QIKIQTANI INUIT ASSOCIATION'S TUSAQTAVUT STUDY SPECIFIC TO THE BAFFINLAND MARY RIVER PROJECT PHASE 2 FOR THE COMMUNITIES OF IGLOOLIK AND HALL BEACH

Qikiqtani Inuit Association
September 26, 2019

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Qikiqtani Inuit Association's Tusaqtavut for Phase 2 Application of the Mary River Project for the Communities of Igloolik and Hall Beach

FINAL REPORT / September 26, 2019

Qikiqtani Inuit Association

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Thanks and acknowledgements go to Igloolik and Hall Beach community members, elders, knowledge holders, land users, and to QIA staff, and leadership who contributed. This Report could not have been completed without their support and expert knowledge.

Disclaimer:

The information contained in this Report is based on research conducted by Qikiqtani Inuit Association, with support from Firelight Research Inc., as well as published works and archival research. It reflects the understandings of the authors and is not intended to be a complete depiction of the dynamic and living system of use and knowledge maintained by Inuit. It may be updated, refined, or changed as new information becomes available. All mapped information is based on interviews with Igloolik and Hall Beach knowledge holders conducted within constraints of time, budget and scope. Base map data originate from the National Topographic System and Natural Resources Canada. The information contained herein should not be construed as to define, limit, or otherwise constrain the Nunavut Agreement rights of Inuit.

EXECUTIVE SUMMARY

The Qikiqtani Inuit Association (QIA) engaged Firelight Research Inc. to support a Tusaqtavut study specific to the Mary River Project operated by Baffinland (the Project) on northern Baffin Island. This Report provides non-confidential information about existing and anticipated Project interactions, based on knowledge and use data collected during interviews with Igloolik and Hall Beach community members. Mapping interviews focused on the vicinity of the Project, including the terrestrial environment around mine developments and the marine environment surrounding shipping routes.

The Report includes analysis of 38 knowledge and use mapping interviews conducted with 12 Inuit community members from Hall Beach during the period of May 23, 2019 to May 24, 2019, and 26 Inuit community members from Igloolik during the period of May 22, 2019 to May 29, 2019.

The site-specific data clearly demonstrate that Inuit use or have used the Study Area across multiple generations. A total of 983 site-specific values were reported in the Study Area (the Footprint, LSA, and RSA). The Study Area contains numerous important sites that support harvesting of wild foods including marine mammals (including ringed seal and walrus), terrestrial mammals (including caribou), fishing, and Inuit cultural continuity. These include, but are not limited to:

- Marine hunting sites;
- Terrestrial hunting and trapping sites;
- Fishing sites;
- High-value fish habitat;
- Important wildlife habitat, including calving areas for caribou and walrus in the terrestrial and marine environments respectively;
- Important travel routes that are relied upon to access hunting grounds and other communities; and
- Areas relied on for the continuity of Inuit culture, such as teaching areas, campsites, sod houses and gathering places.

The site-specific data show that the Project is situated in an area that is highly valued and has been used by Inuit for generations. This Report documents the historical, current, and desired future use of Inuit and their ancestors within this area, including the coastlines and interior of Baffin Island, northern Melville Peninsula, and northern Foxe Basin, as well as the marine environment including the sea ice and floe edge.

Through discussion and interviews, study participants identified a set of Valued Components (VCs) relating to Inuit knowledge and use that have been and/or continue to be impacted by the Project. These are: Marine Hunting; Terrestrial Hunting; Fishing; Travel, Trails and Habitation; and Cultural Continuity.

Although the Study VCs are interconnected, this Study has identified potential interactions between the Project and each VC. Project interactions and impact

pathways impacting marine mammal harvesting, safe travel inland and on the sea ice, quality of marine mammal habitat, loss and disturbance of hunting areas, and loss of knowledge transmission which emerged from the Study related to the VC of Marine Hunting are as follows:

- Displacement of marine mammals due to acoustic and other disturbances;
- Decreased abundance of valued species in preferred hunting areas;
- Effects on the quality of marine mammals due to contaminants (e.g., dust);
- Effects on the experience of being in preferred areas (e.g., acoustic disturbances, increased traffic);
- Decreased use and loss of use due to the above; and
- Related impacts on food security and knowledge transmission.

