

**BAFFINLAND IRON MINES
CORPORATION**

**PHASE 2 PROPOSAL UPDATED
INFORMATION PACKAGE**

TABLE OF CONTENTS

ATTACHMENT 1 - UPDATED PROJECT SCOPE WITH CLARIFICATION ON OPERATIONAL FLEXIBILITY.....	II
ATTACHMENT 2 - COMMITMENTS AND TERMS AND CONDITIONS FOLLOWING THE PUBLIC HEARINGS	III
ATTACHMENT 3 - RESPONSE FROM BAFFINLAND TO QIA SUGGESTED TERMS AND CONDITIONS FOR PC005.....	IV
ATTACHMENT 4 - RESPONSES TO QUESTIONS DEFERRED DURING THE PUBLIC HEARINGS	V
ATTACHMENT 5 - CORRESPONDENCE FROM BAFFINLAND TO REPRESENTATIVES OF THE FIVE (5) NORTH BAFFIN COMMUNITIES REQUESTING PARTICIPATION IN A SERIES OF ENGAGEMENTS TO OCCUR PRIOR TO THE MARCH TECHNICAL MEETING AND PREHEARING CONFERENCE	VI
ATTACHMENT 6 - A COMPLETE SUMMARY OF PHASE 2 RECONSIDERATION PROCESS DOCUMENT SUBMISSIONS	VII

Attachment 1 - Updated project scope with clarification on operational flexibility

Baffinland Iron Mines Corporation

PHASE 2 PROPOSAL PROJECT DESCRIPTION OVERVIEW

TABLE OF CONTENTS

1 INTRODUCTION.....	1
2 PROJECT COMPONENTS	2
2.1 MINE SITE.....	2
2.1.1 Increased Production Rate.....	3
2.1.2 Primary Crushing and Rail Loading	4
2.1.3 Ancillary Infrastructure	4
2.2 TERRESTRIAL TRANSPORTATION CORRIDOR	5
2.2.1 Tote Road5	
2.2.2 North Railway	8
2.2.3 Temporary Ore Transfer Area (Removed from Phase 2 Proposal)	11
2.3 MILNE PORT.....	12
2.3.1 Rail Unloading, Ore Crushing, Stockpiling and Shiploading	13
2.3.2 Ore Dock 14	
2.3.3 Ancillary Infrastructure	15
2.4 MARINE TRANSPORTATION	17
2.4.1 Shipping Season	17
2.4.2 Shipping Route.....	18
2.4.3 Number and Type of Ships.....	19
3 OPERATIONAL FLEXIBILITY	21
4 CONCLUSION	22

LIST OF TABLES

Table 2.1:	Increased Production Rate Summary.....	3
Table 2.2:	Primary Crushing and Rail Loading Summary	4
Table 2.3:	Mine Site Fuel Storage Summary	4
Table 2.4:	Mine Site Power Generation Summary.....	5
Table 2.5:	Tote Road Design Modifications Summary	5
Table 2.6:	Tote Road Construction and Operation Use Summary	6
Table 2.7:	Tote Road Access for Land Users Summary	7
Table 2.8:	North Railway Summary	8
Table 2.9:	Milne Port Summary	12
Table 2.10:	Rail Unloading, Ore Crushing, Stockpiling and Shiploading Summary	13
Table 2.11:	Milne Port Ore Dock Summary	14
Table 2.12:	Milne Port Accommodations Summary	15
Table 2.13:	Milne Port Power Generation Summary	16
Table 2.14:	Shipping Season Summary	17
Table 2.15:	Shipping Route Summary.....	18
Table 2.16:	Number and Type of Ships Summary.....	19
Table 2.17:	Voyages Summary.....	19

LIST OF FIGURES

Figure 2.1:	Phase 2 Proposal Mine Site Layout	3
Figure 2.2:	Northern Railway Alignment Options	8
Figure 2.3:	Phase 2 Proposal Milne Port Layout	13
Figure 2.4:	Northern Shipping Route	18

APPENDICES

APPENDIX A	Overview of Marine Operations (Appendix 12 of Baffinland Response to Information Requests)
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ABBREVIATIONS

