure 4.2	Milne Port Mitigation Plan
Figure 5.1	Archaeological Survey Areas Milne Inlet Tote Road
Figure 5.2	Milne Inlet and Milne Inlet Tote Road Archaeological Sites
Figure 5.3	Milne Inlet Tote Road Archaeological Sites
Figure 5.4	Milne Inlet Tote Road Archaeological Site
Figure 5.5	Milne Inlet Tote Road Archaeological Site
Figure 5.6	Milne Inlet Tote Road Archaeological Sites
Figure 5.7	Milne Inlet Tote Road Archaeological Sites
Figure 5.8	Milne Inlet Tote Road Mitigation Plan
Figure 6.1	Mine Site Archaeological Sites
Figure 7.1	Archaeological Sites Railway (Sheet 1 of 4)
Figure 7.2	Mine Site and Area Mitigation Plan

Figure 7.3	Archaeological Sites Railway (Sheet 2 of 4)
Figure 7.4	Ravn River Area Mitigation Plan
Figure 7.5	Archaeological Sites Railway (Sheet 3 of 4)
Figure 7.6	Cockburn Crossing Area Mitigation Plan
Figure 7.7	Railway Archaeological Sites (Sheet 4 of 4)
Figure 7.8	South Cockburn to Steensby Mitigation Plan
Figure 8.1	Steensby Port Archaeology Sites
Figure 8.2	Steensby Port Mitigation Plan

## APPENDICES

Appendix A	Photographs
Appendix B	Sketches

## **SECTION 1.0 - INTRODUCTION**

The Mary River Project ("the Project") is a proposed iron ore mine and associated facilities located on North Baffin Island, in the Qikiqtani Region of Nunavut. The Project involves the construction, operation, closure, and reclamation of an 18 million tonne-per-annum (Mt/a) open pit mine that will operate for 21 years. The high-grade iron ore to be mined is suitable for international direct shipment after crushing and screening with no secondary processing or concentrating required. A railway system will transport 18 Mt/a of the ore from the mine area to an all-season deep-water port and ship loading facility at Steensby Port where the ore will be loaded into ore carriers for overseas shipment through Foxe Basin. A dedicated fleet of cape-sized ice-breaking ore carriers and some non-icebreaking ore carriers and conventional ships will be used during the open water season to ship the iron ore to markets.

This Preliminary Archaeological Mitigation Plan has been prepared in support of an Environmental Impact Statement (EIS) for the Project, to be submitted by Baffinland to the Nunavut Impact Review Board (NIRB). It is anticipated that a more detailed mitigation plan will be submitted to the Department of Culture, Language, Elders and Youth (CLEY), Government of Nunavut, as part of future archaeological permit applications to carry out future archaeological investigation and mitigation programs described in this preliminary plan.

Archaeological resources are non-renewable, finite resources. They are considered of value not only to local communities, but also to the Territory of Nunavut. They are important sources of historical knowledge and cultural identity. Archaeological sites are often not readily identifiable. They can be disturbed by any activity that causes ground disturbance. For mining projects, archaeological sites can be directly affected by mine excavations, construction of camps, docks and associated facilities, construction of roads and rail lines, development of quarries and borrow sites. Sites can also be affected by ongoing operations and vehicle traffic, as well as by the presence of increased numbers of people.

Archaeological sites and remains are protected by legislation. The Government of Nunavut and the Inuit Heritage Trust require the archaeological history of the Territory to be protected and interpreted. Under the Archaeological and Paleontological Sites Regulations (NAPSR 2001), it is illegal to search for or disturb archaeological remains without a valid Nunavut Archaeology Permit (NAPSR, Sections 3, 4, 5.1). On Federal Crown lands, regulations state that no land use activity can occur within 30 m of a known or suspected archaeological site or burial ground (Territorial Land Use Regulations Section 10a cited in Department of Culture, Language, Elders and Youth, 2003).

In Nunavut, CLEY administers the Nunavut Archaeological and Paleontological Sites Regulations and grants research permits. The Territorial Archaeologist of CLEY reviews reports and makes final recommendations regarding site mitigation. The Archaeologist conducting the investigations must be qualified to hold a Nunavut Archaeologist Permit and is bound by the legal requirements of NAPSR. The Archaeologist must conduct all required analysis and submit a detailed report documenting all work completed. The developer is responsible for ensuring that the Archaeologist selected is qualified, that funding is sufficient for all necessary archaeological investigations including analysis, reporting and artifact conservation, and that the required mitigation measures are applied (CLEY, 2003).

This report describes the areas assessed, the methods used, and the results of archaeological investigations carried out during the 2006, 2007, 2008, 2010 and 2011 field seasons. The relevant environmental and cultural background, as well as information obtained in workshops that identified Inuit traditional knowledge, are summarized in Section 2. Section 3 summarizes the methodologies used in the investigations and to identify potential direct and indirect effects of the proposed Project on the historical resources found. The results are discussed by Project area in Sections 4, 5, 6, 7, and 8. Overall conclusions and discussion are presented in Sections 9 and 10. Figure 1.1 shows the location of the Project, the key Project sites and archaeological sites identified during the five abovementioned field seasons. All work was carried out in accordance with the Nunavut Archaeological and Paleontological Sites Regulations under the Nunavut Act, and archaeological permits issued by CLEY.



The surveyed areas, work completed, archaeological sites found along with their significance and mitigations carried out are summarized by general proposed Project location as follows:

- Section 4 Milne Port;
- Section 5 Milne Inlet Tote Road;
- Section 6 Mine Site;
- Section 7 Railway; and
- Section 8 Steensby Port.

The investigations during the 2006 field season included:

- Ground level inventory surveys of the proposed Milne Inlet Tote Road, a portion of Milne Port and Mine Site camp facilities;
- Overview assessments for potential for archaeological resources of two potential rail corridors, two possible port site options at Milne and Steensby Ports and expanded Mine Site camp and processing facilities; and
- Staking and flagging of six sites within 10 m of the Milne Inlet Tote Road to facilitate avoidance.

The 2007 field season investigations included:

- Preliminary overview surveys of the potential rail corridor;
- Ground reconnaissance in the Mine Site, Milne Inlet Tote Road related components including borrow sources, laydown areas in Milne Port and proposed port facilities at Steensby Port;
- Mitigation excavations of sites previously recorded along the Milne Inlet Tote Road.

The 2008 field season focused on:

- Preliminary overviews of the potential railway corridor;
- Ground reconnaissance of the Mine Site and Milne Inlet Tote Road related components including borrow sources and laydown areas at Milne Port;
- Assessment of geotechnical drill sites and borrow sources along the proposed railway corridor between the Mine Site and Steensby Port, a proposed rail loop at Steensby Port, a proposed ore stockpile on the island facing Steensby camp and other specific areas at Steensby Port;
- General archaeological assessment of the proposed Steensby Port site and supporting infrastructure;
- Mitigation measures at and near Steensby Port and the Milne Inlet Tote Road.

Investigations in the 2010 field season included:

- Completion of the survey of the Milne Port,
- Revisiting all the sites previously identified on the Milne Inlet Tote Road between from Milne Port and the Mine Site mining camp, and repairing the protection measures put in place in 2008 as needed,
- Surveys of Deposits 4 and 5 and four other deposits by low level helicopters for identification of potential sites,
- Assessment of location of drill holes and test pit areas on the Milne Inlet Tote Road,

- Foot surveys of Steensby Port including Steensby Island, and
- Revisiting most of the sites found in 2007 and 2008 to verify the integrity of the sites and to help evaluate these sites for development of a proposed mitigation plan.

Investigations in the 2011 field season included:

- Mitigation of a series of archaeological sites at Steensby Port.
- Assessment of drill holes locations along the railway South of Cockburn Lake to Steensby Inlet.
- Mitigation of a series of archaeological sites at Milne Inlet and along part of the Tote Road
- Assessment of drill holes locations along the railway North of Cockburn Lake to Mary River Mine Site.
- Survey of quarry locations along the railway

The results of these studies have been used to help select locations for Project activities away from important archaeological findings where possible and to identify residual impacts, if any, on archaeological findings of proposed Project activities. These studies have also helped Baffinland avoid and/or mitigate archaeological sites for a bulk sampling project in 2008 that included ore extraction at the Mine Site, minor improvements to the Milne Inlet Tote Road and ore stockpiling, supply and equipment laydown areas and shipping at Milne Port (Knight Piésold, 2006).



## SECTION 2.0 - BACKGROUND

The physiographic, environmental, and cultural factors of the region are summarized below (Prager, 2007; and Knight Piésold, 2006).

### 2.1 NATURAL ENVIRONMENT

Superficial landforms and deposits in the Mary River Project area are associated with widespread glaciation on Baffin Island. A huge continental ice sheet that covered the entire arctic was estimated to have receded from most regions by approximately 8,000 to 9,000 years ago. As the ice sheet receded, the Arctic coastlines rose. This phenomenon is called isostatic rebound. Superficial geology consists of locally abundant sediment deposits from glaciers into lakes during the Holocene era (a geological epoch which began approximately 12,000 years ago), sediment deposits by rivers and marine and glaciomarine deltaic sediments, and end moraine till (deposits left by glaciers). Occasional outcrops of pre-Quaternary (> 540 million years old) bedrock and sedimentary rock formations also occur. The North Baffin region containing the Mary River area lies within the Committee Belt, a granite-greenstone terrain mixed with rift basin sediments and volcanic rocks. Precambrian mountains (> 540 million years old) occur to the east and Palaeozoic (250 to 540 million years old) lowland plateaus to the west.

The Mary River Project is situated on northern Baffin Island within the Northern Arctic Ecozone in a semi-arid climate. The Project lies within the zone of continuous permafrost, with an active layer thickness of up to two metres and a total permafrost depth of about a half kilometre. The extremely cold temperatures of the region, combined with permafrost ground conditions result in a short period of runoff that typically occurs from June to September. All rivers and creeks, with perhaps the exception of the very largest systems, freeze completely solid during the winter months. Due to the combination of low temperatures, low infiltration and minimal vegetative cover, surface water is abundant, and the region is dotted with thousands of small lakes and streams. In general, vegetation is relatively sparse within much of the Project area. In upland areas, ice shattered rock and a few lichens, scattered mosses and purple mountain saxifrage thinly cover ground moraines. Damp mixed tundra communities characterize lower slopes. These communities comprise marsh and heath species that can include blueberries or heath tundra in drier, sheltered areas. In the flatlands, wetlands are frequent and usually covered by sedge associations of cotton grasses, sedges, and moss mounds or tussocks. Along stream channels some scrub willow can be found. In general, there is little availability of plants of suitable size to provide materials for tools or construction. Human adaptive strategies have been aimed at compensating for that lack by making complete use of all of the abundant wildlife resources.

The North Baffin region that includes the Project contains a wide range of terrestrial and marine mammals. Terrestrial mammals include barren-ground caribou, wolf, Arctic and red fox, ermines, Arctic hare and lemmings. Marine mammals are present at both Milne and Steensby Ports including polar bears, various toothed and baleen whales (particularly narwhal), several species of seals, and walrus. The polar bears and ringed seals are the only year round residents.

Migratory bird species observed in the Mary River study area include snow geese, Canada geese, eiders, loons, mergansers and sandhill cranes. Raptors known in the region are rough-legged hawks, peregrine falcons, gyrfalcons and snowy owls. Rock ptarmigans are common. Other birds observed include ravens,

Lapland longspurs and snow buntings. Shorebirds and gulls include several species of plovers, sandpipers and gulls and Arctic terns.

Freshwater fish species on Baffin Island are dominated by Arctic char and are known from various northern parts of the island. Lake trout, two species of stickleback and landlocked populations of Atlantic cod have been confirmed on the southern part of the island. Marine fish include Arctic char, cod and sculpin. The study area is rich in marine resources, including ringed and bearded seal, beluga whale, narwhal, walrus and bowhead whale. The distribution of wildlife through the region has had a major influence in the use of the area over time.

## 2.2 CULTURAL HISTORY

The North American Arctic and Greenland represent one of the last frontiers colonized by the human species. The arid and extreme conditions of this environment required extraordinary adaptation from the first explorers who ventured into this new territory. The precise homeland of those newcomers remains unclear, but most researchers agree on an Alaskan or Siberian origin.

The prehistory of Arctic Canada is currently thought of in terms of two successive populations: Paleo-Eskimo and Neo-Eskimo. The Paleo-Eskimo sequence is divided into Early Paleo-Eskimo (4,500 to 2,500 before 1,950 (B.P.)) and Late Paleo-Eskimo (2,500 to 500 B.P.) periods. People generally referred to as Paleo-Eskimo, bearers of the Arctic Small Tool tradition, originally populated the eastern Arctic around 4,500 years ago. Their earliest traces are known by the names Independence I, Pre-Dorset, and Saqqaq. Their subsistence efforts appear to have focused on hunting land mammals, as well as taking fish and birds. Sea mammal hunting appears to have been important in only a few areas and was largely limited to the hunting of seals. The Paleo-Eskimo expansion occurred during the closing phases of a warm period called the postglacial thermal maximum, i.e. about 2,000 B. C., when the animal population increased due to improved climatic conditions, which were somewhat warmer than today.

After approximately 3,500 years ago the size and number of Paleo-Eskimo occupations of most regions decreased. Some areas, including most of the High Arctic islands, appear to have been abandoned. At the same time, evidence suggests that Pre-Dorset occupations spread across the Barren Grounds region between Hudson Bay and the Mackenzie drainage southward as far as the northern portions of the Prairie Provinces. These changes in territorial distribution have been attributed to a climatic cooling generally evidenced across the Arctic after about 3,500 years ago. Decreases in terrestrial productivity may have terminated Paleo-Eskimo occupations of some northern areas and encouraged a southward movement of these Arctic-adapted peoples into areas which had previously been occupied by Indian groups adapted to the subarctic.

Around 2,500 years ago, a new Paleo-Eskimo culture known as Dorset developed from Pre-Dorset. This widespread change involved a general increase in the importance of sea mammal hunting throughout the central and eastern Arctic, which in turn appears to have resulted in larger and more stable local populations. In some regions, Dorset people began to build winter villages with semi-subterranean houses. A more permanent habitation, even if only used for part of the year at the same location, suggests a more efficient hunting economy, and less transient hunting patterns than those of their earlier ancestors.

The development of Dorset culture seems to have occurred during a period of continued climatic cooling evidenced in most Arctic areas. It is possible that the shift in emphasis from terrestrial to marine resources at this time was related to declining caribou availability and to the simultaneous increase in the seasonal duration and extent of stable sea-ice conditions. To the Paleo-Eskimo, who lacked the sophisticated maritime hunting equipment of later Inuit peoples, increased sea ice may have provided a stable hunting platform, which allowed development of an efficient ice-hunting economy.

Eventually, Dorset culture became widespread throughout the eastern Arctic and lasted until around 1,000 years ago and possibly later in some areas. The second major culture, known as Neo-Eskimo, represents the direct ancestors of modern Inuit in the eastern Arctic. Sometime around 1,000 years ago, Neo-Eskimo people known to archaeologists as “Thule” Inuit migrated into the eastern Arctic from Alaska. In many areas, the Thule population appears to have achieved relatively high population densities, based in some regions on the hunting of very large bowhead whales (Maxwell 1985:248; McGhee, 1996). Most aspects of this cultural sequence have been established. One area that is still not clear is the unresolved issue concerning the relationship between peoples of the Late Dorset and those of the Thule culture.

Until recently, most archaeologists working in the region accepted that Dorset society survived into the second millennium AD to meet and be displaced by Thule immigrants. This opinion was based primarily on the many radiocarbon dates attributed to Dorset occupations, some of which appeared to indicate occupation as late as AD 1,500 (Maxwell 1985:218). Additional categories of evidence cited in support of Dorset – Thule coexistence include evidence of material exchange, as indicated by Dorset artifacts recovered from Thule houses or Thule artifacts recovered from Dorset contexts as well as evidence of borrowing of construction or manufacturing techniques by Thule from Dorset or vice versa (Maxwell 1985; Park 1993).