Project interactions and impact pathways, including impacts to safety, increasing harvesting efforts and costs, and a loss or disturbance of use of hunting areas with potential impacts to household and community-level subsistence, that emerged from the Study related to the VC of Terrestrial Hunting are as follows:

- Effects on caribou movement and migration patterns due to new rail development (south and north), mineral extraction, and increased rail and marine traffic;
- Acoustic disturbances to terrestrial wildlife, including caribou, from an increase in proposed rail and shipping traffic in combination with existing and permitted (though not yet constructed) increases in air, rail, and shipping traffic in the Study Area;
- Disturbances to seabirds and their nesting areas;
- Impacts on the health of Inuit hunters due to exposure to airborne dust; and
- Effects on terrestrial wildlife health due to contamination from dust dispersion.

Project interactions and impact pathways impacting fish harvesting, including important fish habitat and migration routes, that emerged from the Study related to the VC of Fishing are as follows:

- Effects on fish migration routes, particularly in and around Ikpikitturjuaq and the southern shipping corridor;
- Loss of valued fish habitat in Ikpikitturjuaq and along the southern shipping route;
- Effects on fish populations due to contamination from dust dispersion; and
- Acoustic disturbances from the increase in shipping traffic through Ikpikitturjuaq and southern shipping route.

Project interactions and impact pathways impacting the safety of travel across terrain and seascapes, as well as increasing travel time and harvesting effort, that emerged from the Study related to the VC of Travel, Trails, and Habitation are as follows:

- Disruption to travel and trails across the southern shipping route, due to ice breaking, melting, and competition with increased shipping traffic;
- Negative effects on drinking water quality within the Study Area due to dust dispersion; and
- Loss of use or avoidance of preferred areas for camping due to disruption from developments.

Project interactions and impact pathways impacting knowledge transmission and sense of place that emerged from the Study related to the VC of Cultural Continuity are as follows:

- Negative effects on important archaeological sites due to ground disturbance from development activity;
- Negative effects on the use of preferred areas for knowledge transmission.

The Study Area is important to Study participants in the North Baffin region for the continued use and maintenance of their traditional land use and harvesting practices. Proposed and existing mine activities (and related shipping and road traffic), are having, and would likely in the future continue to have, a direct impact on the ability of Igloolik and Hall Beach members to use the land for harvesting, travel and camping purposes, and by extension reduce their ability to transmit to future generations their IQ, including cultural knowledge, values, and worldview.

This report is not considered to be a full effects assessment of the Project and its potential to impact Igloolik and Hall Beach Inuit community members' values and uses in the Study Area. The results of this Study should be considered alongside the findings from the Qikiqtani Inuit Association's Tusaqtavut for Phase 2 Application of the Mary River Project for Pond Inlet (QIA 2019).

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ACRONYMS AND ABBREVIATIONS

Firelight	Firelight Research Inc.
GN	Government of Nunavut
HTO	Hunters and Trappers Organization
IOL	Inuit Owned Lands
IQ	Inuit Qaujimajatuqangit
km	Kilometre
LSA	Local Study Area
NA	Nunavut Agreement
NTI	Nunavut Tunngavik Inc.
NU	Nunavut
NIRB	Nunavut Impact Review Board
The Project	Mary River Project
The Proponent	Baffinland Iron Mines Corporation
QIA	Qikiqtani Inuit Association
RSA	Regional Study Area
Study	QIA Tusaqtavut Study, an Inuit Knowledge and Use Study Specific to the Mary River Project, Phase 2
Study Area	The RSA, LSA, and Footprint combined
VC	Valued Component

1. INTRODUCTION

1.1 OVERVIEW

This Report documents the background, methods, and findings of a QIA Tusaqtavut Study, an Inuit Knowledge and Use Study (the Study), specific to the Mary River Project Phase 2 (the Project) proposed by Baffinland Iron Mines Inc. (the Proponent) on Baffin Island. For the purposes of this Report, the Project refers collectively to existing and permitted project activities (including the Southern Rail, Steensby Port and Southern Shipping Route), as well the proposed Phase 2 developments and activities (including the mine, northern road, northern rail, port, and northern shipping developments).

This Report provides information on current conditions and existing Project interactions, and consideration of anticipated Project interactions based on current and available Igloolik and Hall Beach community IQ data in relation to the traditional lands of the Study participants and in the vicinity of the Project.

This Report includes non-confidential site-specific (i.e., mapped) and qualitative information related to the Project.

The Report is organised into five sections:

- Section 1 presents an overview of the scope of work and Report and Study limitations;
- Section 2 presents background information regarding the communities of Igloolik and Hall Beach and the Project;
- Section 3 presents information on the methods used for the Study;
- Section 4 presents the findings of the Study, including both site-specific and qualitative data; and
- Section 5 summarises the findings and conclusions of the Study.