ATV	All-Terrain Vehicle
DWT	Deadweight Tonnage
ERP	Early Revenue Phase
FEIS	Final Environmental Impact Statement
HTO	Hunters and Trappers Organization
IIBA	Inuit Impact and Benefit Agreement
Mtpa	Million tonnes per annum
MW	Megawatt
NIRB	Nunavut Impact Review Board
NWB-	Nunavut Water Board
PD	Project Description
PDA	Project Development Area
ROM	Run of Mine
TSD	Technical Supporting Document
VEC	Valued Ecological Components

1 INTRODUCTION

The Phase 2 Proposal Project Description Overview (PD Overview) is a supplement to the Project Description submitted to the Nunavut Impact Review Board (NIRB) as part of Baffinland's Phase 2 Final Environmental Impact Statement (FEIS) Addendum in October 2018. There are several objectives of the PD Overview, which are to:

- confirm the components of the Phase 2 project description that have not been modified since October 2018;
- identify and describe what components have been modified in response to Intervenor and community feedback during the NIRB's reconsideration process;
- outline the incremental differences between the Approved Project and the Phase 2 Proposal;
- identify the relevant Phase 2 FEIS Addendum technical supporting documents (TSDs) that consider the project components; and
- provide a definitive description of what operational flexibility is being sought under the Phase 2 Proposal.

Modifications to project descriptions typically occur during review processes as a response to Intervenor and community technical comments. Such modifications are appropriately viewed as mitigations by design. Since they are driven by issue resolution processes, they are an acceptable form of mitigation as long as the relevant environment assessments are robust enough to account for the modification.

It is Baffinland's intention that by providing this PD Overview, Intervenors, community representatives and the NIRB will have a clear point of reference from which to understand the Phase 2 Proposal.

2 PROJECT COMPONENTS

2.1 MINE SITE

For the Mine Site, the Project Development Area (PDA) defined in 2012 remains unchanged. However, some infrastructure within the PDA will be re-arranged in order to accommodate the construction and operation of the North Railway line, support the increase in mine production and the construction of the northern section of the South Railway.

The additional Phase 2 Proposal facilities and activities for construction and operation of the Project at the Mine Site will consist of:

- Changes to crushing and transport of ore;
- Construction of the Mine Site North Railway Terminal;
- Expansion of permanent fuel storage;
- Expansion of the power plant; and
- Expansion of the mine maintenance facilities and support administration buildings/facilities (warehouses, shops, etc.).

The proposed layout of the Mine Site for the Phase 2 Proposal is presented on Figure 2.1.