The Thule way of life slowly changed to what the early Arctic explorer observed and reported. Climatic deterioration following the thirteenth century is probably the cause of the Thule people modifying their way of life into the way of life of the various Historic Inuit groups.

## 2.3 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS BY OTHERS

While no archaeological studies were completed within the Mary River Project area prior to Baffinland's 2006 survey, some previous archaeology work in nearby parts of northern Baffin Island has been reported. Some of the earliest archaeological studies in the Arctic included research in this region.

In 1923, Mathiassen excavated at Pond Inlet, at sites called Mittimatalik and Qilalukan, and at Button Point on Bylot Island (1927: 199-206). In 1924, expedition member Peter Freuchen continued excavations at Qilalukan. On his departure, the site was further excavated by the local RCMP officer and the HBC station manager (Mathiassen 1927:132). From 1962 to 1965, Mary-Rousselière conducted various excavations of sites throughout the North Baffin region. He excavated at Button Point and at Mittimatalik near Pond Port, at Tunit in Paquet Bay, at Eqluit in Tay Sound, and at Nadlua in Navy Board Port (Mary-Rousselière, 1968, 1969, and 2002). During his journeys throughout the region, he recorded features at many sites: Paleo-Eskimo occupations have been recognized at fourteen sites in the Pond Inlet-Eclipse Sound-Navy Board Inlet area (Mary-Rousselière 1976:40); one is a site known as Agliruujak (PaHb-1) situated on the southeastern shore of Milne Inlet (Figure 2.1).



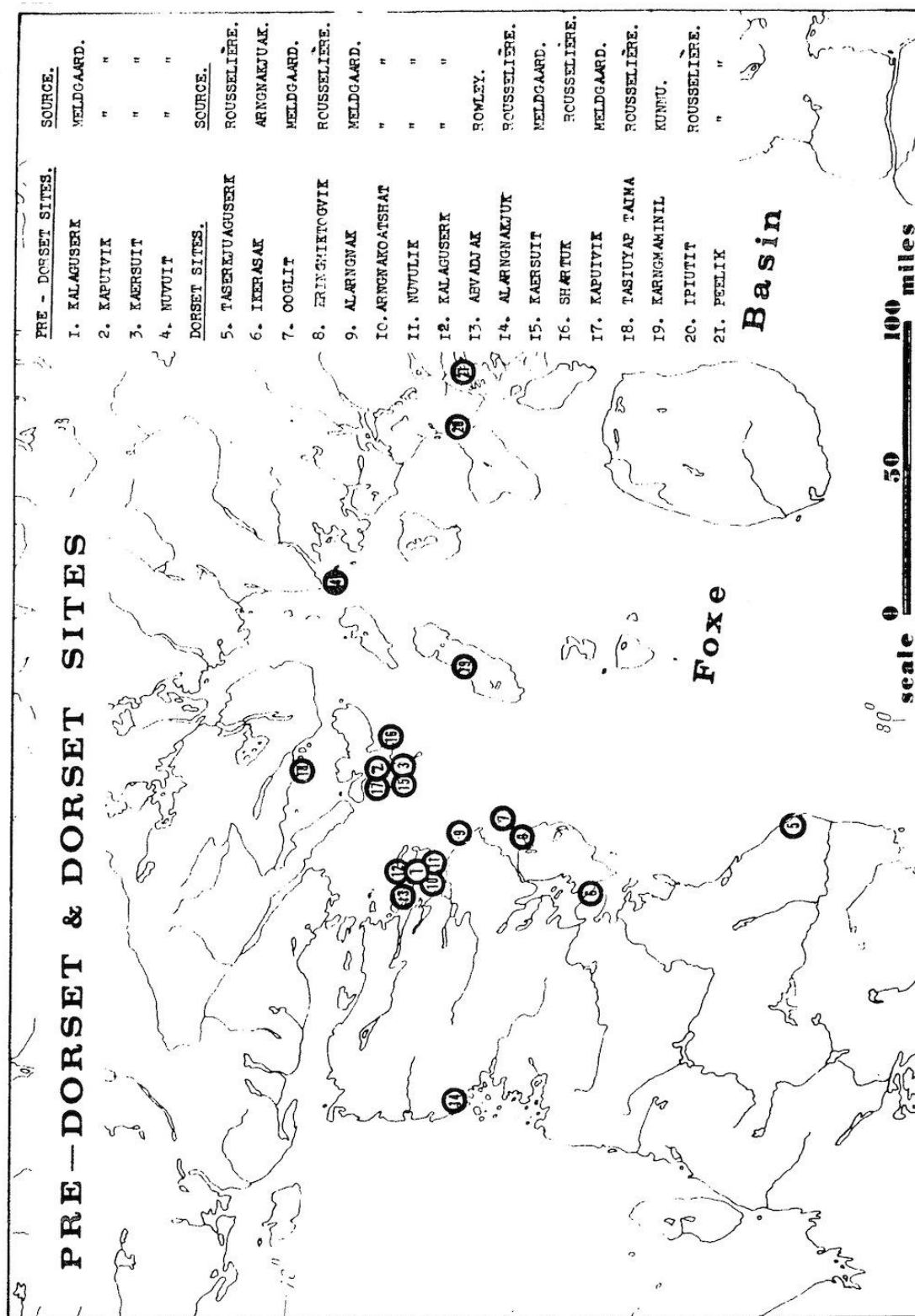
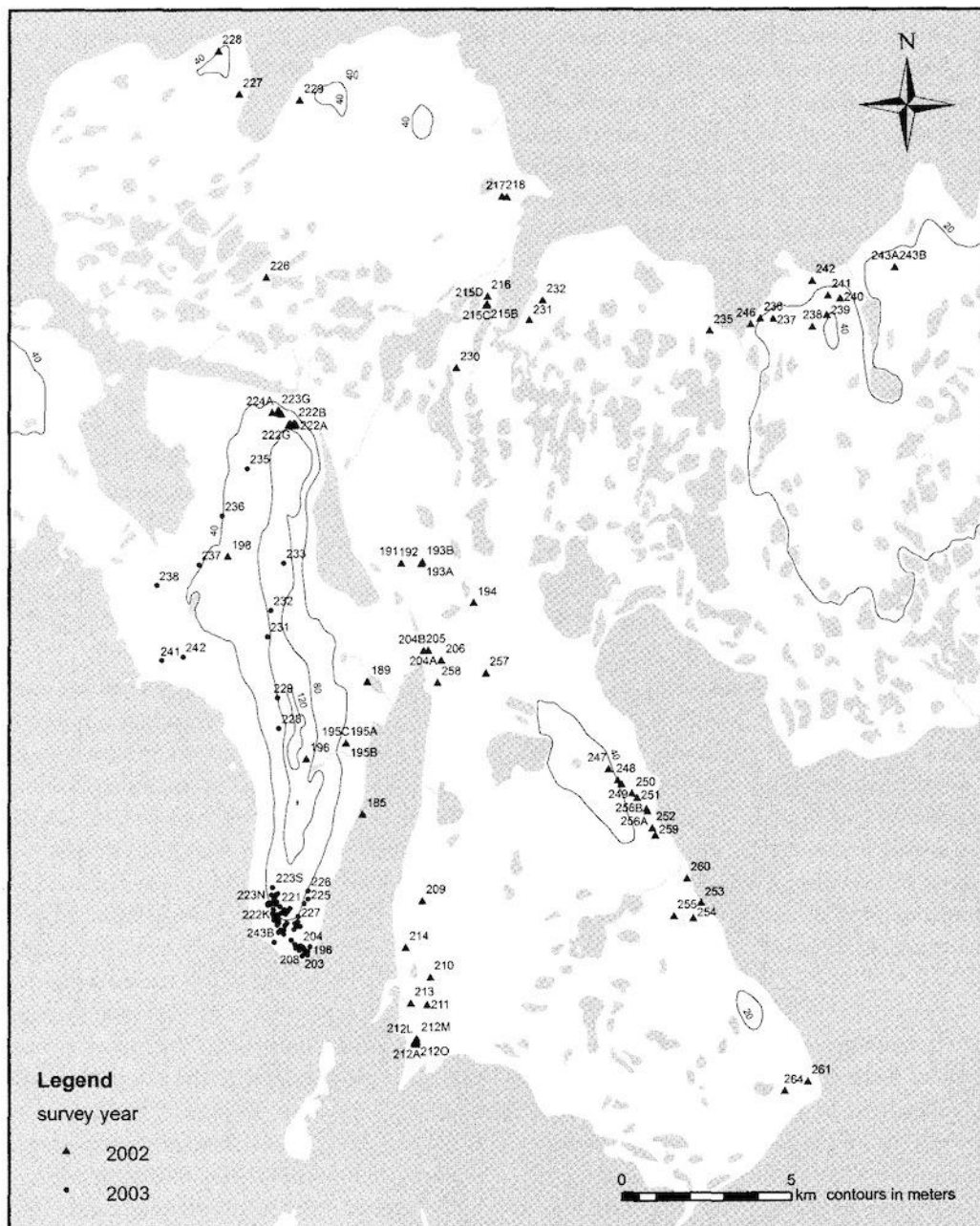


Figure 2.2 Distribution of Paleo-Eskimo Sites in northern Foxe Basin (from Crowe, 1970)



In the late 1980's Susan Rowley (Rowley and Rowley 1997) carried out fieldwork on Igloodik island and later help establish a field school in the early 1990 (Rowley, 2002). Rowley's work in the late 1980's added 110 archaeological sites to the five sites previously recorded on the island, representing the different cultural periods found in the Arctic (Pre-Dorset to recent Inuit) (Rowley and Rowley, 1997:271).

In 2002 and 2003, James Savelle and Arthur Dyke surveyed a number of areas in Foxe Basin; parts of Koch Island, Jens Munk Island, and Steensby Inlet in 2002 and parts of Rowley Island and Jens Munk Island and the remainder of Koch Island in 2003 (Saville et al., 2009:211). They recorded a total 1,061 features within 206 sites on these three locations (Saville, 2004). A total of 183 sites were recorded on Jens Munk Island, consisting of 419 Paleo-Eskimo dwelling features and 127 Neo-Eskimo dwelling features (Figure 2.3). Within the Kapuivik site area, 282 Paleo-Eskimo features and 74 Neo-Eskimo features were recorded. The Neo-Eskimo features included all those up to early historic qarmats. Abandoned recent wooden cabins were also recorded (Saville et al 2009:211).

One of these sites was Manertoq, recorded as NkFt-1. More relevant to this study because of closer proximity are sites that were reported at Cape Thalbitzer and Rowley River by Arthur Dyke, on the same project. Of particular interest are seven sites recorded in the vicinity of the Rowley River mouth and one site near the Ravn River. These sites were reported to contain from one to numerous tent rings, caches and cairns.

### 2.3.1 Concept of a “Core” Area of Occupation in Northern Foxe Basin

The core area concept arose in the late 1960s and early 1970s, but appears to have attained its current form with the work of different researchers at a conference in 1973 in Santa Fe, New Mexico (Maxwell 1976). A large body of biological, oceanographic, and paleoclimatological data is available for the Eastern Arctic. All this evidence points to a particular region in which no one food animal is uniquely numerous but in which the number of available species and individuals within each species is sufficiently great to ensure a constantly favorable amount of food energy for the amount of work it takes to extract it from the environment. This diversity appears to be effective within a wide range of environmental conditions and animal behavior. These conditions, offering persisting quantities of food to be acquired by reasonable amounts of labour, appear to be best met in the Baffin Island, Hudson Strait, Foxe Basin, and northern Labrador regions, which collectively have been called the “core area” (see Figure 2.4, from Maxwell 1985:81 and Figure 2.5, from Vestey 1974:29).



Figure 2.4 The Core Area of Occupation

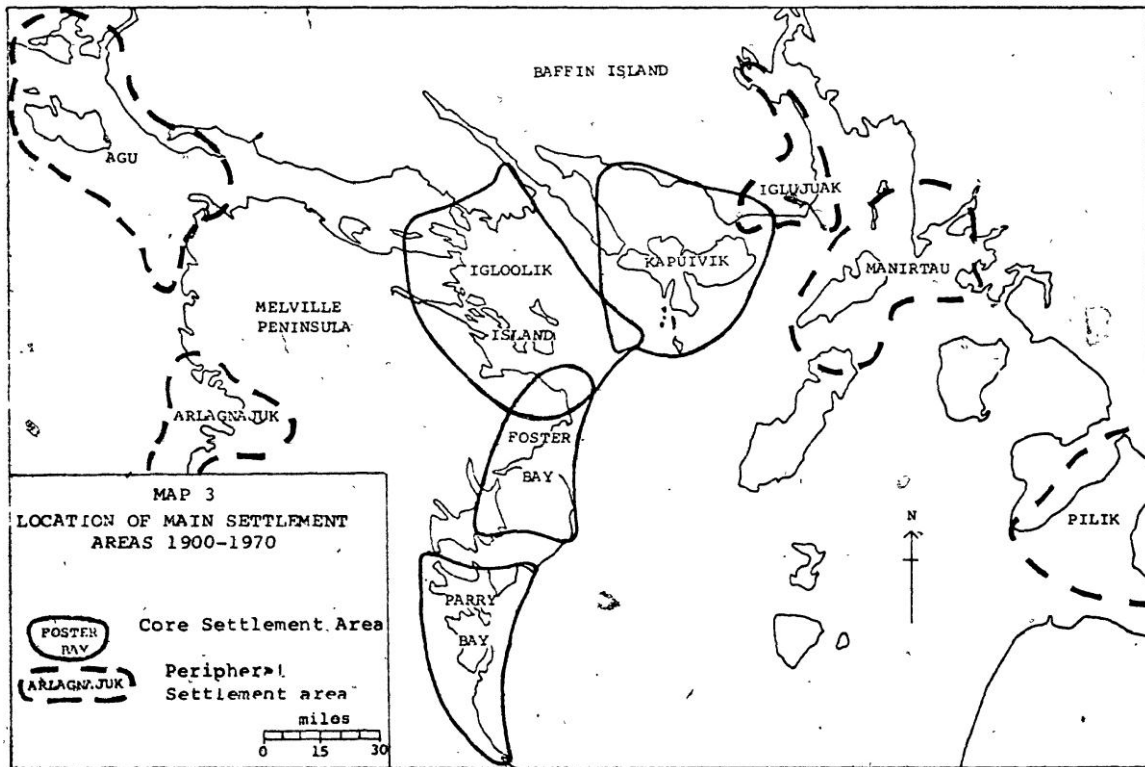


Figure 2.5 Location of Main Settlement Areas 1900-1970

At that time, several of the participants saw the ecologically rich area surrounding Foxe Basin as a region continuously occupied for what was then thought to be 3,000 years of Eastern Arctic Paleo-Eskimo prehistory (Odess 2002:113). At the same time, in peripheral regions occupation was characterized by periodic abandonment followed by the expansion of new Paleo-Eskimo groups out of the core area. Furthermore, significant contact between Paleo-Eskimos and the newly arriving Thule ca. 800-1,000 years BP were believed to have resulted in considerable exchange of cultural traits between the two populations (Savelle et al 2009:209). The core area model was based primarily on the report by Meldgaard of extensive excavations at Alarnerk on Melville Peninsula and on Igloolik and Jens Munk islands in the northern Foxe Basin undertaken in the 1950s.

An enormous amount of research has taken place in the eastern Arctic since Meldgaard's pioneering work, and it is now generally agreed that there was essentially a direct transition from Pre-Dorset to Dorset and that much of this transition was centered in the "core area" (Savelle et al., 2009). The pioneering work by Meldgaard and others in surveying Foxe Basin and adjacent areas and in developing the Paleo-Eskimo core area concept has long been recognized as instrumental in influencing later research on Paleo-Eskimo occupations in these and other areas.