The Qikiqtani Inuit Association (QIA) engaged Firelight Research Inc. (Firelight) to support a Tusaqtavut study specific to the Project. As detailed in the January 17, 2019 work plan, this includes:

- Detailed budgeting, scoping, work planning, and project management;
- Data and document review of existing data relating to the Project and the Study Area;
- Meetings with QIA to discuss the purpose of the Study and identify key valued components (VCs) and interests related to the Project;
- Development and tailoring of interview and mapping methodologies for the Study;

- Completion of up to 30 individual mapping interviews with Study participants knowledge holders at a scale of 1:50,000 or finer;

- Analysis of interview results, including transcription, post-processing GIS data, preparing maps, and writing a draft non-confidential report;

- Final reporting to communities.

The deliverables will include a Tusaqtavut Study non-confidential report that considers likely Project-specific effects on Inuit resources, knowledge, use and values based on Inuit knowledge and land use. Report components include:

- Identification and discussion of key issues relating to traditional resource use and livelihood specifically relating to the Project;

- Identification and assessment of project-related impact pathways on key Inuit values;

- Maps that indicate Inuit key resources in the vicinity of the Project (including fish, animals, migratory birds, water resources, and others);

- A discussion of the importance of key resources related to livelihood practice, the transmission of Inuit Qaujimajatuqangit, and the current status of knowledge transmission relating to areas or resources near the Project;

- An assessment of likely interactions of the Project on resources and areas of importance to QIA and on IQ, knowledge and use, and associated impact pathways;

- Baseline and assessment methods.

The Report does **not** include:

- An assessment of residual effects of the Project on Inuit knowledge and use;

- A comprehensive assessment of the potential for cumulative effects on Inuit knowledge and use from the Project acting in combination with other developments and human-caused changes in the region;

- Recommendations for mitigation of effects;

- A significance determination regarding anticipated residual and cumulative effects of the Project; or

- Recommendations regarding culturally relevant indicators and strategies for monitoring in the vicinity of the Project.

1.2 LIMITATIONS

This Report has a number of limitations and should only be considered a first step in identifying Igloolik and Hall Beach knowledge and land uses and values that may be impacted by the Project. Limitations of this Report include the following:

- The Study was conducted with the communities of Igloolik and Hall Beach, therefore the values, uses, and Project impacts on members of other affected Inuit communities are not included in this report.

- Not all knowledge holders were able to participate in this Study. Efforts were made to include key knowledge holders active within the Study Area, but many Hall Beach and Igloolik elders, hunters, and community members with important knowledge of the Study Area (i.e., Footprint, LSA, and RSA combined) may have been unable to participate due to time and budget restrictions.

- Data collected for each participant is limited by what the participant was able and willing to report at the time of the interview.

- Some interviews were conducted in Inuktitut using simultaneous translation. Due to time constraints, translated transcription has not taken place. Interview notes indicate when a quote from an interview participant was from the translator at the time of the interview.

- The area demarcated by mapped site-specific use values should be understood to be a small portion of the actual area required for the meaningful practice of a Study participant's way of life. Site-specific mapped values (e.g., cabins and kill-sites) reflect particular instances of use that anchor wider practices of culture, livelihood, and other Inuit rights within a particular landscape. For example, a single fishing site may be mapped with a precise point, but that point does not capture the entire spectrum of related practices and values.

- This Report does not include recommendations on mitigation, monitoring, or compensation measures. Conclusions on monitoring, mitigation, and compensation measures are outside the scope of this Report.

- This Report is based on the understandings and analyses of the authors and is not intended as a complete depiction of the dynamic way of life and living system of use and knowledge maintained by the Igloolik and Hall Beach communities.

- This Report should not be taken as a replacement for other studies that may be required, including but not limited to cumulative effects, socio-economics, diet, IQ studies specific to marine and terrestrial wildlife, and health and wellbeing.

Given the above limitations, this Report can be used as a representational account of only some of the Igloolik and Hall Beach communities' knowledge, land use, and cultural values. It is important to note that the Study does not reflect all current use by

Igloolik and Hall Beach community members in those areas, and **an absence of data does not signify an absence of use or value.**

This Report is non-confidential and is intended for consideration by Inuit, the Nunavut Impact Review Board, agents of the territorial and federal governments, and the Proponent within the Project environmental assessment process. However, all data included in this Report are the property of QIA and may not be used or reproduced outside the Project regulatory process without the written consent of QIA or their delegate. Re-interpretation or analysis of the following results will require input and participation from QIA and the Igloolik and Hall Beach communities.