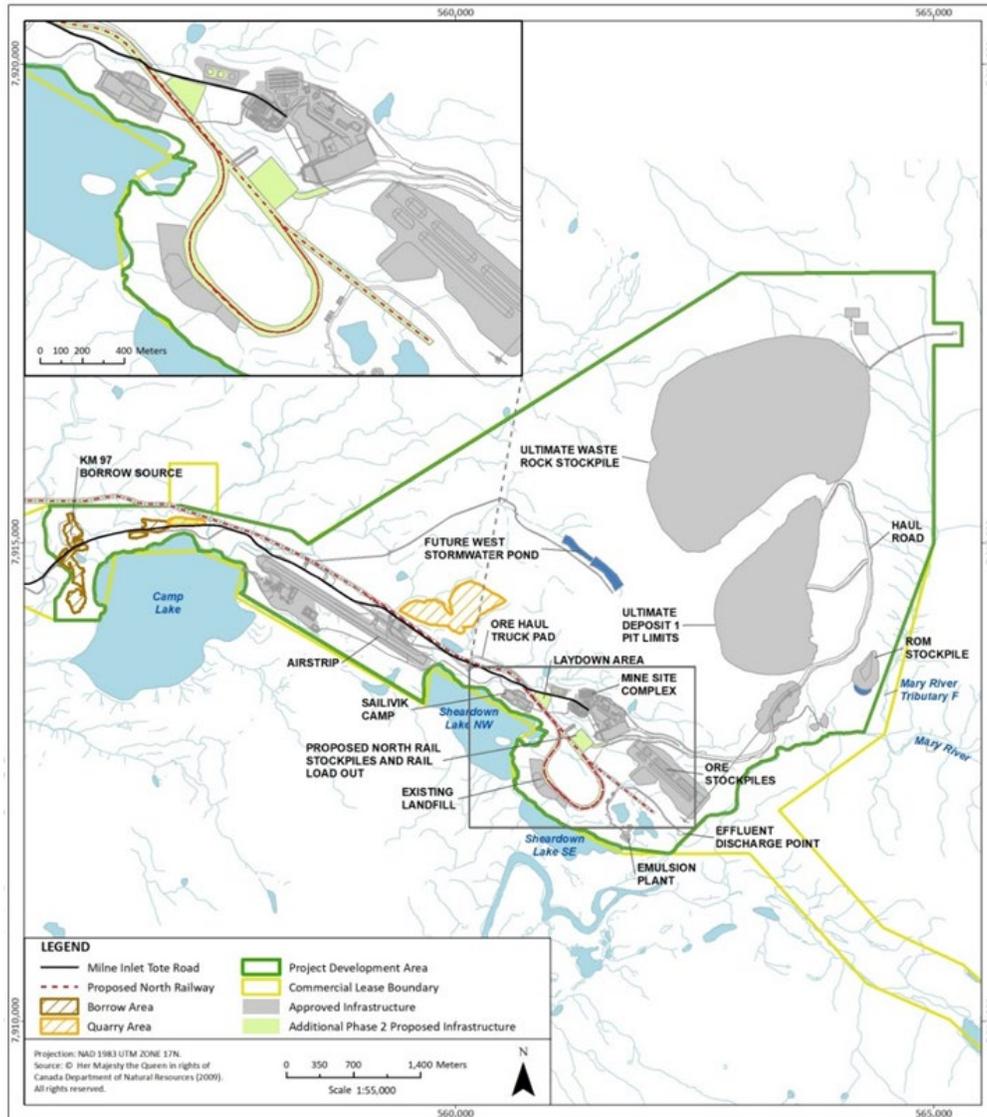


Figure 2.1: Phase 2 Proposal Mine Site Layout

2.1.1 Increased Production Rate

Table 2.1: Increased Production Rate Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
22.2 Mtpa (permanent)	30 Mtpa	7.8 Mtpa
24 Mtpa (temporary)		6 Mtpa

The production rate from Deposit 1 will increase as part of the Phase 2 proposal. The total mine production will eventually increase to 30 million tonnes per annum (Mtpa), with 12 Mtpa being transported via the North Railway to Milne Port and 18 Mtpa transported via the South Railway to Steensby Port. Phase 2 does not propose any changes to the life of mine waste rock deposition strategy.

Increased rates of production are considered in the Phase 2 FEIS Addendum, specifically the Atmospheric Assessment (TSD-7) and the Evaluation of Exposure Potential from Ore Dusting Events in Selected VECs (TSD-11).

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No
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2.1.2 Primary Crushing and Rail Loading

Table 2.2: Primary Crushing and Rail Loading Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
Permanent crushing/screening facilities to process 18 Mtpa for southern shipping	Relocation of primary crushing facilities within PDA at Mine Site.	Primary crushing/screening facilities to process 18 Mtpa for southern shipping, 12 Mtpa for northern shipping.
Mobile crushing/screening facilities to process 4.2 Mtpa for northern shipping	Secondary ore crushing relocated to Milne Port.	Secondary ore crushing facilities located at Milne Port, Steensby Port.

Under the Early Revenue Phase (ERP), ore produced at Deposit No 1, known as run of mine (ROM), is trucked to temporary stockpiles at the crushing area of the Mine Site. Front end loaders move ore from the ROM stockpile and deposit the ore into hoppers that feed semi-portable crushers with screens separating the crushed ore. Conveyors and trucks are used to place the lump and fines ore into separate stockpiles, where it is then loaded into trucks and transported to Milne Port.