## 2.4 PROJECT-RELATED ARCHAEOLOGICAL INVESTIGATIONS

A total of 5 seasons of archaeological investigations have been carried out by consulting archaeologists on behalf of Baffinland, focused on the Project area, as summarized in Table 2.1.



**Table 2.1 List of Project-Related Archaeological Investigations**

<b>Archaeologist</b>	<b>Nunavut Permit No.</b>	<b>Report</b>	<b>Project Area Investigated</b>
Gabriella Prager	2006-008A	Mary River Project, Nunavut 2006 Archaeological Investigations Final Report. 2007	Milne Inlet - Survey Tote Road - Survey Mary River camp and facilities – Survey Mary River Mine site - Survey Railway – Survey Steensby Inlet - Survey
Gabriella Prager	2007-017A	Mary River Project, Nunavut 2007 Archaeological Investigations Final Report. 2008	Milne Inlet – Survey and mitigation Tote Road - Survey and mitigation Mary River Mine site - Survey Railway - Survey Steensby Inlet - Survey
Sylvie Leblanc	2008-35A	Mary River Project, Nunavut Steensby Inlet 2008 Archaeological Investigations Final Permit Report. 2009	Steensby Inlet – Survey and mitigation Railway Cockburn Lake to Steensby Inlet - Survey
Claude Pinard	2008-034A	Mary River Project, Nunavut Archaeological Investigations Northern Section Final Permit Report. 2009	Milne Inlet -Survey Tote Road – Survey and mitigation Mary River Mine site – Survey and mitigation Railway North of Cockburn Lake - Survey
Claude Pinard	2010-026A	Mary River Project, Nunavut Archaeological Investigations Final Permit Report. 2011	Milne Inlet - Survey Iron Ore Deposits - Survey Steensby Inlet - Survey
Claude Pinard	2011-033A	<i>In preparation</i> Mary River Project, Nunavut 2011 Archaeological Investigations in Steensby Inlet, Final Permit Report.	Steensby Inlet - Mitigation Drill holes locations along the Railway South of Cockburn Lake to Steensby Inlet - Survey
Tim Rast	2011-034A	<i>In preparation</i> Mary River Project, Nunavut 2011 Archaeological Investigations Northern Final Permit Report.	Milne Inlet – Survey and mitigation Milne Inlet Borrow - Mitigation Drill holes locations along the Railway North of Cockburn Lake to Mary River Mine Site. Survey of quarry locations along the railway

In addition to the above, a coastal habitat survey was conducted in 2007 by Coastal and Ocean Resources Inc. in the proposed development area for the Project. A total survey track of 1,150 km was flown in Steensby Port (735 km) and Milne Port (415 km) by low altitude helicopter and over 10,000 geo-referenced photographs of the coast were taken. These photographs, originally intended as a data source for coastal habitat classification and interpretation, also provide a photographic documentation of coastal archaeological features and other land use sites in the Project vicinity. Each photo was reviewed by the author for the presence of an archaeological or land use feature. Where such a feature was identified the locations were plotted on a map (Figure 1.1), photos placed in a database, and co-ordinates listed in a

spreadsheet. This work revealed that many portions of both Milne and Steensby Ports have been occupied in varying degrees by local Inuit both now and in the past.

The sites identified in the photos have been registered as archaeological sites and assigned Borden numbers by the Canadian Museum of Civilization, at the request of CLEY.

## 2.5 TRADITIONAL KNOWLEDGE

As part of the Mary River Inuit Knowledge Study (MRIKS) in 2008, a series of workshops were held with Inuit elders. The knowledge obtained in these workshops about potential archaeological resources was used to help identify the archaeological potential of different areas that could possibly be affected by the Project. Gravesites, special places (places with religious meaning or where a significant event took place) and historic sites in the North Baffin Region including within the Project Study Area were identified by workshop participants (Figures 2.6, 2.7, and 2.8). The figures illustrate the great amount of culturally important sites within the North Baffin Region. Although not all of the sites are located within the Project Study Area, it is important to acknowledge their presence and their importance to the region's residents. The sites identified and mapped by elders during the workshops have helped in the identification of archaeological sites for the purposes of this report and the EIS.

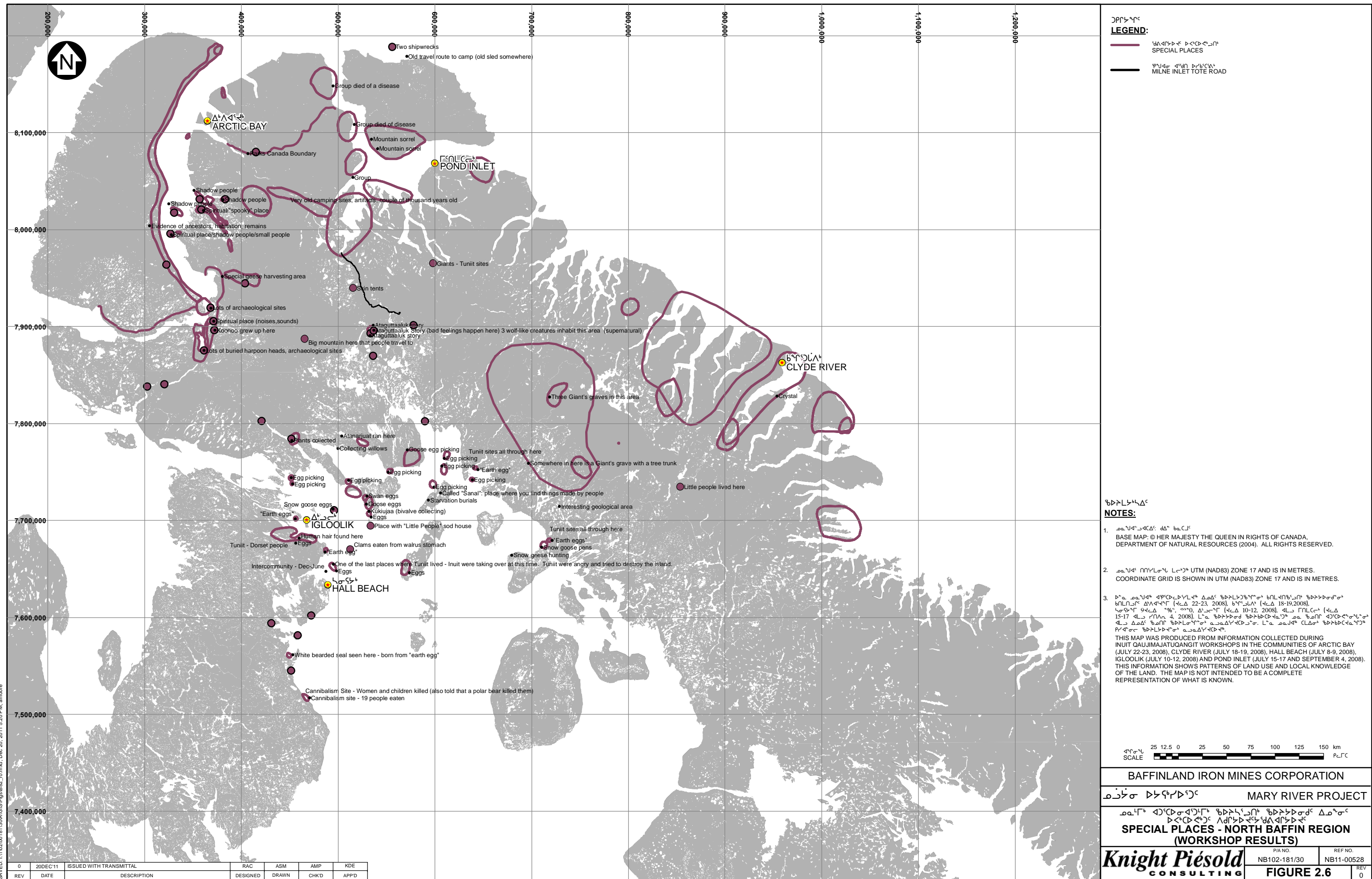
The relationship between cultural sites and the social lives of residents of communities in the LSA continues to be of importance as demonstrated by MRIKS participants. Respect for ancestors and elders are fundamental components of Inuit life. These values are demonstrated in the value Inuit place on historical and archaeological sites.

Sites classified as archaeological are actively used by Inuit. This is evident in the continued use of ancestral camps. One MRIKS participant noted:

*"It is not only us today who are camping in those places or traveling in those places, we are following in the footsteps of our ancestors who also camped and traveled in those places. We want to be able to do the same things that our ancestors did."*

- Clyde River Workshop Participant

Archaeological observations demonstrated that individuals currently camp where their ancestors have camped, indicating the value of these sites as good camping locations and for current social lives. This demonstrates that cultural sites do not only hold value for the Inuit in preserving their culture, but are also actively used by Inuit to practice their culture.









## SECTION 3.0 - METHODS

The methods used to investigate, protect, and mitigate archaeological sites in Nunavut, in accordance with the requirements of CLEY (2003), are outlined below.

### 3.1 ARCHAEOLOGICAL INVESTIGATION AND MITIGATION METHODS

There are several stages of archaeological investigations. Not all stages are required for all projects or project phases. Each stage is completed only as necessary due to the inherent destructive aspects of the more advanced phases of archaeological investigations. The stages are described below and include:

- Overview assessments,
- Preliminary field reconnaissance,
- Detailed ground reconnaissance,
- Site assessment, and
- Mitigation, as and if necessary.

An archaeological overview assessment is the preliminary stage of archaeological studies. The objective of an overview assessment is to compile and evaluate relevant aspects of the existing biophysical and heritage knowledge of the study area. Such research assists in the determination of archaeological potential and the scope of future investigations. Preliminary field reconnaissance (PFR) may be conducted in conjunction with an overview assessment, usually to assess terrain.

Archaeological field reconnaissance may be conducted as part of an overview assessment (PFR) or as part of the archaeological inventory stage. Depending on the planning stage, the type of development and the location and terrain characteristics of the project area, reconnaissance may be limited to visual (often aerial) examination or may involve more detailed ground inspection. Preliminary field reconnaissance (PFR) determines if there is sufficient archaeological potential to justify further investigation and the scope such work may require. This level of field reconnaissance can also assist in project planning to identify preferred routes or locations when alternates are identified or to warn of major archaeological issues.

Archaeological inventory or detailed archaeological ground reconnaissance is conducted to identify archaeological sites within a development area. Inventory generally involves surveying a specific area using intensive systematic pedestrian transects to locate and define archaeological sites. It may also include subsurface testing to find or further define sites. The intensity of the inventory varies depending on terrain and archaeological potential and the level of development planning. Inventory must be conducted under favourable ground conditions, meaning no snow cover or frozen ground.

Once an archaeological site has been identified, a site assessment is carried out to determine the site size and content and to ascertain whether it is threatened by the development as proposed. Data regarding site size, content and complexity are used to estimate the relative archaeological importance of each site which, in turn, forms the basis for recommendations of appropriate site specific mitigation measures. Because site assessment can be time consuming and often requires subsurface testing, which is destructive in itself, only those sites that cannot be avoided and/or protected are assessed.



Mitigation refers to actions that will ameliorate adverse effects on archaeological resources. Mitigation measures can include avoidance through project redesign or relocation (of the entire development or specific components), protection through the erection of physical barriers, and scientific investigation and recovery of archaeological data, also known as systematic data recovery (SDR). Site avoidance is always the preferred mitigation measure. SDR commonly consists of accurate mapping, surface collection, and subsurface excavation where warranted. Because these actions can be destructive in themselves, SDR is only recommended for sites definitely under threat of disturbance. Baffinland has a Cultural and Heritage Resource Protection Plan in Appendix 10F-2, outlining its general mitigation plans. Detailed archaeological analysis and reporting are an integral part of mitigation. Mitigation plans must be approved by the Government of Nunavut, Department of Culture, Language, Elders and Youth (CLEY), which in turn consults with the Inuit Heritage Trust Inc. (IHTI).

This preliminary mitigation plan is for the purpose of environmental assessment. Under current assumptions of proposed pre-development works and the preliminary construction schedule, mitigation of archaeological sites will begin at Steensby Port in 2012. As of submission of the environmental impact statement all archaeological sites in Steensby Port will be mitigated in 2012.

Mitigation of sites at Milne Port, along Milne Inlet Tote Road, at the Mine Site, and along the Railway alignment is slated for 2013 based on the current construction schedule. Upon the development of more detailed construction plans certain archaeological sites will be given priority for mitigation purposes in 2013 to ensure these archaeological sites are not disturbed by construction activities. As a result of the large amount of archaeological mitigation set for 2013, sites that will not be in direct or close contact with construction activities will be mitigated in 2014. Details relating the specific mitigation schedule for 2013 and 2014 will become available closure to the proposed mitigation season and once construction activity schedules are finalized.

Detailed mitigation plans will be submitted with permit applications in future years based on the preliminary plan and feedback received.

### **General Mitigation Plan**

Archaeological surveys completed in 2007, 2008, 2010 and 2011 cover most of the Mary River Project. These surveys help determined the location and the type of sites. A general mitigation plan is presented for the different type of sites encounter in the project.

#### **Type of sites**

- *Isolated archaeological find* - A single archaeological object that is or was located in situ on the ground, or land such as a single projectile point, or fragments from a tool.
- *Campsite* - Composed of one or more tent rings, often with associated features, such as caches.
- *Station (hunting)* - Single or multiple stone caches, hunting blind, stone trap
- *Inukshuk or inukshuit*
- *Workshop (lithic)* - Site where stone tools were fabricated

### **Cultural periods**

- Contemporary site (less than 50 years old)
- Post-Contact Inuit (Historic) (A.D. 1600 to A.D. 1950)\*
- Thule and Pre-Contact Inuit (A.D. 1200 to A.D. 1600)\*
- Paleo-Eskimo (general) (2500 B.C. to A.D.1300)\*

\*NOTE: Time spans are vague and arbitrary, especially the early dates  
(<http://www.civilization.ca/cmc/archo/sites/sowms09e.shtml>)

A description of the specific measures recommended for each of the recorded sites follows. The general mitigation strategy will be a three steps process for consideration of possible options at each individual site:

1. Avoidance
2. Protection
3. Systematic Data Recovery (scientific investigation and recovery of information from the resource by excavation or other methods)

For archaeological sites, the appropriate mitigation option is determined by the nature of the resource and any associated threat. Other factors in the decision process include the type and magnitude of the threat, the risk to the resource, the practicality of the intervention.

Mitigation plans must be developed in consultation with, and approved by, Government of Nunavut, Department of Culture, Language, Elders and Youth as part of archaeology permit applications submitted by qualified consulting archaeologists.

### Avoidance

First and foremost, all efforts will be made to try to avoid sites by consideration of project relocation or realignment options on an individual site basis.

### Protection

The goal will be to maintain as large a buffer distance between the site and the project component as possible. Where the buffer zone is well beyond the required 30m, no further action other than periodic monitoring may be necessary; also these sites or the area surrounding could be posted for limiting visitor access to sites. Wherever the buffer zone is approaching 30m, sites will be protected in some manner, as considered appropriate in each individual site situation. The general protection strategy to install appropriate signage, such as to encircle all site features with sturdy stakes and rope, encompassing a 15 to 20m buffer wherever possible, to reduce the possibility of anyone inadvertently entering the site area. Those sites will also be subjected to detailed assessment that will include mapping to scale and careful surface inspection and could also include some testing to ascertain site boundaries and to determine potential for buried cultural remains.



### The scientific investigation and recovery of information from the resource by excavation or other methods

At those sites where a 30m buffer zone is not possible and avoidance is impossible excavation or systematic data recovery will be implemented. The mitigation procedures will be adapted according to the type of site involved.

#### Isolated archaeological find

- The object is located using a GPS
- Photographic coverage
- Detail description of the find and the area
- The artifact is collected.