Nothing in this Report should be construed as to waive, reduce, or otherwise constrain Inuit rights within, or outside of, regulatory processes. This Report should not be relied upon to inform other projects or initiatives without the written consent of the QIA.

2. BACKGROUND

2.1 IGLOOLIK AND HALL BEACH INUIT COMMUNITIES

Inuit have been resident in the northern Foxe Basin and north Baffin region for roughly 1,000 years, when the archaeological record indicates that their ancestors, the Thule people, moved into the eastern Arctic and the Qikiqtaaluk, previously occupied by the Dorset culture (known as Tuniit in Inuktitut) (Desjardins 2013).

Hunting marine and terrestrial creatures has been central to the human occupants of Foxe Basin and northern Baffin Island since time immemorial (Bennett and Rowley 2004; Stenton 1991). Hunting terrestrial mammals including caribou on both the Melville Peninsula and Baffin Island, as well as wolverine, fox, Arctic hare, lemmings, and wolves, provided food and necessary materials for the construction of clothing needed to withstand the cold climate (Bennett and Rowley 2004; Hallam and Ingold 2016; Stenton 1991). Marine mammals such as small whales, walrus, and seals provided necessary materials for clothing and tools as well as essential food, rich in the fats and nutrients required to support life in an environment where vegetable sources of nutrition are limited (Lee and Wenzel 2004; Bennett and Rowley 2004; Desjardins 2013). Fishing, the collection of plants and berries, camping, and soapstone collection have also been part of the Inuit way of life since time immemorial (Bennett and Rowley 2004).The complex and multi-layered culture and body of knowledge comprised of the aforementioned activities and built over generations is encapsulated in the term Inuit Qaujimajatuqangit (IQ) (Tester and Irniq 2008; Wenzel 2004; Karetak et al. 2017).

The seasonal round of harvesting which was traditionally undertaken in the Foxe Basin area, in conjunction with movement between a number of seasonally located camps, began to change with the arrival of a Hudson's Bay Company outpost (Rasing 1994). While whalers had been travelling and harvesting whales in the region for some decades already, substantial social changes were precipitated by the arrival of the Hudson's Bay Company. The 1930s and 1940s saw the arrival of missionaries, the Royal Canadian Mounted Police, and agents of the Federal and Territorial governments. Each wave of arrivals, and the changes they brought, shifted the development of the communities of Igloolik and Hall Beach further towards a settled community and away from the previously seasonally mobile lifeway which the Foxe Basin Inuit had lived (Rasing 1994). While these communities were obliged to adapt to these changes in their environment, as well as the introduction of southern-style schooling and participation in the wage economy, harvesting food from the land and travelling on the land remained important and continue to be central to the identities of Inuit community members (Condon, Collings, and Wenzel 1995; Searles 2002; Rasing 1994; Aporta 2009; Ready 2018).

Igloolik is a primarily Inuit community located on a small island off northern Melville Peninsula, Nunavut. The current population of Igloolik is 1,682 (Government of Canada 2017b). Hall Beach is a primarily Inuit community located on northern Melville Peninsula, Nunavut. The current population of Hall Beach is 848 (Government of Canada 2017a).

Prior to the opening of the Hudson's Bay Company (HBC) Post at Igloolik in 1947 (Rasing 1994), Inuit families lived in scattered camps throughout Fury Strait, Hecla Strait, and Foxe Basin including in the Igloolik and Hall Beach areas, and on the southern shore of North Baffin in areas such as Ikpikitturjuaq (Rasing 1994; Rasmussen 1976). Catholic and subsequently Anglican missions were established at Igloolik beginning in the 1930s, providing further impetus for settlement through the provision of schooling (Rasing 1994). While whalers did visit the region from roughly 1860-1910 (Rasing 1994; Rasmussen 1976), thick pack ice in Foxe Basin meant comparatively little contact with the Inuit camps of the northern Basin. However by the early 1900s equipment such as whaleboats and rifles were introduced to the area by exposure to various ships (Rasing 1994). Until 1947, Iglulingmiut (Inuit from the Igloolik area) travelled to trade at HBC posts at Naujaat (Repulse Bay) or Mittimatalik (Pond Inlet), journeys of several weeks by dog team. Hall Beach was settled during the same period as Igloolik, roughly 70 km to the south. Close family ties link the two communities as prior to settlement the camps and small communities around Foxe Basin were connected by seasonal gatherings and hunts in the pre-settlement period.