The Phase 2 Proposal modifies the crushing process so that only primary crushing occurs at the Mine Site, with secondary crushing taking place at Milne Port. Under this process, ore from the ROM stockpile will be front-end loaded into a vibrating grizzly feeder and ore >212 mm in size will go to the mobile jaw crushers. Any ore still greater than 212 mm will go to an additional rock breaker. A stacking conveyor will transfer the ore to a stockpile, and front-end loaders will load the rail cars. It is expected that only 30% of ore will require primary crushing in the jaw crusher before being loaded into rail cars.

Increased rates of ore handling at the Mine Site are considered in the Phase 2 FEIS Addendum, specifically the Atmospheric Assessment (TSD-7) and the Evaluation of Exposure Potential from Ore Dusting Events in Selected Valued Ecological Components (VECs) (TSD-11).

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No
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2.1.3 Ancillary Infrastructure

2.1.3.1 Fuel Storage

Table 2.3: Mine Site Fuel Storage Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
17 ML arctic diesel 3 ML Jet A 400,000 L other fuel	47 ML arctic diesel 3 ML Jet A fuel 400,000 L other fuel	30 ML arctic diesel

Fuel storage at the Mine Site currently consists of 17 ML of Arctic diesel storage. As part of the Phase 2 Proposal, an additional 30 ML of Arctic diesel fuel storage will be constructed at the Mine Site.

The additional fuel storage is captured in the Phase 2 FEIS, specifically the Climate Change Assessment (TSD-6), forming a portion of the updated Scope 1 emission calculations.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No
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2.1.3.2 Power Generation

Table 2.4: Mine Site Power Generation Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
28 MW installed capacity	28 MW installed capacity	No increase

Six 1.35 megawatt (MW) diesel generators are currently installed at the Mine Site, with a capacity of 5.4 MW (2 generators are for standby). At the time of writing, peak power demand of 3.5 MW is expected to increase to 22 MW as the Phase 2 and Steensby components of the Project are developed.

Diesel generators operating at a continuous load of 23 MW are considered in the Phase 2 FEIS Addendum, specifically the Atmospheric Assessment (TSD-7) and the Evaluation of Exposure Potential from Ore Dusting Events in Selected VECs (TSD-11).

Installation of wind turbines for power generation was included in the FEIS Addendum, but has been removed from the scope of the Phase 2 Proposal.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – Wind turbines have been removed from the Phase 2 Proposal.
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2.2 TERRESTRIAL TRANSPORTATION CORRIDOR

2.2.1 Tote Road

The Tote Road is a vital transportation link for the Project and, as such, upgrades to the road have been ongoing since 2013. As part of the Phase 2 Proposal, The Tote Road alignment will remain unchanged. Some upgrades and minor realignments will be required to facilitate railway crossings.

2.2.1.1 Design Modifications

Table 2.5: Tote Road Design Modifications Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
Improved road base	8 realignments to facilitate railroad crossings	8 realignments to facilitate railroad crossings
Minor realignments	Up to 38 new or relocated culverts	Up to 38 new or relocated culverts
Grade improvements		
114 stream crossings		

The North Railway will cross the existing Tote Road at 8 locations. The Tote Road will be modified at these crossing locations to meet Transport Canada requirements for grade crossings. The following safety features will increase the visibility of the crossings and increase safe use of the road:

- Early warning signs will warn road users of an approaching railway crossing and stop sign ahead;
- A combined stop and railway crossing sign will be located on either side of the crossings;
- Crossing timbers will ease vehicle, ATV, and snowmobile crossing; and
- Instructional bulletins regarding the Tote Road rail crossings will be posted in English and Inuktitut at each end of the Tote Road.

Realignment of the Tote Road for North Railway crossings is considered in the Phase 2 FEIS Addendum, specifically the Landforms, Soils, and Permafrost Assessment (TSD-8), the Surface Water Assessment (TSD-13), the Freshwater Biota and Habitat Assessment (TSD-14) and the Conceptual Freshwater Offsetting Plan (TSD-15).