#### Campsites

##### *Contemporary site*

- Site plan using a theodolite or a total station
- Structure drawing
- Photographic coverage
- Detail description

##### *Post-Contact Inuit (Historic)*

- Site plan using a theodolite or a total station
- Structure drawing
- Photographic coverage
- Detail description
- Excavation, minimally, this will comprise two quadrants inside and as many units as need (1m x 1m or similar size, as appropriate) outside each feature.

##### *Thule and Pre-Contact Inuit and Paleo-Eskimo*

- Site plan using a theodolite or a total station
- Structure drawing
- Photographic coverage
- Detail description
- Installation of a grid over the site
- Total excavation of every feature using a 1 x 1m unit for better data control and a series of unit between the structures. On these sites spatial distribution of the material will be recorded. All removed soils will be screened through 4 mm mesh for the recovery of the smaller flakes and artifacts.
- In the archaeological survey phase of the Mary River Project, site evaluations were primarily based on the type of site and its elevation. If artifacts were present, a better cultural affiliation was possible. Any datable material, such as charcoal, and antler, if recovered was to be sent for datation. During the mitigation phase, all available material such as charcoal or antler will be sent for radiometric or other technical datation analyses, if the quantity and quality justify it. Without

datable material, tool typology will be used during the analysis of the data to obtain relative dating of the sites.

- 

#### Station (hunting)

- Site plan using a theodolite or a total station
- Structure plan
- Photographic coverage
- Detail description
- Feature drawing

#### Workshop (lithic)

- Site plan using a theodolite or a total station
- Structure plan
- Photographic coverage
- Detail description
- Collection of artifacts

#### Inukshuk/inukshuit

- Site plan using a theodolite or a total station
- Structure plan
- Photographic coverage
- Detail description
- Feature drawing

### 3.2 CONSIDERATION OF POTENTIAL EFFECTS ON CULTURAL RESOURCES

Construction activity and human presence can result in loss or alteration of historic resources. Effects on historic resources may be either direct or indirect. A direct effect as it relates to cultural resources is defined as "an immediately demonstrable effect of a project on an historic resource which can be attributed to a particular land modifying action". For the purposes of this assessment, a direct effect is predicted for all sites within 50 m of an area of physical disturbance. An indirect effect is defined under this same system as "an effect on an historic resource which is the result of an activity other than actual development actions". Indirect effects could include, for example, loss or alteration as a result of vandalism or erosion resulting from the construction of site infrastructure.

We have included an assessment of the significance of each archaeological site in the summary tables. In a broad sense, archaeological significance is based on the:

- Potential for information. For archaeologists, potential for information is the chief criterion for assessing importance. The potential information from a site depends on many factors, including:
  - the scale of a site and its state of preservation/condition;
  - the context of the site, or the degree to which the discovery is undisturbed and found in a reliable situation, which will affect the dependability of the evidence;
  - the potential contribution to broadening understanding of human past.

Within this context, each site has been ranked for significance in the tables in the subsequent sections of this Preliminary Archaeological Mitigation Plan as follows:

1. Site is of high significance
2. Site is of moderate significance
3. Site has low significance
4. Site is not significant\

#### **SECTION 4.0 - MILNE PORT**

The investigations at Milne Port covered the lease area and an area to the east. In Milne Port in addition to foot survey, Shovel testing was carried out on the beach ridges at Milne Inlet in 2007, 2008 and 2010.

##### 2007

In Milne Inlet, archaeological inventory surveys focused on proposed stockpile and laydown areas adjacent to the existing airstrip. These surveys comprised closely spaced transects, careful inspection of ground surface together with systematic subsurface testing in those portions of beach ridges suggestive of high archaeological potential. During the field program, the need to assess a road/ramp to transport cargo from the beach up to the main laydown area was added. The original location identified was subjected to heavy shovel testing and a buried site was found that was mitigated. One site (OIHc-13) was uncovered by shovel testing.

##### 2008

The area surveyed in Milne Inlet covered the lease area except for a small area in the east. The east limit, at the time of the survey, was unknown. The area west of the airstrip was assessed by foot transects. A series of test pits (50 x 50 cm) were dug at 5 m intervals along a strip, 200 m wide, along the edge of the upper beach ridge, and nothing was found.

A series of testpits (50 x 50 cm) were dug in the area between the road to the sea-can and the end of the upper beach. Since OIHc-13 was located in the area, special attention was paid to this location. This area had been disturbed at one time, so any surface indications of a site were gone. The rest of the zone was completed by foot transects and shovel testpitted in areas of interest; nothing was found.

##### 2010

The area surveyed in 2008 in Milne Inlet covered the lease boundaries except for a small area in the east. The area not covered in 2008 was completed in 2010. A series of testpits (50 x 50 cm) were dug at 5 m intervals along a strip 200 m wide along the edge of the upper beach ridge from the first stream toward the east. No new sites were found.

The sites identified, their relative age, potential direct and indirect effects of the Project on them; the sites that have been mitigated and proposed future mitigation are tabulated below.

#### 4.1 RESULTS OF INVESTIGATIONS

**Table 4.1 Sites at Milne Port with Potential for Direct Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Source of Potential Effect	Proposed Mitigation	Schedule
OIHc-14	Paleo-Eskimo	Workshop	2000	2	Port infrastructure	SDR	2013
OIHc-27	Paleo-Eskimo	Workshop	2000	2	Port infrastructure	SDR	2013

**NOTES:**

1. All archaeological sites in Canada are assigned a Borden number based on their geographic location. Under the Borden System, Canada is divided into blocks of land defined by latitude and longitude. These blocks are assigned alphabetical designations (e.g. OIHc represents one Borden block). Sites found within a Borden block are sequentially numbered (e.g. OIHc-17 represents the seventeenth site found in the OIHc Borden block).
2. Type indicates the function of the site e.g., habitation, storage, hunting, etc.

**Table 4.2 Sites at Milne Port with Increased Risk of Indirect Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Source of Potential Effect	Proposed Mitigation	Schedule
OIHc-2	Paleo-Eskimo	campsite	2000 +	1	Human activities	Avoidance	2013
OIHc-4	Paleo-Eskimo /historic	campsite	2000/ after 1900	1	Human activities	Avoidance	2013
OIHc-5	Neo-Eskimo	campsite	After 1800	2	Human activities	Avoidance	2013
OIHc-22	Inuit	storage	After 1900	3	Human activities	Avoidance	2013
OIHc-23	Inuit	habitation	After 1900	3	Human activities	Avoidance	2013
OIHc-24	Inuit	habitation	After 1900	3	Human activities	Avoidance	2013
OIHc-25	Inuit	habitation	After 1900	3	Human activities	Avoidance	2013
OIHc-28	Unknown	campsite	Unknown	2	Human activities	Avoidance	2013
OIHc-29	Unknown	campsite	Unknown	2	Human activities	Avoidance	2013

**Table 4.3 Sites Mitigated at Milne Port**

Borden No.	Culture		Age (Years)	Significance	Comment
OIHc-13	Paleo-Eskimo	workshop	2000	3	Mitigated in 2007
OIHc-17	Paleo-Eskimo	workshop	2000	2	Mitigated in 2011
OIHc-21	Inuit/Paleo-Eskimo	Campsite	After 1900/ 3000+	2	Mitigated in 2011
OIHc-26	Neo-Eskimo	Isolated archaeological find	Unknown	4	Mitigated in 2010

Archaeological sites (or remains) were found to be distributed in an almost linear manner along the elevated beach ridges for the length of the shore from Phillips Creek in the west to the unnamed eastern creek valley (Figure 4.1). Sites OIHc-14 and 17 had been previously disturbed. Five of the sites (OIHc 2 and 4, OIHc 13, 14 and 17) contain lithic (ground and chipped stone tools and debris) remains suggesting some antiquity. Stone features representing a range of ages were found in a sixth site (OIHc-5). Site OIHc-2 covers a large area containing a great variety of artifacts. It extends to a cairn/cache feature near an existing vehicle track

extending east-west across the Port. Many microblades, endblades, scrapers, graters and other types of lithic artifacts along with bone and ivory harpoon points (Photo 1 and 2) were observed within an estimated area of 200 x 100m. The artifacts on this site suggest an occupation in the Early Dorset period.

Site OIHc-13 was uncovered by shovel testing, providing an indication of the presence of buried remains that could occur anywhere on the beach ridges. This site contained microblades and end blades, suggesting pre-Dorset or Dorset occupation. The site was mitigated since it was situated within an area identified as a potential Project use zone. It was accurately mapped and artifacts were recovered on the surface and from subsurface excavations. Site OIHc-17 (Sketch 1), located on the lower and second beach ridge in the western portion of Milne Port east of the mouth of Phillips Creek, contained several concentrations of a dozen or more slate flakes on both terraces in addition to a large biface fragment found on the slope up to the second beach ridge. Site OIHc-21 (Sketch 2), containing stone circles and tent rings (Photo 3) and located on a small terrace overlooking Milne Port was not protected because it was far enough away from Project activity. Four sites found to the east of the lease area indicate recent use, i.e. the 'historic period' which is post 1900.

Old mine site residues were observed on the beach about 2 km from the camp. A series of 5 foot wooden stakes with yellow caution tapes were placed from the lease boundaries to the small stream and along the beach to mark a safe zone for the removal of the old mine material. The material was later removed. No archaeological sites were identified in the area adjacent to the existing airstrip in the western portion of the Port during the 2008 and 2010 surveys.

#### 4.2 PROPOSED MITIGATION AT MILNE PORT

Since the preparation of the EIS document in 2010, the final development plan for Milne Inlet Port has changed and is now restricted to the original lease, which has resulted in updates to the planned mitigation at this location. Proposed archaeology mitigation at Milne Port is shown on Figure 4.2. Two sites with potential direct effects have been identified and are scheduled for mitigation in 2013. Sites OIHc-2, OIHc-4 and OIHc-5, previously designated for SDR in the DEIS, will no longer be affected by the Project and therefore SDR is no longer required. These sites and six other sites, all located outside the lease area, have been identified with potential indirect effects. The sites closest to the Project are within a proposed exclusion zone area identified by Project archaeologists, which will be off-limits to Project staff (employees and contractors). Artifacts are visible on the surface in the exclusion zone due to lack of vegetation. The proposed exclusion zone is shown on Figure 4.2. The other sites are further removed from the port site and are not in danger of accidental impact by implementing these site rules.

#### 4.3 SUMMARY OF FINDINGS AT MILNE PORT

Milne Port has revealed archaeological remains indicating repeated use over a long period of time from over 2,000 years old to the present. Stone tool manufacture is clearly represented at sites in this area. The sites recorded are distributed in an almost linear manner on the beach ridges along the shore from Phillips Creek to the east of the unnamed eastern creek valley, and features have been observed along the latter creek. One of the sites has a large scatter of artifacts, one site contains numerous stone features suggestive of a range of time periods, and other sites exhibit smaller quantities of remains of stone tools and their manufacture.

**Figure 4.1      Milne Inlet Archaeological Site**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

At Milne Inlet, the 11 sites mitigated and 3 new sites discovered in 2011 were all located within 10 km of the coast along a section of the Tote Road that runs parallel to Phillip's Creek. The majority of sites excavated were Inuit tent ring sites of indeterminate age, most likely related to travel along the Phillip's Creek corridor between Pond Inlet and Igloolik. The few artifacts recovered were primarily chipped and ground slate, perhaps from a local source and no artifacts of European origin were recovered to suggest that the sites are recent. The lack of artifacts is consistent with temporary camp sites left by people passing through the area, travelling along the river valley. Occasional caches and blinds are evidence of caribou hunting.

In at least two instances (OIHC-18 and OIHC-21), Paleo-Eskimo artifacts and features were found beneath or adjacent to the Inuit tent rings. OIHC-21, at Milne Inlet is particularly noteworthy for its Pre-Dorset component. This site is the first evidence for a Pre-Dorset presence within the northern limits of the Mary River Archaeological Project area.

Phillips Creek Valley and Milne Inlet clearly show numerous archaeological resources. The sea with its many marine mammals, Phillips Creek with arctic char, and a water route access to the interior for caribou hunting, all make for a heavily used area since the beginning of human occupation in the area. The archaeological remains found at Milne Inlet are misleading about the overall human utilization of the area. The winter occupation leaves few traces, e.g. use of igloos. It is known from historical documents that the area was occupied in the winter for stay of variable time. Weissling (1991) quotes an RCMP officer who visited a camp of Inuit from Igloolik returning from Pond Inlet as noting that the camp was composed of about twenty igloos (Weissling 1991: 64).

**Figure 4.2      Milne Port Mitigation Plan**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**



## SECTION 5.0 - MILNE INLET TOTE ROAD

Based on preliminary inventory and overview assessments along the existing Milne Inlet Tote Road between Milne Port and Mary River, all sections suggestive of high to moderate potential and a sample of lower potential terrain were selected for pedestrian survey. A corridor approximately 70m wide extending about 30m to both sides of the existing Milne Inlet Tote Road was assessed. Most of the northern 64 km was assessed by ground reconnaissance. South of that point, the road leaves the Phillips Creek valley and associated drainages, travelling across varied terrain where archaeological potential is lower until the vicinity of Mary River and Mary Lake. Limited amounts of ground reconnaissance were conducted as spot checks of lower potential terrain.

Three large areas along the road identified as borrow sources for the road upgrading activities were also assessed (the North or Milne borrow at the northern end of the road prior to the descent into Milne Port, the Midway borrow south of Katiktok Lake and the Mary River borrow at the southern end of the road northwest of Camp Lake).

### 5.1 RESULTS OF INVESTIGATIONS ALONG MILNE INLET TOTE ROAD

Along the Milne Inlet Tote Road more than 50 archaeological sites were found (Figures 5.1 to 5.7). Eighteen of these sites have been mitigated or partially mitigated. The sites identified, their relative age and potential direct and indirect effects of the Project on them as well as the sites that have been mitigated are tabulated below.

Some sites were partially mitigated in 2007 and one (OkHb-13) in 2008.

#### OjHa-1

Most of the site was mitigated in 2007 (Prager, 2008). Only a cache is left and is around 30 m from the road. Site protection is recommended.

#### OjHb-3

A cairn close to the road was mitigated in 2007 (Prager 2008) The tent ring is located approximately 32 m from the existing tote road edge, thus, it was staked and flagged for avoidance.

However, once the limits of road construction disturbance is known in this area, the status of the cache should be reassessed and depending on the proximity, detailed mapping and/or site protection may be recommended.

#### OkHb-6

This site, recorded in 2006, contains six stone circles along the east side of the road, and two more were noted west of the road. The two closest structures to the road were subjected to systematic data recovery in 2007. The remaining features were staked. SDR is recommended.

#### OkHb-13

This site contains four stone circles, in pairs, on each side of a small stream channel. Water runoff has caused sediment to leach onto the pair of structures south of the stream. Structure 1 was mitigated before

being buried by sediment. Structure 2, a few metres to the north is in danger of being bury by the sediment. The two other circles are close to 30 m from the actual road. SDR is recommended.

#### OkHb-14

This site, recorded in 2007, consists of an isolated artifact found besides the existing tote road and a stone circle approximately 50 m west of the tote road. The vicinity of the artifact find was subjected to careful surface inspection and testing of the surrounding small 4x3m area.