2.2 THE MARY RIVER PROJECT

This section provides background information about the existing Mary River Project and proposed Phase 2 Proposal. Baffinland provided spatial data used in this report on September 11th, 2018.

2.2.1 The Mary River Mine

The Mary River Mine is situated in the northern interior of Baffin Island, roughly halfway between Ikpikitturjuaq (Steensby Inlet) to the south, and Qinngua (Milne Inlet) to the north.

Currently, ore is excavated, crushed, and graded into coarse and fine grades at a facility on site before being trucked via the Tote Road to Milne Port. The Tote Road runs from the mine-site north to Qinngua, largely following Philips Creek. At a port facility at Qinngua, ore is loaded onto ships that transit out of the loading area, past Bruce Head and northeast around Ragged Island into Eclipse Sound. Ships then transit east between the south shore of Bylot Island and the community of Pond Inlet, into Guys Bight, and subsequently Baffin Bay as they proceed to their final destinations.

The mineral deposit that eventually became the Mary River Mine property was initially discovered in 1962. The current operations phase began in 2014 when initial approval was received from the NIRB to operate the mine, with ore first being shipped to Europe during the summer of 2015 (Baffinland Iron Mines Corporation 2019).

Initial applications by Baffinland to the NIRB for the development of the Mary River Project included a Southern Rail transportation corridor (the Southern Rail Corridor) leading south from the Mine Site to a port facility at the head of Ikpikitturjuaq (the Steensby Port). From the Steensby Port, ore would be shipped to Europe via a shipping route through Foxe Basin (the Southern Shipping Route). Shipping was initially proposed as occurring year-round with the support of ice-breaking vessels. Challenges in achieving funding and downturns in global markets resulted in a revised plan for an

Early Revenue Phase (ERP) which Baffinland presented to the NIRB in early 2013. This resulted in Baffinland temporarily shelving the Southern Rail Corridor, Steensby Port, and the Southern Shipping Route. As these project components have been permitted by the NIRB, they are considered part of the Mary River Project for this Study.

In summary, permitted and existing Project components include the following activities:

Steensby Port:

- Construction and operation of an ore dock capable of berthing ore carriers;
- Construction of ore handling and stockpiling facilities;
- Railway and ore unloading infrastructure;
- A new ore crushing facility;
- A camp and related facilities;
- A power plant; and
- A landfill.

Mine site:

- Ore extraction at a rate of 18 million tonnes a year;
- Rail loading facilities for the South Railway;
- A fuel tank farm; and
- Mine maintenance facilities and support administration buildings/facilities (warehouses, shops, etc.).

Mary River transportation corridor (i.e., Southern Rail Corridor):

- Construction of the railway embankment and railway;
- Construction of water crossings;
- Construction and use of multiple laydown areas, shelters, and small equipment shops at each laydown;
- Construction and operation of temporary camp pads and mobile camps; and
- Development and closure of quarries along the railway corridor.

Shipping:

- Shipping year-round with the support of ice-breaking vessels from Steensby Port through Foxe Basin and Hudson Strait to Europe; and

- 20 ore carriers/month shipping frequency during the yearly open water period, and a maximum of 242 transits per year in total.

Exploration:

- Baffinland's mineral exploration program includes active claims in a number of locations near the existing mine on Baffin Island.

2.2.2 The Mary River Project Phase 2 Proposal

The Proponent has submitted an application to the NIRB for a second phase of mining (the Phase 2 Proposal). The Proponent is applying to increase the amount of ore removed from the mine site via the northern Milne Port route, from the current 4.2 million tonnes per annum (mtpa) to 12 mtpa by 2020. To accommodate this increase in production and transportation, the Proponent is also applying to construct an approximately 110-kilometre-long railway (i.e., 'North Railway') which will transport the graded ore to the Milne Port facility (Baffinland Iron Mines Corporation 2018).

The proposed railway routing is largely twinned to the existing Tote Road right of way with the exception of several sites where topography makes twinning technically difficult. The use of the Tote Road will continue while the railway is constructed. While use of the Tote Road for ore movement is proposed to end in 2021 (the North Railway is proposed to be completed and activated by 2020), it will continue to be used to move personnel, fuel, water, and materials for maintenance of the railway (Baffinland Iron Mines Corporation 2018).