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes. Ten (10) level crossings were originally proposed but through the detailed design phase it was possible to optimize the rail alignment to eliminate two crossing locations. Fewer crossings are preferred from a safety and maintenance perspective.
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2.2.1.2 Construction and Operation Use

Table 2.6: Tote Road Construction and Operation Use Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
Construction: Traffic for regular operations and maintenance	Construction: Elevated localized traffic for North Railway construction	Construction: Elevated localized traffic for North Railway construction
Operations: Daily Round Trips – Service 30 (60 transits)	Operations: Daily Round Trips – Service 36 (72 transits)	Operations: Daily Round Trips – Service 6 (12 transits)
Maximum Daily Round Trips – Ore Hauling 140 (280 transits) - operations	Maximum Daily Round Trips – Ore Hauling 140 (280 transits) – construction 0 - operations	Ore haulage by truck is discontinued

The Tote Road will be used to facilitate the construction of the North Railway. Construction of the North Railway and operations under existing authorizations will occur concurrently. A maximum of 6 Mtpa of ore will be transported on the Tote Road during the construction period. Ore haulage above 6 Mtpa is no longer proposed via the Temporary Ore Transfer Area. For additional discussion of this removed component see Section 3.2.3.

Once the North Railway is operational, ore haulage by road will be discontinued, eliminating up to 118 daily round trips (236 transits) on average. The Tote Road will continue to be used to transport personnel, water, freight and fuel but without ore haulage, traffic will be generally and significantly reduced.

Modified traffic along the Tote Road during construction and operations is considered in the Phase 2 FEIS Addendum, specifically the Atmospheric Assessment (TSD-7), Terrestrial Wildlife Baseline and Impact Assessment (TSD-10), Evaluation of Exposure Potential from Ore Dusting Events in Selected VECs (TSD-11), the Surface Water Assessment (TSD-13) and the Freshwater Biota and Habitat Assessment (TSD-14).

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – October 2018 submission included ore haulage of 12 Mtpa by truck to the Temporary Ore Transfer Area proposed for km 57 (see Section 3.2.3). This component has been removed from the Phase 2 Proposal. A maximum of 6 Mtpa of ore will be transported on the Tote Road during the construction period.
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2.2.1.3 Access for Land Users

Table 2.7: Tote Road Access for Land Users Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
No access to Tote Road due to safety concerns associated with traffic.	Improved measures for access along Tote Road following north railway construction period	Improved measures for land user access along Tote Road

The Tote Road is a link for hunters to access the interior of northern Baffin Island in both summer and winter months. The Tote Road is a public right-of-way, which Baffinland maintains. Baffinland has implemented a Hunter and Visitor Site Access Procedure at the Mary River Project site in accordance with Article 13 of the Mary River Project Inuit Impact and Benefit Agreement (IIBA), which requires hunters to register at Milne Inlet or Mary River that they are in the area, and for the hunters and their equipment to be transported up or down the Tote Road by Baffinland, in accordance with its Tote Road Travel Procedure.

Established crossing areas along the Tote Road are maintained by Baffinland, and clearly marked for Project drivers. Project drivers are expected to remain aware of individuals observed along the Tote Road, as they may not be aware of the hazards associated with Project activities and traffic.

The following additional measures have been included in the Phase 2 Proposal to improve access for land users:

- Provision of dedicated pick-ups and trailers to move people and snow machines between the port and mine along the Tote Road.
- Implement a controlled access program for the Tote Road once the North Railway is in operation, similar to what occurs at the Meadowbank Mine outside of Baker Lake.
- Provide refuge cabins at three locations, provisionally at km 24, 55 and 85 (locations subject to HTO approval).
- Provide snow machine trails in five areas totaling 20.25 km.

Once the North Railway is commissioned and ore haulage by truck is discontinued, Baffinland is committed to implement a controlled access program that allows land users to access the Tote Road without escort. This program would be similar to the one implemented by Agnico-Eagle Mines at the Meadowbank Mine outside of Baker Lake.