The tent ring is less than 35m from the road, SDR is recommended

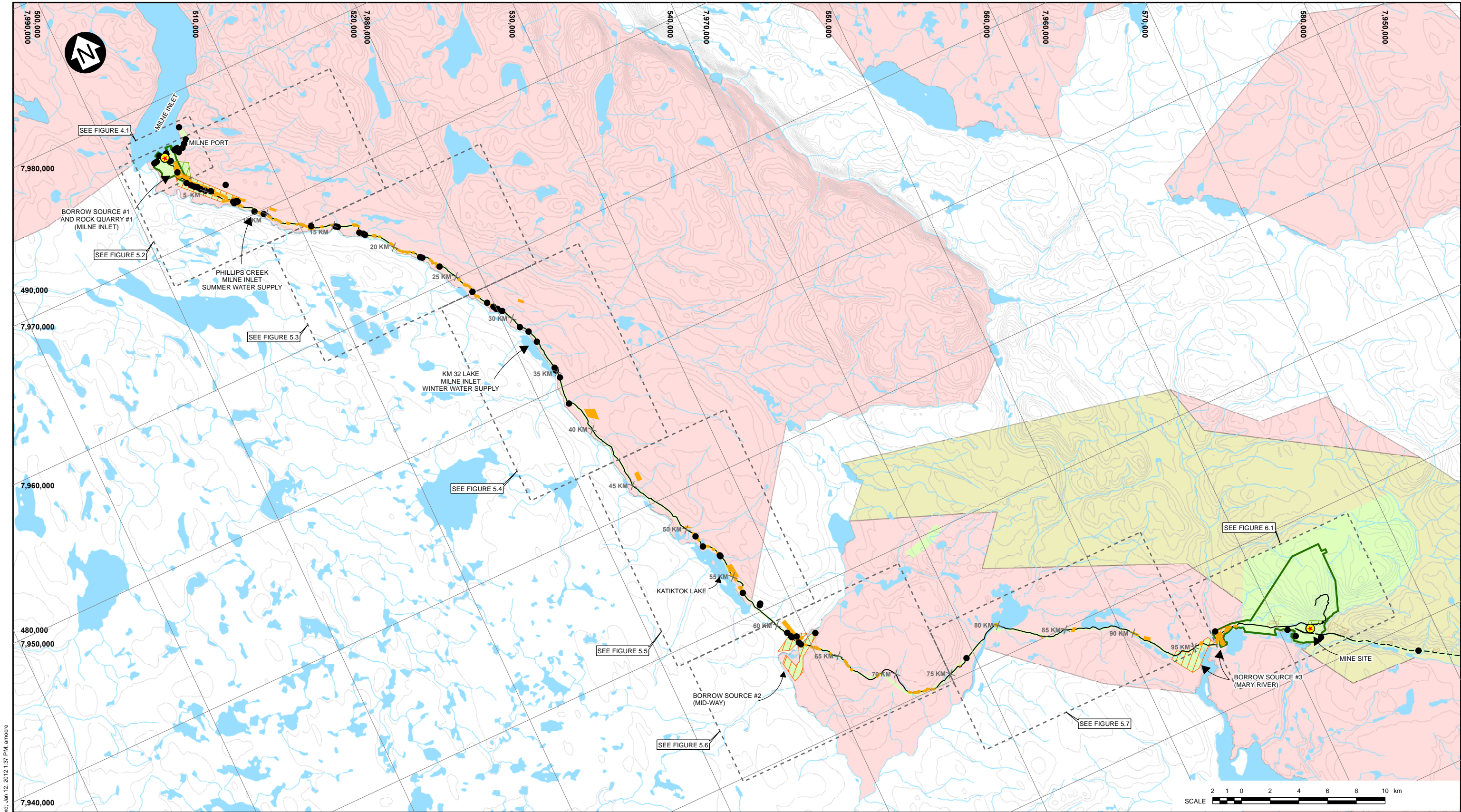
The sites identified, their relative age and potential direct and indirect effects of the Project on them, the sites mitigated and proposed future mitigation are tabulated below and presented in Figure 5.8.












**Table 5.1 Sites at the Milne Inlet Tote Road with Potential Direct Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Proposed Mitigation	Schedule
OiFw-1	Neo-Eskimo	campsite	Unknown	1	Tote Road	Borrow pit	SDR	2013
OiFx-1	Neo-Eskimo	campsite	Unknown	1	Tote Road	Road improvement	SDR	2013
OiHa-5	Neo-Eskimo	campsite	Unknown	1	Tote Road	Borrow pit	SDR	2013
OiHa-7	Neo-Eskimo	campsite	Unknown	1	Tote Road	Borrow pit	SDR	2013
OiHa-8	Neo-Eskimo	campsite	Unknown	1	Tote Road	Borrow pit	SDR	2013
OjHa-1	Inuit	Storage	Unknown	3	Tote Road	Human activities	SDR	2013
OjHb-1	Neo-Eskimo	campsite	Unknown	1	Tote Road	Road improvement	SDR	2013
OkHb-1	Neo-Eskimo	campsite	After 1800	1	Tote Road	Road improvement	SDR	2013
OkHb-3	Paleo-Eskimo	campsite	2000	1	Tote Road	Road improvement	SDR	2013
OkHb-6	Paleo-Eskimo	campsite	2000	1	Tote Road	Road improvement	SDR	2013
OkHb-6	Inuit	campsite	Unknown	2	Tote Road	Road improvement	SDR	2013
OkHb-13	Neo-Eskimo	campsite	Unknown	1	Tote Road	Road improvement	SDR	2013
OkHb-14	Paleo-Eskimo/historic	campsite	Unknown	1	Tote Road	Road improvement	SDR	2013
OkHb-15	Inuit	campsite	After 1900	2	Tote Road	Road improvement	SDR	2013
OIHc-11	Neo-Eskimo	storage	Unknown	3	Tote Road	Borrow pit	SDR	2013

#### NOTES:

1. Potential for Direct Effects - less than 35m from center of the Tote Road
2. For the non-habitation sites since there is usually nothing to excavate, an accurate mapping of the features and of the general area is the mitigation method proposed.



LEGEND:			
	WATER		IOL SURFACE AND SUBSURFACE INCLUDING MINERALS
	RIVER/STREAM/DRAINAGE		IOL SURFACE ONLY EXCLUDING MINERALS
	MILNE INLET TOTE ROAD		POTENTIAL QUARRY DEVELOPMENT AREA
	PROPOSED RAILWAY ALIGNMENT		EXISTING BORROW AREA LEASE BOUNDARY (IOL COMMERCIAL LEASE)
	QUARRY AND BORROW LOCATION (PROPOSED)		EXISTING ROCK QUARRY LEASE BOUNDARY (IOL COMMERCIAL LEASE)
	QUARRY AND BORROW LOCATION (EXISTING)		

REV	DATE	DESCRIPTION	RAC DESIGNED	ASM DRAWN	AMP CHK'D	KDE APP'D
0	20DEC11	ISSUED WITH TRANSMITTAL				

- NOTES:**
1. BASE MAP: HER MAJESTY THE QUEEN IN RIGHTS OF CANADA, DEPARTMENT OF NATURAL RESOURCES, (2004).
  2. COORDINATE GRID IS UTM (NAD83) ZONE 17 AND IS IN METRES.
  3. CONTOURS ARE IN METRES. CONTOUR INTERVAL VARIES.
  4. SURVEY AREAS BASED ON ARCHAEOLOGICAL SURVEYS COMPLETED 2006 THROUGH 2010.
  5. POTENTIAL QUARRY LOCATIONS PARTIALLY SURVEYED IN 2008. ADDITIONAL SURVEY REQUIRED.

BAFFINLAND IRON MINES CORPORATION		
MARY RIVER PROJECT		
ARCHAEOLOGICAL SURVEY AREAS MILNE INLET TOTE ROAD		
	P/A NO. NB102-181/30	REF NO. NB11-00528
FIGURE 5.1		REV 0



**Figure 5.2      Milne Inlet and Milne Inlet Tote Road Archaeology Sites**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 5.3      Milne Inlet Tote Road Archaeology Sites**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 5.4      Milne Inlet Tote Road Archaeology Site**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 5.5      Milne Inlet Tote Road Archaeology Site**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 5.6      Milne Inlet Tote Road Archaeology Sites**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**



**Figure 5.7      Milne Inlet Tote Road Archaeology Sites**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Table 5.2 Sites on the Milne Inlet Tote Road with Risk of Indirect Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Proposed Mitigation	Schedule
OiHa-1	Indeterminate	Habitation	Unknown	3	Tote Road	Human activities	Fence	2008
OiHa-6	Neo-Eskimo	campsite	Unknown	1	Tote Road	Road improvement	Fence	2008
OiHa-9	Unknown	Campsite	Unknown	2	Borrow Pit	Human activities	Fence**	2008
OjHa-1	Inuit	Storage	Unknown	3	Tote Road	Human activities	Fence	2008
OjHa-2	Neo-Eskimo	Habitation	Unknown	1	Tote Road	Human activities	Fence	2008
OjHb-2	Neo-Eskimo	campsite	Unknown	1	Tote Road	Road improvement	Fence	2008
OjHb-3	Inuit	campsite	Unknown	2	Tote Road	Road improvement	Fence	2008
OjHb-4	Neo-Eskimo	Campsite	Unknown	1	Tote Road	Human activities	Fence	2008
OkHb-2	Inuit	campsite	After 1900	2	Tote Road	Road improvement	Fence	2008
OkHb-5	Inuit	campsite	After 1900	2	Tote Road	Road improvement	Fence	2008
OkHb-7	Paleo-Eskimo	campsite	2000	1	Tote Road	Road improvement	Fence	2008
OkHb-8	Inuit	campsite	After 1900	2	Tote Road	Road improvement	Fence	2008
OkHb-9	Inuit	campsite	After 1900	2	Tote Road	Road improvement	Fence	2008
OkHb-12	Neo-Eskimo	campsite	Unknown	1	Tote Road	Road improvement	Fence	2008
OkHb-16	Inuit	campsite	After 1900	2	Tote Road	Road improvement	Fence	2008
OkHb-17	Inuit	campsite	After 1900	2	Tote Road	Human activities	Fence	2008
OkHc-3	Indeterminate	hunting	Unknown	3	Tote Road	Road improvement	Fence	2008

**NOTES:**

\* These sites are already fenced. Yearly monitoring of the fencing is recommended.

\*\* The site OiHa-9 is at the edge of a borrow pit on the other side of a gully.

**Table 5.3 Sites Mitigated on Milne Inlet Tote Road**

Borden No.	Culture		Age (Years)	Significance	Location	Comment
OiHa-2	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OiHa-3	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OiHa-4	Inuit	campsite	After 1900	2	Tote Road	Mitigated in 2008
OjHa-3	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OjHb-3	Neo-Eskimo	campsite	Unknown	2	Tote Road	Mitigated in 2007
OkHb-4	Inuit	campsite	After 1900	2	Tote Road	Mitigated in 2008
OkHb-10	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OkHb-11	Inuit	storage or marker	Unknown	3	Tote Road	Mitigated in 2007
OkHc-1	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OkHc-2	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OiHc-1	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OiHc-8	Paleo-Eskimo	campsite	2000	1	Tote Road	Mitigated in 2007
OiHc-10	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OiHc-12	Inuit	storage or marker	Unknown	3	Tote Road	Mitigated in 2007
OiHa-2	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OjHa-3	Inuit	campsite	Unknown	2	Tote Road	Mitigated in 2007
OiHc-3	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011
OiHc-6	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011
OiHc-7	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011
OiHc-9	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011
OiHc-15	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011

Borden No.	Culture		Age (Years)	Significance	Location	Comment
OIHc-16	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011
OIHc-18	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011
OIHc-19	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011
OIHc-20	Neo-Eskimo	campsite	Unknown	1	Tote Road borrow pit	Mitigated in 2011

Much of the Milne Inlet Tote Road follows the Phillips Creek terraces, ranging from the lower terrace close to the creek and veering away to the upper terraces. The northern section of the valley is narrower, therefore, the road is closer to the creek and, thus, archaeological potential is higher and there are more sites. In those sections where the road has room to veer away from the creek, the archaeological potential is lower and fewer sites were recorded.

Numerous sites were observed along both sides of the Phillips Creek valley. Virtually all of the sites recorded are located in this area. Sites OkHb15, 16 and 17 were small encampments with one or two tent rings located along the eastern bank of Phillips Creek between km 15 and 22 of the Milne Inlet Tote Road. Site OkHb-16, on a sandy terrace overlooking Phillips Creek, was staked for avoidance. Site OkHb-17, at the foot of a bluff on the south bank of a small creek feeding into Phillips Creek, was considered sufficiently far from the Milne Inlet Tote Road to not need protection. Sites OIHc-18, OIHc-19 and OIHc-20, 6 km from Milne Port, were mapped, staked and roped off for protection.

A 20 km stretch of the road, between km 37 and km 57, passes through a long section of fractured shale and rock deposits. This is a stark and barren landscape, unappealing for both wildlife and humans, and there is a consequent lack of archaeological remains. The southern portion of the road, from approximately km 65 to km 95, travels "cross country" over irregular terrain, not following any water courses or valleys that could provide travel routes, and is therefore considered lower potential.

Within the northern Milne borrow area, one large sand terrace at the point of the opening of the Phillips Creek valley into Milne Port is considered a high landform with high archaeological potential. It was fairly intensively shovel tested and the good surface exposures were carefully inspected. Most of the terrace level which this borrow encompasses is characterized by rock deposits. A little further south, several small rocky terraces were examined and a section of the rock and bedrock at the base of the high outcrop on the east side of the valley was also walked. At the south end of the borrow area, two levels of terrace were examined, one low near the creek level and a higher terrace midway between the creek, both sand and gravel. In the latter area, the rocky levels ascending up to the valley rim level were also walked and examined.

In general, the sites found are typical of inland sites noted throughout the Arctic in that they contain one or more stone circles that likely represent tent rings, a few with associated caches or alignments, and there are few artifact remains (Photo 4). This seems to be the pattern of inland hunting, generally small, short-term camps left by people who carried few belongings.

Some sites were partly mitigated and the remaining features staked and flagged for avoidance. Sites located between 12 and 30m from the Milne Inlet Tote Road edge and within borrow areas were mapped, staked and flagged for avoidance. At other locations the road alignment was shifted far enough away from the sites to create a 30m buffer. Some sites were not protected because they were far enough away from the existing road.