Additionally, the Phase 2 application asks for approval for an increase in the number of ships loading and unloading at the Milne Port facility, and an increase in vessel size of a portion of this fleet (Baffinland Iron Mines Corporation 2018). Phase 2 would also involve the construction of further port infrastructure to facilitate proposed increases in ship traffic and increased needs for fuel, as well as increased numbers of port and mine staff (Baffinland Iron Mines Corporation 2018).

In summary, the Phase 2 Project will involve the following activities:

Milne Port:

- Construction and operation of a second ore dock capable of berthing Cape-size ore carriers;

- Expansion of ore handling and stockpiling facilities;

- Railway and ore unloading infrastructure;

- A new ore crushing facility that will be indoors to reduce dust;

- An expanded camp and related facilities;

- An expanded power plant;
- A landfill;
- Increased shipping activities at the port; and
- Increased shipping through Qinngua.

Mine site:

- An increase of the mining rate to 12 million tonnes per year for transportation to the Milne Port facility via the North Railway;
- Additional rail loading facilities for the North Railway;
- An expanded fuel tank farm;
- Installation of wind turbines; and
- Expanded mine maintenance facilities and support administration buildings/facilities (warehouses, shops, etc.).

Mary River transportation corridor (i.e., Tote Road and North Railway):

- Construction of the railway embankment and railway;
- Construction of water crossings (four bridges and 417 culverts);
- Construction and use of multiple laydown areas (up to 14), shelters and small equipment shops at each laydown;
- Construction and operation of four temporary camp pads and two mobile camps;
- Construction of several level crossings for the Tote Road; and
- Development and closure of up to 40 quarries along the railway corridor.

Shipping:

- Expansion of shipping to between early July up to November 15 each year; and
- Increased shipping frequency during the yearly open water period.

3. METHODS

3.1 OVERVIEW

Data for this Study were collected from mapping interviews specific to the Project with 12 Hall Beach community members, conducted between May 23 and May 24, 2019, and 26 Igloolik community members, conducted between May 22 and May 29, 2019. This section details the data collection methodologies used and analyses conducted, including for both quantitative (i.e., mapped) and qualitative data.

3.2 VALUED COMPONENTS

This Report is organised around five valued components (VCs). A VC is defined as an important aspect of the environment that a project has the potential to impact (Hegmann et al. 1999). Valued components may include tangible or biophysical resources (e.g., particular places or species), and may also encompass less tangible social, economic, cultural, health, and knowledge-based values (e.g., place names or IQ regarding a particular area).

For the purpose of this Study, the VCs were chosen to represent the critical conditions or elements that must be present for the continued practice of Study participants culture and that may be impacted by the Project. As such, VCs can range from the direct presence of traditionally hunted animals and gathered plants, to continued habitation, travel, and cultural activities on the land. VCs are also designated to include intangible cultural resources, such as the transmission of knowledge across generations. VCs for this Study, which were determined through a qualitative analysis of the data, are:

- Marine Hunting;
- Terrestrial Hunting and Trapping;
- Fishing;
- Travel, Trails, and Habitation; and,
- Cultural Continuity.

3.3 MAPPING INTERVIEWS

12 Hall Beach community members were interviewed between May 23 and May 24, 2019, and 26 Igloolik community members were interviewed between May 22 and May 29, 2019. Interviews were conducted at the Hall Beach HTO Office and Hamlet Office and in a private residence in Igloolik, Nunavut. Interview teams prioritised the documentation of values within the Local Study Area (LSA) and those in close proximity to the Project. Values within and beyond the Regional Study Area (RSA) were documented where time permitted.

Interview participants were identified and contacted by QIA staff. Participants were chronologically assigned identifier codes in the form of I## or H##. Informed consent was obtained for all interviews (see Consent Form in Appendix 1).

All data included in this Study were collected using the same methodology as described in Sections 3.3.1 and 3.3.2, below. Interviews followed a semi-structured format (see Interview Guide in Appendix 3). Interview and mapping protocols used were based on standard techniques (Tobias 2009; DeRoy 2012).

The Study adheres to the following established best practices for IQ/TK/TLU studies in the regulatory context of a Project-specific proposed Project (Olson et al. 2016):

- **Methods development:** A semi-structured interview guide should be developed with the community to ensure that all questions are culturally appropriate. Development of TLU codes for mapping should be done with the community to ensure appropriateness.

- **Informed consent:** Each participant should read and sign a consent form that clearly indicates who is conducting the Study, its purpose, who will have intellectual property rights over the information shared during the interview, and their rights in the interview process.

- **Semi-structured individual interviews:** To obtain detailed IQ/TK/TLU information, individual interviews should be conducted with a broad cross-section of traditional knowledge holders and land users.