Access for land users has been considered as part of the Phase 2 FEIS Addendum, specifically the Socio-Economic Assessment (TSD-25). The additional measures identified above are also detailed in the Rail Alignment Summary Report, issued to the NIRB on October 15, 2019.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – Additional measures and commitments have been identified through ongoing engagement with communities during the review process. This was always anticipated to occur and Baffinland expects to continue to modify its access procedures for the life of the mine.
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2.2.2 North Railway

Table 2.8: North Railway Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
No north railway to Milne Inlet has been approved	Addition of a north railway between Mary River and Milne Port, running generally adjacent to the Tote Road	Addition of a north railway between Mary River and Milne Port, running generally adjacent to the Tote Road

The North Railway will be approximately 110 km in length, from the loading station at the Mine Site to the unloading station at Milne Port. The proposed alignment, including alternative deviation routes, is presented in Figure 2.2.

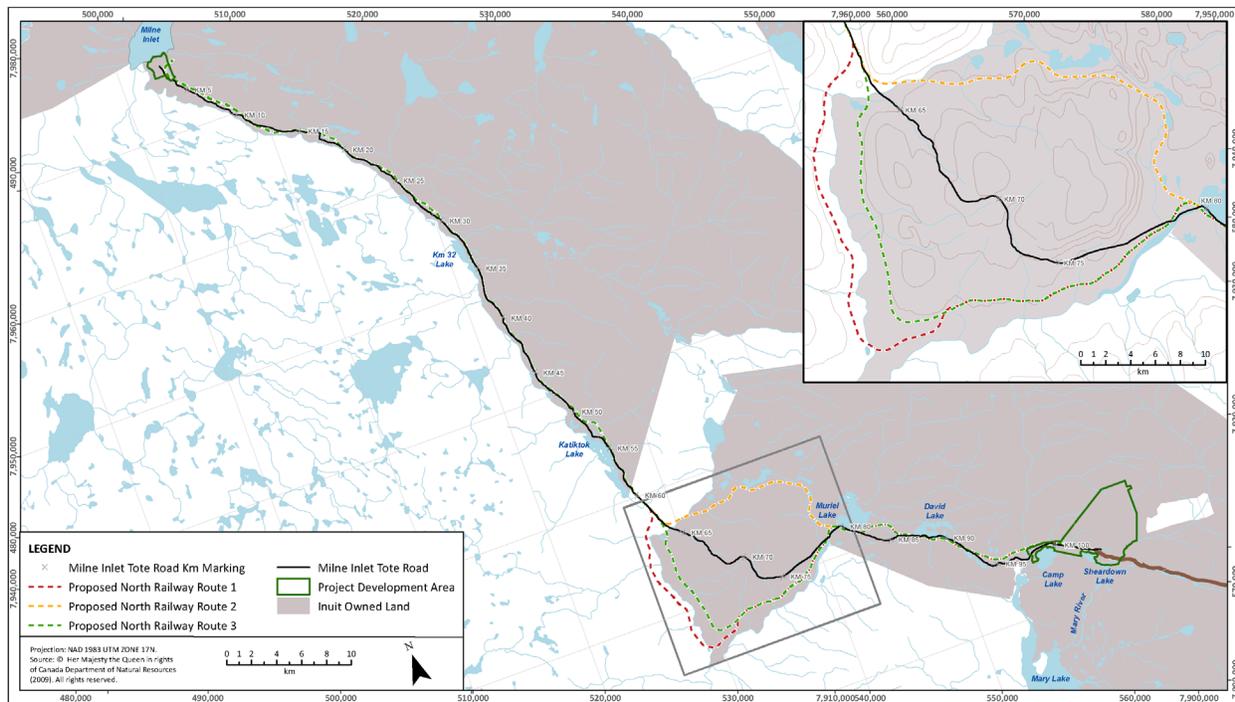


Figure 2.2: Northern Railway Alignment Options

The facilities and activities required for the construction and operation of the North Railway include:

- Construction of the railway embankment and railway;
- Construction/erection of signalling equipment and communication tower as required;
- Construction of multiple water crossings;
- Construction and use of multiple laydown areas, shelters, and small equipment shops at each laydown;
- Construction and operation of four temporary camp pads and mobile camps;
- Construction of several level crossings for the Tote Road;
- Exploitation and closure of multiple quarries along the railway corridor;
- Ongoing inspection and maintenance of the railway embankment, railway, signalling and communication equipment, wayside condition monitoring equipment; and

- Transportation of iron ore by rail to Milne Port.