## 5.2 PROPOSED MITIGATION ALONG MILNE INLET TOTE ROAD

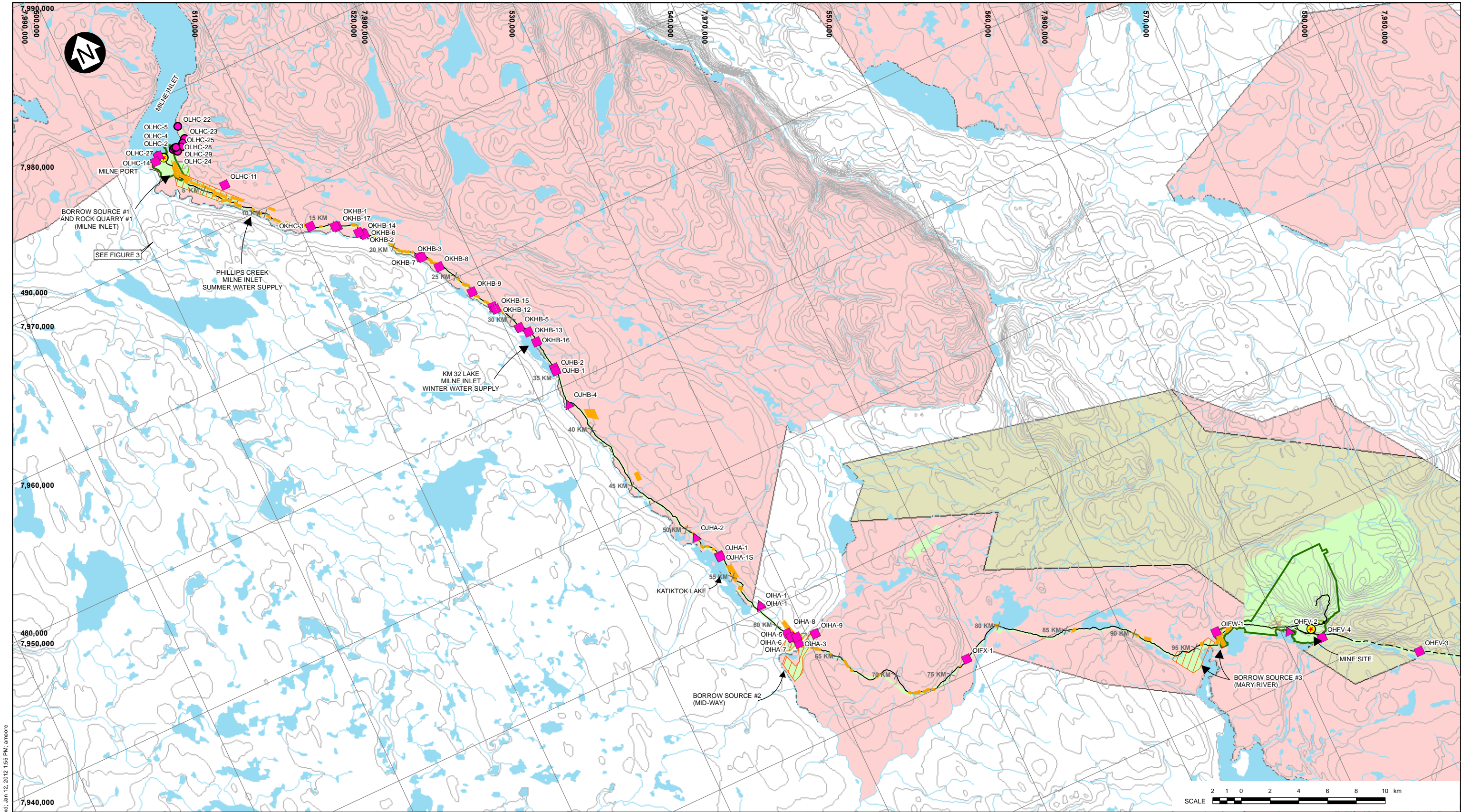
Fifty-seven sites were identified on the Tote Road. Twenty-five sites were mitigated during the years of 2007, 2008 and 2011. Of the remaining thirty-two sites, fifteen sites are located in an area less than 35m from the center of the road and are in the zone of potential direct effect. Subsequent to the DEIS, the Company's plans for the Milne Inlet Tote Road is to maintain the road as-is, without conducting the major road upgrades that were proposed in the DEIS as part of the proposal to haul ore to Milne Inlet. Nevertheless, SDR is proposed for the 15 sites located within 35 m of the road centreline. The remaining seventeen sites are in a zone further than 35m and fencing and periodic monitoring is recommended. Sites proposed for mitigation under this plan are identified in Figure 5.8.

## 5.3 SUMMARY OF FINDINGS ALONG MILNE INLET TOTE ROAD

Most of the sites were found in the area of Phillips Creek. Fewer sites were found along the remainder of the length of the road. The large number of sites in the Phillips Creek Valley has confirmed its use as a travel corridor to the interior over a long period of time. The numerous remains include some of the oldest known in the Eastern Arctic and are therefore very important. Discovery of a completely buried site provides confirmation that surface indications for all sites cannot be expected. The sites contain stone features heavily dominated by circles, most of which can be interpreted to represent tent rings. Many of them have associated hearths or windbreaks, both inside and outside, further indicating camp sites. The styles of the tent rings suggest a range of time periods. A significant number of the rings that are closely associated with the creek terraces and are partly covered by sediments and vegetation likely pre-date the road and may be considerably older. Some rings are fairly open and with a recent appearance, for example, those closest to the road at Sites OkHb-1 and OkHb-2. Some of these recent rings have an approximate square appearance, suggesting use of canvas tents; others have a larger outside ring of six or eight boulders indicating a modern tent ring. These rings likely date to the period following road construction in the 1960s.

Unfortunately, the inland sites that were excavated contain few artifacts that could assist in narrowing down the occupation period. In addition excavations revealed a lack of distinct layers of rock that would help identify the age in all sites investigated. Therefore, relative age based on the appearance of features appears to be the best possible age approximation. One site, OkHb-14, represents the only inland site found to contain a complete stone tool. However, it was an isolated surface find adjacent to the road making the meaning of that find equivocal. A flake found at Site OkHb-6, on the same landform, makes it possible that there are some lithic artifact deposits at one or both of these sites. If so, these findings could provide an indication of inland use and travel patterns over several time periods through the Phillips Creek valley, up to and including the present.





- LEGEND:**
  - WATER
  - RIVER/STREAM/DRAINAGE
  - MILNE INLET TOTE ROAD
  - PROPOSED RAILWAY ALIGNMENT
  - QUARRY AND BORROW LOCATION (PROPOSED)
  - QUARRY AND BORROW LOCATION (EXISTING)
  - IOL SURFACE AND SUBSURFACE INCLUDING MINERALS
  - IOL SURFACE ONLY EXCLUDING MINERALS
  - POTENTIAL QUARRY DEVELOPMENT AREA
  - EXISTING BORROW AREA LEASE BOUNDARY (IOL COMMERCIAL LEASE)
  - EXISTING ROCK QUARRY LEASE BOUNDARY (IOL COMMERCIAL LEASE)
  - POTENTIAL DISTURBANCE AREA
  - ARCHAEOLOGICALLY ASSESSED AREA

- MITIGATION TYPE: SDR  
MITIGATION YEAR: 2012
- MITIGATION TYPE: PROTECTION  
MITIGATION YEAR: 2012
- MITIGATION TYPE: AVOIDANCE  
MITIGATION YEAR: 2012
- MITIGATION TYPE: SDR  
MITIGATION YEAR: 2013
- MITIGATION TYPE: PROTECTION  
MITIGATION YEAR: 2013
- MITIGATION TYPE: AVOIDANCE  
MITIGATION YEAR: 2013
- MITIGATION TYPE: SDR  
MITIGATION YEAR: UNKNOWN
- MITIGATION TYPE: PROTECTION  
MITIGATION YEAR: UNKNOWN
- MITIGATION TYPE: AVOIDANCE  
MITIGATION YEAR: UNKNOWN

- NOTES:**
- BASE MAP: HER MAJESTY THE QUEEN IN RIGHTS OF CANADA, DEPARTMENT OF NATURAL RESOURCES, (2004).
  - COORDINATE GRID IS UTM (NAD83) ZONE 17 AND IS IN METRES.
  - CONTOURS ARE IN METRES. CONTOUR INTERVAL VARIES.
  - SURVEY AREAS BASED ON ARCHAEOLOGICAL SURVEYS COMPLETED 2006 THROUGH 2010.
  - POTENTIAL QUARRY LOCATIONS PARTIALLY SURVEYED IN 2008. ADDITIONAL SURVEY REQUIRED.

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

MILNE INLET TOTE ROAD  
MITIGATION PLAN

**Knight Piésold**  
CONSULTING

P/A NO.	REF NO.
NB102-181/30	NB11-00528
FIGURE 5.8	
REV	0

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## SECTION 6.0 - MINE SITE

Inventory surveys were conducted of the complete mining lease area at the Mine Site.

### 6.1 RESULTS OF INVESTIGATIONS AT MINE SITE

Two sites were found at the Mine Site, one site for which there is a risk of indirect effects and one which has been mitigated (Figure 6.1). The sites identified are tabulated below.

**Table 6.1 Sites at Mine Site for with Increased Risk of Indirect Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Source of Potential Effect	Mitigation	Schedule
OhFv-2	Inuit	Campsite	Unknown	2	Human activities	SDR	2013

**Table 6.2 Mitigated Site at the Mine Site**

Borden No.	Culture	Age (Years)	Significance	Comment
OhFv-1	Inuit	After 1900	2	Mitigated in 2008

Overview assessments indicated that the area is generally sloped, high and rocky, providing low archaeological potential.

### 6.2 PROPOSED MITIGATION AT MINE SITE

Only 2 sites were found in this area. Site OhFv-1 was mitigated in 2008. Since the remaining site (OhFv-2) could potentially be subject to indirect effects, and it is proposed to fence and flag this site.

### 6.3 SUMMARY OF FINDINGS AT MINE SITE

Only 2 archaeological sites were found at the Mary River Mine Site and their archaeological importance is considered to be relatively low to moderate since they are of relatively recent origin.

**Figure 6.1      Mine Site Archaeology Sites**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**



## SECTION 7.0 - RAILWAY

The survey of the proposed rail alignment covered a corridor from Mary River to Steensby Port. Potential quarry areas for the rail line and construction camp locations were also surveyed. The sites identified, their relative age, the potential direct and indirect effects of the Project on them, the sites mitigated and proposed future mitigation are tabulated below.

### 7.1 RESULTS OF INVESTIGATIONS ALONG THE PROPOSED RAILWAY

The archaeological sites discovered along the proposed railway line, their relative importance and mitigation actions taken where necessary are summarized in Table 7.1.

The northern 30 kilometre section of the proposed rail line traverses southeast through a valley characterized by a combination of elevated boulder deposits, sand and gravel terraces, and rock slope (Figure 7.1). The best archaeological potential areas in this section include the crossing of the Mary River and periodic elevated sand and gravel terraces adjacent to the string of lakes present in this valley. Site OhFv-4, containing a tent ring, was found near a proposed railway bridge crossing on a grassy area around 125 m from the north bank of the Mary River. Further in the valley at Site OhFv-3, a single tent ring, on a gravel knoll was found. Sites that will be mitigated in the northern 30 kilometre section are shown in Figure 7.2.

At approximately km 30, the proposed rail line curves toward the south and enters a broad open tundra area (Figure 7.3), crossing the Ravn River at about km 35. Discontinuous esker (a long, narrow ridge of coarse gravel deposited by a stream flowing in or under a decaying glacial ice sheet) deposits occur on both sides of the Railway alignment. Drill holes planned on both sides of the river were assessed by air and careful ground reconnaissance. Two sites were located on the banks of the Ravn River. The OgFt-1 site is located on the south bank and consists of a cairn overlooking small rapids. On a small plateau on the north bank of the Ravn River is site OgFt-2, consisting of two tent rings and a cairn. The esker is more continuous and consistent further east.

For the next 18 km, from approximately km 36 to km 54, the rail alignment roughly parallels a tributary of the Ravn River (Figure 7.3). The terrain is largely flat tundra with occasional minor elevations. At Site OgFs-1, near km 49, two cairns, were identified. At km 59, in a boulder field, evidence of caribou hunting was found.

At Site Offs-2, a cairn and a storage area were located and caribou bones were found. From approximately 55 km to km 70, the terrain consists of rocky tundra and boulder fields with periodic wet muskeg patches. Much of this area is considered to be of low archaeological potential. Sites that will be mitigated between km 30 and km 65 are shown in Figure 7.4.

Between approximately km 70 and km 86 the route runs along the west side of a Cockburn River tributary and traverses boulder fields and rock covered slopes. There are periodic elevated, approximately level terrain features that have some archaeological potential. These areas were surveyed and no archaeological remains were found (Figure 7.5).

South of km 85, the terrain becomes a very steep slope of loose rocks (Figure 7.5 and 7.7). The railway route itself is on steep rock sloping terrain all along Cockburn Lake. Two sites were recorded near drill sites along the currently proposed rail alignment on Cockburn Lake around km 95, at the narrows near the northern end of Cockburn Lake. OdFs-1 is on the east shore and OdFs-2 is on the west shore. Both are habitation sites with tent rings and caches. Figures 7.6 and 7.8 show the archaeological sites that will be mitigated as part of this mitigation plan.

**Table 7.1 Sites along the Railway Alignment with Potential Direct Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Mitigation	Schedule
OcFs-2	Inuit	campsite	After 1900	2		Railway	SDR	2013
OcFt-2	Inuit	Storage	After 1900	3	Mainland Steensby Inlet	Railway	accurate mapping	2013
OcFt-3	Inuit	Storage	After 1900	3	Mainland Steensby Inlet	Railway	accurate mapping	2013
OcFt-4	Inuit	Campsite	After 1900	2	Mainland Steensby Inlet	Railway	SDR	2013
OcFt-5	Inuit	Storage	After 1900	3	Mainland Steensby Inlet	Railway	accurate mapping	2013
OcFt-7	Inuit	Campsite	After 1900	2	mainland Steensby Inlet	Railway	SDR	2013
OcFt-13	Inuit	Campsite	After 1900	2	Cockburn Lake	Railway	SDR	2013
OdFs-1	Inuit	Campsite	After 1900	2	Cockburn Lake	Railway	SDR	2013
OdFs-2	Inuit	Campsite	After 1900	2	Cockburn Lake	Railway	SDR	2013
OdFt-2	Inuit	Campsite	After 1900	2	Cockburn Lake	Railway	SDR	2013
OdFt-3	Indeterminate	Campsite	Unknown	2	Cockburn Lake	Railway	SDR	2013
OdFt-4	Inuit	Storage	After 1900	3	Cockburn Lake	Railway	accurate mapping	2013
Offs-2	Inuit	Storage	After 1900	3	North of Cockburn Lake	Railway	accurate mapping	2013
OgFs-1	Inuit	Hunting	After 1900	3	Unnamed lake	Railway	accurate mapping	2013
OgFt-2	Indeterminate	Campsite	Unknown	2	Railway alignment	Railway	SDR	2013

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Mitigation	Schedule
OgFt-3	Indeterminate	Campsite	Unknown	2	Railway alignment borrow source	Railway	SDR	2013
OgFt-4	Indeterminate	Campsite	Unknown	2	Ravn River	Railway	SDR	2013
OhFv-3	Inuit	Campsite	After 1900	2	Mary River valley	Railway	SDR	2013
OhFv-4	Inuit	Campsite	After 1900	2	Mary River	Railway	SDR	2013

**Table 7.2 Sites along the Railway Alignment with Increased Risk of Indirect Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Mitigation	Schedule
OcFs-1	Indeterminate	campsite	Unknown	2	mainland Steensby Inlet	Human activities	Protection	2013
OcFs-3	Paleo-Eskimo/historic	campsite	Unknown	1	mainland Steensby Inlet	Human activities	Fence	2013
OcFs-4	Paleo-Eskimo/historic	campsite	Unknown	1	mainland Steensby Inlet	Human activities	Fence	2013
OcFs-5	Inuit	hunting	After 1900	3	mainland Steensby Inlet	Human activities	Fence	2013
OcFt-1	Inuit	Hunting (wolf Trap)	After 1900	2	Mainland Steensby Inlet	Railway	Accurate mapping, Fence	2013
OcFt-8	Inuit	storage	After 1900	3	mainland Steensby Inlet	Human activities	Fence	2013
OdFt-1	Inuit	campsite	After 1900	2	Cockburn Lake	None	Avoidance	-
OdFu-1	Indeterminate	campsite	Unknown	2	Tariujaq Arm	None	Avoidance	-
Offs-1	Inuit	campsite	After 1900	2	north of Cockburn Lake	None	Avoidance	-
OgFt-1	Inuit	Cairn	After 1900	3	Ravn River	Human activities	Fence	2013

**Figure 7.1      Archaeology Sites Railway (Sheet 1 of 4)**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 7.2      Mine Site and Area Mitigation Plan**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 7.3      Archaeology Sites Railway (Sheet 2 of 4)**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 7.4      Ravn River Area Mitigation Plan**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 7.5      Archaeology Sites Railway (Sheet 3 of 4)**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**



**Figure 7.6      Cockburn Crossing Area Mitigation Plan**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 7.7      Archaeology Sites Railway (Sheet 4 of 4)**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 7.8      South Cockburn to Steensby Mitigation Plan**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

Well-worn caribou trails and caribou caches were noted between southern Cockburn Lake and 10 km Lake. One site with an interesting feature was found at the southern end of Cockburn Lake: a wolf trap (OcFt-1) (Sketch 7.1). Active wolf dens on the rocky bluff at the south end of Cockburn Lake were noted. The wolf trap OcFt-1 is close to the railway and was recommended for avoidance by a Project archaeologist. A trade-off study was carried out to evaluate the potential to realign the railway to increase the setback from this feature, and it was concluded that the alternate routing would pass through thaw sensitive thermokarst ground which would present major construction challenges and operational risks to the railway, and that with protection the feature could be protected with the railway in its preferred alignment. The site will be protected and, as a contingency measure, will undergo accurate mapping mitigation.