- **Data management:** Recording of participant names, dates of interviews, who conducted the interviews, and how the data is stored is an essential part of IQ/TK/TLU research.

- **Mapping protocols:** Mapping should be conducted with a trained researcher. Mapping codes should be developed with the community before the Study begins and used consistently throughout. Proper documentation of sites, and attribute data should be collected in a consistent manner. Site-specific mapping should be done at a scale of 1:50,000 or better.

- **Established spatial boundaries:** The proposed project, local study area, and regional study area should be clearly indicated on maps during all IQ/TK/TLU interviews.

- **Established temporal boundaries:** The temporal boundaries of the IQ/TK/TLU study should include current use (i.e. use in the participant's lifetime), historical use, and future use.

- **Recording of IQ/TK/TLU interviews:** All interviews should be audio recorded with proper attributions.

- **Data analysis:** Recorded interviews should be transcribed and coded according to themes, or valued components. Map data should be analysed using mapping

software, such as ESRI ArcGIS, to understand the types and density of use in the proposed project footprint, local study area, and regional study area.

Participants the option to speak in Inuktitut, either with a QIA staff member or an interpreter. All audio was recorded digitally. Where interpreted material has been used as part of the analysis conducted in the preparation of this Report, this has been indicated in the quote citation.

Verification of the findings of this report was conducted through meetings with six participants from Hall Beach and six participants from Igloolik during the period of August 3-5, 2019.

3.3.1 Site-Specific Data Collection and Analysis

For the purpose of this Report, *site-specific data* are values reported by Igloolik and Hall Beach community members that are specific, spatially distinct, and that may be mapped (however, exact locations may be treated as confidential).

Shape files for the physical Project components were provided by the Proponent. Shipping routes were geo-referenced and digitized using ArcMap for both the northern shipping route (Baffinland 2018) and southern shipping route (Baffinland 2010).

Site-specific data were mapped and managed using a 'direct-to-digital' process in which Google Earth imagery was projected onto a wall or screen. Points, lines, or polygons, geo-referenced at a scale of 1:50,000 or finer, were used to mark areas of reported use and value. Some lines and polygons denoting trails and hunting areas were mapped at a coarser scale (i.e., greater than 1:50,000). Data collection focused on the Footprint (250 m buffer around physical works, shipping routes, and active mineral leases held by Baffinland), Local Study Area (LSA; 5 km buffer around the Footprint, and including important watersheds highlighted by community members as well as the marine environments and islands of Eclipse Sound and Foxe Basin with a 250 m buffer on the shoreline), and Regional Study Area (25km buffer around the mine, northern and southern railway and Tote Road; also the marine environment with a 250 m buffer on the shoreline) with boundaries defined in consultation with QIA staff for Eclipse Sound and extended to the Nunavut Settlement Boundary in Foxe Basin and Hudson Strait). See Figure 1 for a map of the Project and the Study Area.

Maps of site-specific values presented in this Report are generated from data mapped during the interviews. Points are randomised within a 250 m radius and then buffered by one kilometre. A one-kilometre buffer is also generated around each line and polygon. Buffering is done to account for a margin of error and to protect information confidentiality (DeRoy 2012).

Site-specific data were mapped according to five 'Activity Class' categories that were designed to capture multiple aspects of the Study VCs:

- Habitation values (including temporary, occasional, seasonal, and permanent camps and cabins);

- Cultural and spiritual values (including burial sites, birth places, ceremonial areas, place names, teaching sites, and gathering areas);

- Subsistence values (including harvest and kill sites for marine and terrestrial animals, and trapping areas);

- Environmental feature values (including specific, highly valued habitat for caribou, narwhal, walrus, beluga, ringed seal, and char); and

- Transportation values (including trails, water routes, and navigation sites).

The temporal boundaries set for the baseline data collection include past, current, and planned future knowledge and use. For the purpose of this Study:

- A past value refers to an account of knowledge and use prior to living memory, passed down through intergenerational IQ-transfer;

- A current value refers to an account of knowledge and use within living memory; and

- A planned future value refers to anticipated or intended use.

3.3.2 Qualitative Data Collection and Analysis

Qualitative data were also collected during the semi-structured interviews. The knowledge and use values of the Igloolik and Hall Beach communities that have been impacted by the Mary River Project to date were explored, as well as the potential for further effects from the Project, including proposed and reasonably foreseeable future development. Information relating to additional stressors (other cumulative effects causing agents) was also analysed and incorporated into this Report.