2.2.2.1 Alignment Location

Most of the North Railway will be constructed immediately adjacent to the Tote Road based on the following factors:

- Remain in the Northern Transportation Corridor (Appendix P of the North Baffin Regional Land Use Plan),
- Reduces the temporary (construction access roads) and permanent (North Railway) foot print of the Project, and
- Avoids unknown terrain and potential geotechnical issues and culturally important sites.

The North Railway will generally be within 100 m of the Tote Road, with ten locations having slightly farther deviations away from the Tote Road. Due to the steep topography at the km 67 hill, a more substantial deviation away from the Tote Road alignment is necessary at this location. In the FEIS Addendum, Baffinland proposed the alignment shown by the red line on Figure 2.2. Based on engagement with Inuit, alternatives to the deviation proposed in the Phase 2 FEIS Addendum have been subject to ongoing investigation based on community preferences identified during the review process. The diversion route originally proposed by Baffinland is shown as Route 1 (red line) on Figure 2 and is up to 7km away from the Tote Road at the maximum extent. Following a Crossing Selection Workshop held at the Mary River Project site in July/August 2019, Baffinland considered two further route options for the deviation based on community member feedback. These alternative deviations are shown as Route 2 (yellow line) and 3 (green line) on Figure 2.2.

The alternative alignments (Route 2 and Route 3) were investigated as to the feasibility of design for safe operations and to provide an understanding of what additional work would be required to change the proposed alignment from the initially proposed Route 1 to either of these routes.

After a thorough evaluation of the considerations outlined above, Baffinland’s conclusion is that Route 1 and 3 are feasible but Route 2 presents too many operational, maintenance and safety risks to be considered further. At the Public Hearing in November 2019 Baffinland confirmed it would move forward with Route 3 as its preferred alignment should Phase 2 be approved. Baffinland is planning additional workshops with community representatives to finalize its approach towards the deviation alignment and will report the outcomes of these meetings to the NIRB as they are available.

The alignment of the North Railway was considered generally throughout the Phase 2 FEIS Addendum and specifically in the Landforms, Soil and Permafrost Assessment (TSD-8), the Vegetation Baseline and Impact Assessment (TSD-9), the Wildlife Baseline and Impact Assessment (TSD-10), the Birds Baseline and Impact Assessment (TSD-12), the Surface Water Assessment (TSD-13), the Freshwater Biota and Habitat Assessment (TSD-14) and the Conceptual Freshwater Offsetting Plan (TSD-15). Additional information has been provided in the Railway Alignment Summary Report submitted to the NIRB on October 16, 2019.

Route 3 has been subject to additional fisheries field work, and it has been confirmed the alignment falls within the spatial scope of previous assessments related to air quality, wildlife and archaeology.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – Routes 2 and 3 were proposed and investigated during the review period. Baffinland will move forward with Route 3 as its preferred deviation alignment.
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2.2.2.2 Railway Design

The railway embankment will be comprised of fill, sub-ballast, and ballast materials, with timber ties and steel rails. The embankments have been designed for permafrost considerations and additional allowances have been made to account for climate change effects, including an assumed increased thickness of the active layer. Approximately 84% of the North Railway will be built on elevated embankments, while the remainder will be built via cuts into the existing landforms. The slope of the railway embankment will vary based on embankment height as follows:

- 1:2 for railway embankment heights below 4 meters (approx. 65% of alignment);
- 1.1.5 for railway embankment heights above 4 meters (approx. 19% of alignment); and
- 1:5 at specific locations designated for crossings (as required).

Railway embankments will be constructed using Type 8 (<150 mm) material. Prior to the Crossing Selection Workshop, Baffinland had proposed to build the embankments out of Type 12 (<1,000 mm). The railway design is based on a maximum grade of 1.5% for loaded ore trains, and 2.5% for empty ore trains.