Another site (OcFT-13) identified a possible house depression (Photo 5). Site (OcFt-7) on the west shore of 10 km Lake includes an inukshuit alignment and a caribou drive lane (Photo 6).

Towards Steensby Port, the number and diversity of site types were found to increase greatly. Faunal assemblages were noted at several sites.

## 7.2 PROPOSED MITIGATION ALONG RAILWAY

Twenty sites were found that could have potential direct effects and 9 were identified with potential indirect effects. No sites have been mitigated along the proposed railway corridor to date. Seven of the sites with potential direct effects have been proposed to undergo accurate mapping and 13 to undergo further SDR.

## 7.3 SUMMARY OF FINDINGS ALONG RAIL CORRIDOR

The sites discovered along and in the general vicinity of the proposed rail line indicate that the area crossed by the rail line served as an important travel corridor between Steensby Port and the communities to the north from prehistoric times to the present. It was also a location for caribou and trapping for wolves and foxes.

A system of uninterrupted navigational markers was found stretching from Sites OcFs-3 and OcFs-4 on the east shore of 10 km Lake towards the west shore and Ikpikitturjuaq Bay, delineating a well-traveled route 6.5 km long. This system is visually obvious at Site OcFt-7. Here a double row of inukshuit, possibly a caribou drive lane and a single row of inukshuit pointing towards Site OcFt-6 at the mouth of Ikpikitturjuaq Bay may be seen. Of these sites, only Site OcFt-7 is within the proposed rail alignment. At Site OcFt-6, outside the Project boundary, there is a small river which is a good location for Arctic Char (Theo Ikumak, pers. comm. 2010). The abundance of structures and features, such as kayak stands show that the area was popular for a long period.

## **SECTION 8.0 - STEENSBY PORT**

The archaeological surveys conducted in 2007, 2008 and 2010, covered the Port site footprint and surrounding area, to provide as complete as possible the information of the human utilization of the land.

### **8.1 RESULTS OF INVESTIGATIONS AT STEENSBY PORT**

The sites identified, their relative age, potential direct and indirect effects of the Project on them, the sites mitigated and future proposed mitigation are tabulated below. Figure 8.1 shows archaeological sites identified in Steensby that will be mitigated in 2012, and Figure 8.2 shows archaeological sites that are outside the Steensby Port footprint and are in an archaeological exclusion area to be established upon the recommendation of a Project archaeologist. In 2008, Baffinland reconfigured the layout of the Steensby Port to avoid this area; an exclusion or “no-go” area is proposed whereby Project workers will not be permitted anywhere in this area, and will be subject to disciplinary action if they are.

**Figure 8.1      Steensby Port Archaeology Sites**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Figure 8.2      Steensby Port Mitigation Plan**

**This Figure is Under Review by the Government of Nunavut, Department of Culture, Language,  
Elders and Youth**

**Table 8.1 Sites at Steensby Port with Potential for Direct Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Proposed Mitigation	Schedule
ObFt-1	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-5	Paleo-Eskimo	Campsite	2500	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-6	Paleo-Eskimo	Campsite	3500	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-7	Paleo-Eskimo Historic	Campsite	1500 after 1900	1	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-8	Paleo-Eskimo	Campsite	2000	1	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-9	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-10	Paleo-Eskimo	Campsite	2000 +	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-11	Paleo-Eskimo	Campsite	2000 +	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-12	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-13	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-14	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-15	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-30	Paleo-Eskimo	Campsite	2000	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-33	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
rObFt-34	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-35	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-41	Inuit	Campsite	After 1900	2	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-42	Inuit	Campsite	After 1900	2	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-49	Paleo-Eskimo Historic	Campsite	2000 after 1900	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-51	Inuit	Storage	After 1900	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-53	Paleo-Eskimo	Campsite	3500	1	mainland Steensby Inlet	Port infrastructure	SDR	2012



Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Proposed Mitigation	Schedule
ObFt-54	Inuit	Storage/hunting	After 1900	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-55	Neo-eskimo	Storage	Unknown	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-57	Inuit	Storage	After 1900	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-59	Indeterminate	Storage	Unknown	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-60	Neo-eskimo	Campsite	Unknown	2	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-63	Neo-eskimo	Campsite	After 1500	2	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-64	Paleo-Eskimo	Campsite	3000	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-65	Inuit	Storage	After 1900	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-66	Inuit	Storage/hunting	After 1900	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-67	Paleo-Eskimo	Campsite	3000	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-68	Neo-eskimo	Storage	Unknown	3	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-69	Paleo-Eskimo	Campsite	2500	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-71	Neo-eskimo	Campsite	Unknown	1	mainland Steensby Inlet	Port infrastructure	SDR	2012
ObFt-82	Inuit	Campsite	After 1950	2	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-83	Neo-eskimo	Campsite	After 1800	1	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-86	Paleo-Eskimo	Campsite	2500	1	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-89	Paleo-Eskimo	Campsite	2500	1	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-90	Paleo-Eskimo	Campsite	2500	1	island in Steensby Inlet	Port infrastructure	SDR	2012
ObFt-91	Inuit	Storage	After 1950	3	Mainland Steensby Inlet	Port infrastructure	SDR	2012

**Table 8.2 Sites at Steensby Port which are outside the Port Footprint**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Proposed Mitigation	Schedule
ObFt-18	Indeterminate	campsite	Unknown	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-19	Indeterminate	storage	Unknown	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-20	Paleo-Eskimo	campsite	Unknown	1	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-22	Prehistoric / historic	campsite	Unknown	1	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-23	Paleo-Eskimo	campsite	2000 +	1	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-24	Inuit	storage	After 1900	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-25	Inuit	storage	After 1900	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-26	Inuit	campsite	After 1900	2	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-27	Inuit	inukshuk	After 1900	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-44	Inuit	campsite	After 1900	2	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-45	Inuit	campsite	After 1900	2	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-50	Modern	campsite	1970-1978	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-70	Paleo-Eskimo	campsite	Unknown	1	mainland Steensby Inlet	Human activities	Avoidance	2012
ObFt-72	Paleo-Eskimo/ historic	campsite	2000 After 1900	1	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-73	Inuit	campsite	After 1900	2	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-74	Indeterminate	inukshuit	Unknown	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-76	Neo-eskimo	campsite	Unknown	1	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-77	Paleo-Eskimo	campsite	Unknown	1	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-78	Neo-eskimo	Storage /hunting	Unknown	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-79	Paleo-Eskimo	campsite	Unknown	1	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-81	Inuit	Storage /hunting	After 1900	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
ObFt-87	Paleo-	campsite	Unknown	1	Ikpiktturjuaq	Human	Avoidance	2012

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Proposed Mitigation	Schedule
	Eskimo/ Neo-Eskimo				Bay	activities		
OcFt-6	Inuit	campsite	After 1800	2	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
OcFt-9	Inuit	hunting	After 1900	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
OcFt-10	Inuit	campsite	After 1900	2	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
OcFt-11	Inuit	hunting	After 1900	3	Ikpiktturjuaq Bay	Human activities	Avoidance	2012
OcFt-12	Inuit	campsite	After 1900	2	Ikpiktturjuaq Bay	Human activities	Avoidance	2012

**NOTE:**

1. The area will be posted as off limits.

**Table 8.3 Sites at Steensby Port with Increased Risk of Indirect Effects**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Source of Potential Effect	Proposed Mitigation	Schedule
ObFt-75	Inuit	campsite	After 1950	3	mainland Steensby Inlet	Human activities	Fence	2012
ObFt-80	Inuit	Hunting (wolf trap)	After 1900	2	mainland Steensby Inlet	Human activities	Fence	2012

**Table 8.4 Mitigated Sites at Steensby Port**

Borden No.	Culture	Type	Age (Years)	Significance	Location	Comment
ObFt-4	Inuit	isolated archaeological find	After 1950	3	island in Steensby Inlet	Mitigated 2008
ObFt-28	Inuit	Campsite	After 1951	3	Steensby Inlet	Mitigated 2008
ObFt-52	Inuit	isolated archaeological find	After 1900	3	mainland Steensby Inlet	Mitigated 2008
ObFt-58	Inuit	isolated archaeological find	After 1900	3	mainland Steensby Inlet	Mitigated 2010
ObFt-2	Inuit	Hunting	After 1900	3	mainland Steensby Inlet	Mitigated 2011
ObFt-3	Inuit	Campsite	After 1900	3	mainland Steensby Inlet	Mitigated 2011
ObFt-16	Paleo-Eskimo	Campsite	2000	1	island in Steensby Inlet	Mitigated 2011
ObFt-17	Paleo-Eskimo	Campsite	2000	1	island in Steensby Inlet	Mitigated 2011

Borden No.	Culture	Type	Age (Years)	Significance	Location	Comment
ObFt-21	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Mitigated 2011
ObFt-29	Inuit	Hunting	After 1900	3	island in Steensby Inlet	Mitigated 2011
ObFt-31	Inuit	Storage	After 1900	4	mainland Steensby Inlet	Mitigated 2011
ObFt-32	Inuit	Campsite	After 1900	4	mainland Steensby Inlet	Mitigated 2011
ObFt-36	Inuit	Campsite	After 1900	2	island in Steensby Inlet	Mitigated 2011
ObFt-37	Inuit	Storage	After 1950	3	mainland Steensby Inlet	Mitigated 2011
ObFt-38	Inuit	Campsite	After 1950	3	mainland Steensby Inlet	Mitigated 2011
ObFt-39	Inuit	Campsite	After 1950	3	mainland Steensby Inlet	Mitigated 2011
ObFt-40	Inuit	Hunting	After 1900	3	mainland Steensby Inlet	Mitigated 2011
ObFt-43	Paleo-Eskimo	Campsite	3500	1	mainland Steensby Inlet	Mitigated 2011
ObFt-46	Inuit	Campsite	Modern	3	mainland Steensby Inlet	Mitigated 2011
ObFt-47	Inuit	Storage	After 1900	3	mainland Steensby Inlet	Mitigated 2011
ObFt-48	Inuit	Hunting	After 1900	3	mainland Steensby Inlet	Mitigated 2011
ObFt-56	Paleo-Eskimo	Campsite	3500	1	mainland Steensby Inlet	Mitigated 2011
ObFt-61	Paleo-Eskimo	Campsite	2500	1	mainland Steensby Inlet	Mitigated 2011
ObFt-62	Neo-eskimo	Campsite	Unknown	2	mainland Steensby Inlet	Mitigated 2011
ObFt-84	Paleo-Eskimo	Campsite	3000	1	island in Steensby Inlet	Mitigated 2011
ObFt-85	Inuit	Campsite	After 1900	3	island in Steensby Inlet	Mitigated 2011
ObFt-88	Paleo-Eskimo	Campsite	Unknown	1	island in Steensby Inlet	Mitigated 2011
ObFt-92	Inuit	isolated archaeological find	After 1900	3	mainland Steensby Inlet	Mitigated 2011

Features and artifacts at Steensby Port range from a single stone circle to over 35 stone features of various types including circles, caches and traps to evidence of permanent dwellings. Steensby Island has seen particularly intensive use. Several sites contain evidence of stone tool making suggestive of the Arctic Small Tool Tradition period. Chert (fine-grained silica-rich material used to make stone tools) flakes were found in

the Paleo-Eskimo sites. Some sites within and outside the Project footprint are very large and contain a range of features that appear to be of some antiquity, as well as more recent looking representations. Photos 7 to 11 illustrate evidence found of both ancient and recent use in the area.

## 8.2 PROPOSED MITIGATION AT STEENSBY PORT

Ninety-seven sites have been identified in Steensby Port. Twenty-eight were mitigated in 2008, 2010 and 2011. Of the sixty-nine remaining sites twenty-seven are outside the footprint of the Steensby port and are mostly located along the south shore of the Ikpikitturjuaq Bay and will be avoided through the establishment of an exclusion zone. Two sites are to be protected by fencing and periodic monitoring. Forty sites are subject to direct impact and are proposed to be mitigated in 2012, including the majority of sites on the Steensby Island which will be displaced by the proposed ore stockpiles and material handling equipment.

## 8.3 SUMMARY OF FINDINGS AT STEENSBY PORT

The various archaeological surveys along the Ikpikitturjuaq Bay and the southern limit of the Lease show that various groups used the area over a few thousand years. During the various archaeological surveys 97 sites were registered. Of this total, 67 locations are campsites and 30 sites are principally composed of features, cached, hunting blind, stone traps etc. The ObFt-80 site revealed two large wolf stone traps and a smaller one for fox. One of the wolf traps was built using a crack in the bedrock. This site with the addition of the OcFt-1 site, another stone wolf trap further up on the railway other stone fox traps found at different locations in Steensby show that trapping was an occupation carried out at one time in the area.

The cultural affiliation of the campsites is as follows:

- 30 Paleo-Eskimo or have a Paleo-Eskimo component,
- 6 represent a Neo-Eskimo occupation and
- 31 are either Historic Inuit or recent occupation. Most of these sites are composed of one or two tent ring, only six have between three to five tent rings.

Of the sites that are campsites, 4 sites have ten or more tent rings and associated features, all of them are along the Ikpikitturjuaq Bay, except one, ObFt-7, which is on the island.

The archaeological sites along the Ikpikitturjuaq Bay are outside the area affected by port development.

The excavation of some of these sites during the 2011 field season shed some light on the early occupation of the area of the Steensby Port. The preliminary analysis of the material found on at 5 sites believed to be the earliest occupation of the area show that they belong to the Pre-Dorset culture.

As noted by most Arctic archaeologists, most areas of the eastern Canadian Arctic have experienced continuous isostatic rebound following deglaciation. Older, relic shorelines are located at progressively higher elevations up to the limit of postglacial marine submergence. For the northern Foxe Basin region, which was deglaciated only 6,000 14C years BP, the marine limit is close to 100 m above sea level (asl), and the 4,500 14C year BP beach is at about 75 m asl (Dyke 2004). The strong uplift in Foxe Basin since 4,500 14C years BP, the approximate time of arrival of the Paleo-Eskimo in Arctic Canada, and the oft-

noted propensity for these peoples to occupy camps close to the shoreline, optimizes the chance that cultural sites whose ages are different by only a few centuries will be located on different raised beach levels. Thus the higher the site elevation, typically the older is the site (Savelle et al., 2009).

Most of the Paleo-Eskimo sites excavated in Steensby Port were between 18 and 25 m asl they could be dated between 2500 and 3000 years BP. The 22-m level emerged about 2,500 <sup>14</sup>C years BP (Savelle et al 2009:225). One site (ObFt-43) is at a higher elevation, 44 m asl, this will place the site during the Middle Pre-Dorset period at around 3,300 to 3,500 years BP. Two harpoon heads found on the ObFt-16 site will place the occupation during the Middle Dorset Period (2,000 years BP).

The density and the size of the campsites is relatively small if we compare with what is found in other areas of the Foxe Basin. Within the Kapuivik site area on Jens Munk island, 282 Paleo-Eskimo dwelling features and 127 Neo-Eskimo features were recorded (Savelle et al., 2009:211). From the work done in Steensby Port we can assume that this area was visited by small hunting party who used the area for a specific purpose, such as caribou hunting in late summer / early fall. When the analysis of the 2011 fieldwork is complete, the information should be helpful to further evaluate this hypothesis.