The English portions, including translations, of the audio from the interviews were transcribed. Transcripts were then reviewed, coded thematically, and analysed for issues and concerns identified by Study respondents. These data are summarised in Section 4.

All spellings of Inuktitut words used in this report were either verified during interviews, based on spellings encountered in relevant literature from the northern Qikiqtani, or based on the place names in use by the Inuit Heritage Trust (“Inuit Heritage Trust: Place Names Program” n.d.).

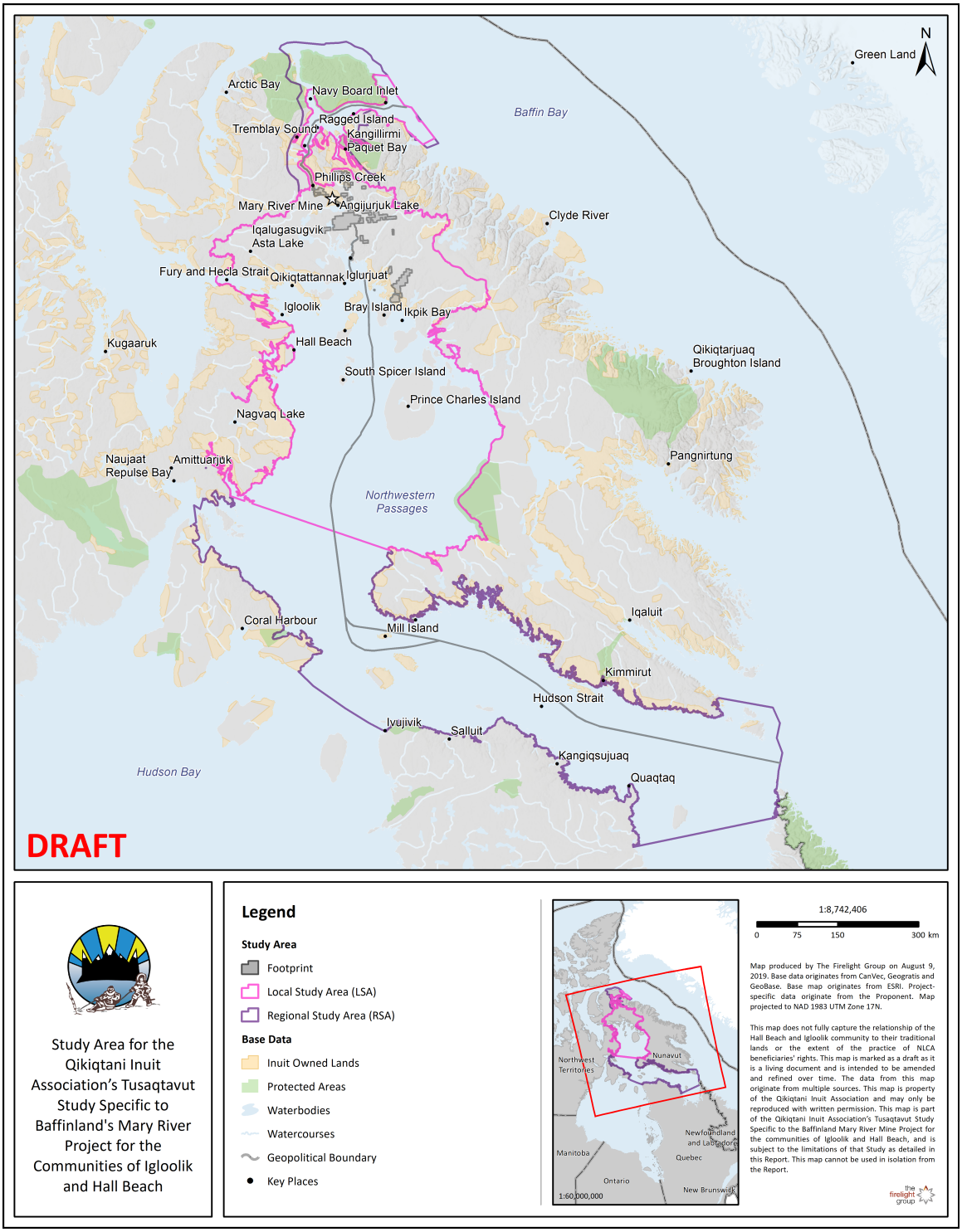

Figure 1: Baffinland Iron Mines Corporation's proposed Mary River Project with the Project Footprint, LSA, and RSA.