## SECTION 9.0 - DISCUSSION

Previous archaeological studies in the region have shown that people have been living throughout this area for approximately 4,500 years and that evidence of Pre-Dorset, Dorset and Thule occupations can be expected, in addition to historic and more recent Inuit use. Throughout the occupation of the Eastern Arctic, a maritime oriented economy has prevailed. The remains of more important occupations at and near the coastlines of Milne and Steensby Inlets can be expected to be found, particularly at higher elevations, for earlier periods, due to isostatic rebound of the coastlines. Inland sites are often smaller and were rarely occupied only during late summer or early fall when the caribou were the fattest and their hides in the best condition. People did not carry many possessions on their inland hunting trips, to be as mobile as possible to follow and intercept caribou. However, it can be quite safely concluded that the inland region has been an important hunting area throughout human history. Therefore, sites can be expected to be found from any time over the past 4,500 years.

Historic records have clearly indicated that both Milne and Steensby Inlets were foci of human occupation/use and that Phillips Creek was long used as a travel route. The most common route from Steensby to Milne Inlet appears to have been through Nina Bang and Inuktorfik Lakes to the Phillips Creek Valley. Most people probably travelled from the west end of Steensby, probably along Tariujaq Arm. From Nina Bang Lake, another logical route to Phillips Creek would have been via the drainage connecting to Angajurjualuk Lake, and has been used in recent times (Riewe in Prager 2008: 13). The head of Steensby Inlet was a favorite area for summer fishing and caribou hunting, and a winter sled route passed through, linking the Eclipse Sound and Foxe Basin regions (Crow 1969: 8).

Some studies in the early 1970's established that during the 20th century the area of Steensby Inlet was the hunting ground for the Manirtau group, consisting of six families (Vestey 1974: 130). The group territory was the east side of Steensby Inlet (Figure 2.5). According to Crow (1969: 50), spring and winter sealing are adequate in this area, and caribou, found mostly east of Steensby Inlet, are more numerous than in any other area. Wolves, associated with the caribou, were valuable for their skins as trade items. Bears, bearded seals, white whales, and foxes are common in the caribou country at the head of Steensby Inlet. Beaubier (1971:68) mention that the caribou hunts on the mainland area concentrated on the west coast of Kangilksimayuk and northern Steensby Inlet.

Phillips Creek Valley and Milne Inlet clearly show numerous archaeological resources. The sea with its many marine mammals, Phillips Creek with arctic char, and a water route access to the interior for caribou hunting, all make for a heavily used area since the beginning of human occupation in the area. The archaeological remains found at Milne Inlet are misleading about the overall human utilization of the area. The winter occupation leaves few traces, e.g. use of igloos. It is known from historical documents that the area was occupied in the winter for stay of variable time. Weissling (1991) quotes an RCMP officer who visited a camp of Inuit from Igloolik returning from Pond Inlet as noting that the camp was composed of about twenty igloos (Weissling 1991: 64).

The five field seasons have identified a large number of new sites that contribute significantly to the body of knowledge about the use of North Baffin Island by humans groups for many thousands of years.

The sites recorded contain a variety of stone features, including circles that probably represent tent rings, caches, traps, cairns and inukshuit as well as more recent features such as wood cabins and modern artifacts such as a plastic sled runner. The remains found throughout the study area cover a long period of occupation from the Pre-Dorset Culture (up to 3,500 years old) to the present. Some of the sites contain remains from a variety of stone tools and by-products of their manufacture. Several artifacts that may be attributable to the Arctic Small Tool Tradition have been recovered.

These investigations have established that this general area has seen substantial degrees of use throughout the human past. Both Milne Port and Steensby Port have revealed archaeological remains indicating repeated use both now and in the past. The presence of large numbers of sites in the Phillips Creek valley has confirmed its importance as a travel corridor to the interior for a considerable time.



## **SECTION 10.0 - CONCLUSIONS**

Previous archaeological studies in northern Baffin Island show that people have been living throughout this area for approximately 4,500 years. Historic records and traditional knowledge have indicated that both Milne and Steensby Ports were foci of human occupation/use and that Phillips Creek was used as a travel route. The most common route from Steensby to Milne Port appears to have been through Nina Bang and Inuktorfik Lakes to the Phillips Creek Valley. Most people probably travelled from the west end of Steensby Port, along Tariujaq Arm. From Nina Bang Lake, another route to Phillips Creek might have been via the drainage connecting to Angajurjualuk Lake, and has been used in recent times.

The archaeological investigations found evidence of Pre-Dorset, Dorset and Thule occupation as well as of historic and more recent Inuit use. Throughout the occupation of the Eastern Arctic a maritime oriented economy prevailed. The remains of more important occupations were found at and near the coastlines of Milne Port, particularly at higher elevations, for the earlier period, due to isostatic rebound of the coastlines. Important occupations also occurred at and near Steensby Port. Inland sites are smaller and were occupied usually only in late summer and early autumn when the caribou were the fattest and their hides at their best for clothing. The inland region appears to have been an important hunting area throughout human history.

A few artifacts were found in the inland sites that represent hunting trips. A considerable range of artifacts were found at coastal sites. Most tools found in prehistoric sites are made of stone. Depending on the state of preservation tools made of organic material such as bone, antler, ivory and wood were found. In historic sites depending upon their ages tools made of different materials have also been found. The lack of artifacts on inland sites makes it harder to assign a chronological period of occupation to these sites.

The findings in these studies are consistent with findings throughout the North Baffin Region.

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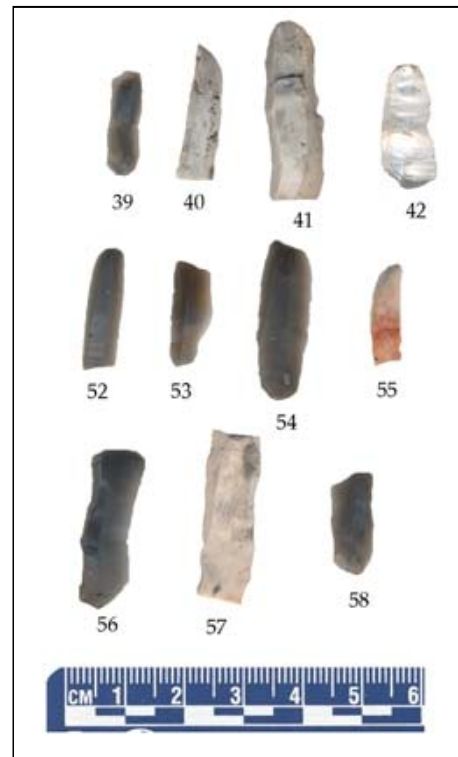
**APPENDIX A**

PHOTOGRAPHS

(2 Pages)



**PHOTO 1** – OIHc-2 Representative Sample of Artifacts Found from Milne Port Points.



**PHOTO 2** – OIHc-2 Representative Sample of Artifacts Found from Milne Port Microblades.



**PHOTO 3** – OIHc-3 tent ring (view W).



**PHOTO 4** – OkHb-17 tent ring (view S).



**PHOTO 5** – OcFt-13 Feature 2 Trench.



**PHOTO 6** – OcFt-7 eastern portion of Inukshuit.



**PHOTO 7** – ObFt-43 Feature 3.



**PHOTO 8** – ObFt-45 dwelling.

**BAFFINLAND IRON MINES CORPORATION  
MARY RIVER PROJECT**





**PHOTO 9** – ObFt-50 plastic sled runner.



**PHOTO 10** – ObFt-50 whalebone.



**PHOTO 11** – ObFt- 50 General site.



**PHOTO 12** –Slate Lance Head from Milne Inlet.



**PHOTO 13** – Slate Lance Head from Milne Inlet.



**PHOTO 14** – Steensby Inlet Sod Houses.

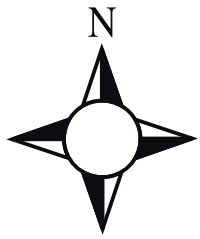
**APPENDIX B**

ARCHAEOLOGICAL SITE SKETCHES

(3 Pages)

- OIHc-17
- OIHc-21
- OcFt-1



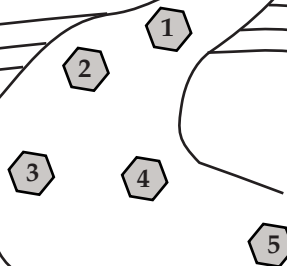


Milne Inlet

Sandy Beach

Phillips Creek Delta

Vehicle track

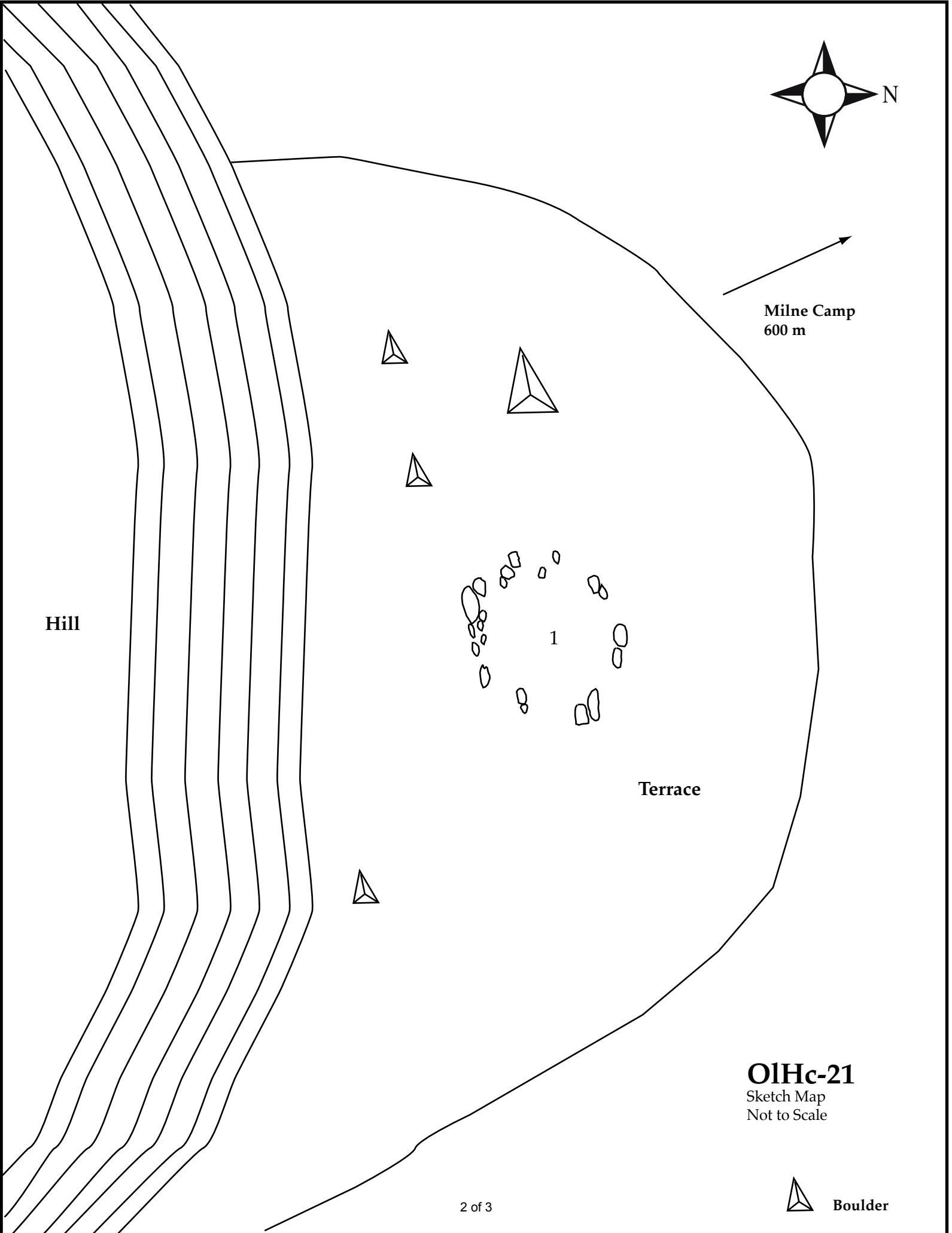


**OlHc-17**

Sketch Map  
Not to Scale



Collected area



Hill

Milne Camp  
600 m

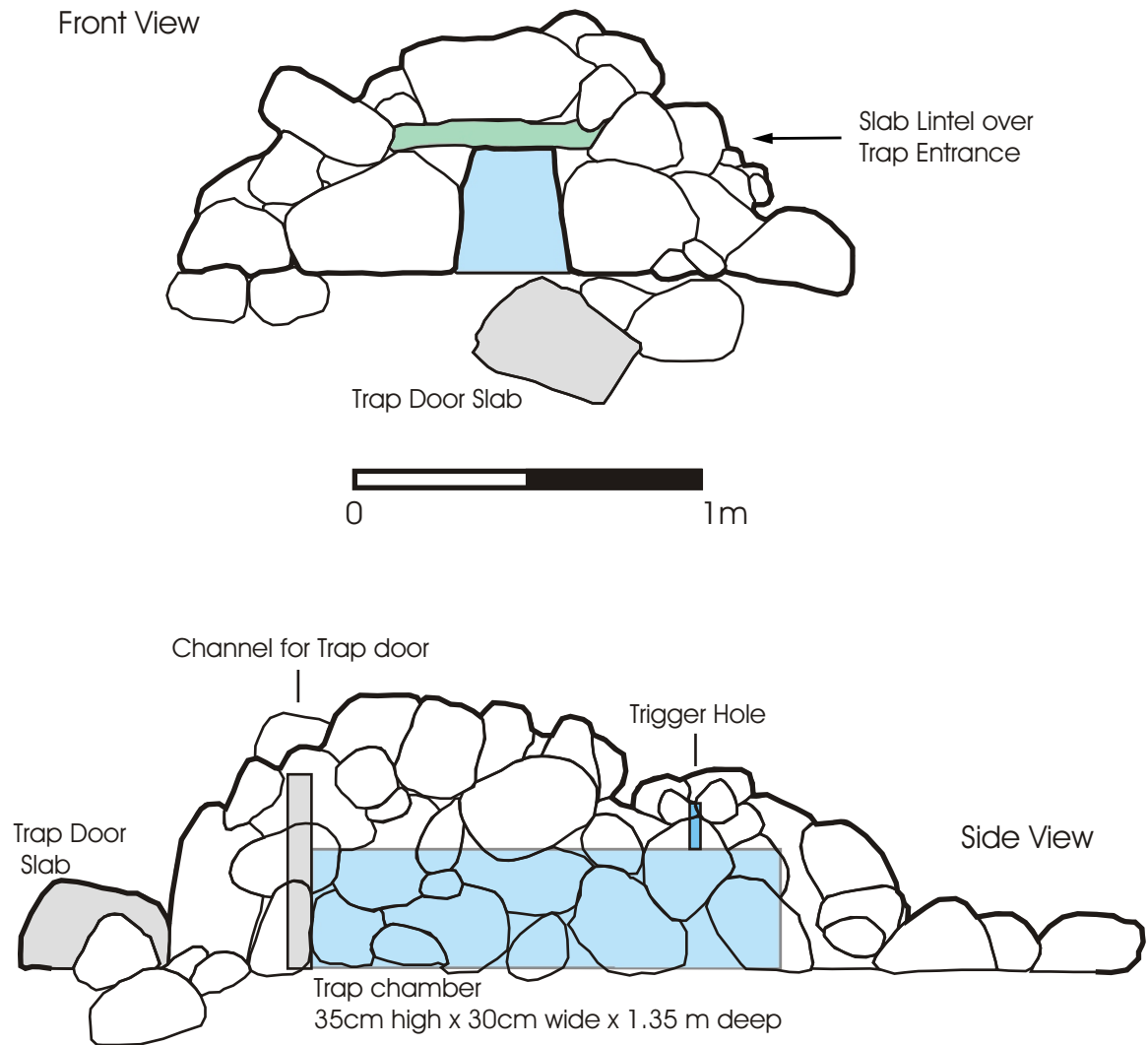
1

Terrace

**OIHc-21**  
Sketch Map  
Not to Scale

# OcFt-1

## Feature 1 - Wolf-Trap



T. Rast 2008