The North Railway will cross several watercourses along the Northern Transportation Corridor. Bridges will be installed at four railway water crossings. Culverts will be installed at other water crossings along the railway. Over 400 culverts will be installed, with the final number to be determined based on the final deviation alignment that is selected. Culverts will be designed in accordance with American Railway Engineering and Maintenance-of-Way Association (2010) guidelines. Culvert diameters will range from 0.6 m to 1.8 m and will be covered with a minimum of 1 m of fill. Plate arch culverts large enough for human and caribou movement will also be installed at 15 locations along the alignment.

The design of the North Railway was considered generally throughout the Phase 2 FEIS Addendum and specifically in the Landforms, Soil and Permafrost Assessment (TSD-8), the Vegetation Baseline and Impact Assessment (TSD-9), the Wildlife Baseline and Impact Assessment (TSD-10), Surface Water Assessment (TSD-13), the Freshwater Biota and Habitat Assessment (TSD-14) and the Conceptual Freshwater Offsetting Plan (TSD-15). Additional information has been provided in the Railway Alignment Summary Report.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – Slopes have been modified from 1:1.5 for embankment heights below 4 meters and construction material was changed from Type 12 to finer Type 8 material; both modifications are based on Intervenor and community concerns. 4 additional plate arch culverts have been added to facilitate human and caribou crossing of the alignment.
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2.2.2.3 System Design

The preferred system for the North Railway utilizes three-train sets, each carrying approximately 64 cars. A viable alternative is a two-train set system, each carrying approximately 90 cars. In either scenario a locomotive would be attached to each end of the trains giving an overall length between 650 m for the three-train system and 900 m for the two-train system. Depending on the scenario, an average of 5 to 8 round trips will be completed each day. No more than 10 round trips are expected to occur in a 24-hour period. A rotary car dumper will be used to unload ore from the rail cars at Milne Port. This is the same system planned for use at Steensby Port.

System design was considered in the Phase 2 FEIS Addendum, specifically in the Atmospheric Assessment (Noise and Vibration) (TSD-7) and the Wildlife Baseline and Impact Assessment (TSD-10)

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No, both systems were proposed in the original Project Description. Simulation modelling performed during the review confirmed the three train system is preferred.
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2.2.2.4 Crossings

The design of the North Railway recognizes that this area is used by Inuit as well as wildlife such as caribou. Crossings for land users must be built in accordance with Transport Canada Regulations. To date Baffinland, in consultation with community representatives, has identified up to 30 level crossings and 4 underpass crossings (plate arch culverts) that may facilitate land use crossings using the Route 1 deviation. The final number and location of crossings is anticipated to be informed by Inuit during the construction of the railway. During operation, crossings may be added based on community input and need. Level crossings will be built with a slope of 1:5 including the sides of the crossing to ensure a snowmobile and qamatiq can cross from any angle.

To facilitate crossing wildlife, Baffinland has designed the North Railway to be generally permeable. Several important design features of the North Railway contribute to this:

- Gentle slopes. Approximately 65% of the alignment is built with gentle 1:2 slopes. By comparison, the South Railway was approved to be built with 1:1.5 slopes while 1:2 slopes are only proposed for localized caribou crossing locations.
- Smooth fill. The entire alignment will be built using Type 8 (<150 mm) material for embankment fill.
- Caribou may also use other level crossings, plate arch culverts and bridges to cross the railway.

Human and wildlife crossings are considered in the Phase 2 FEIS Addendum, specifically in the Wildlife Baseline and Impact Assessment (TSD-10) and the Socio-Economic Assessment (TSD-25).

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – Slopes have been modified from 1:1.5 for embankment heights below 4 meters and construction material was changed from Type 12 to finer Type 8 material; both modifications are based on Intervenor and community concerns. 4 additional plate arch culverts have been added to facilitate human and caribou crossing of the alignment. The original number of crossings was not identified in the FEIS Addendum submission.
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2.2.3 Temporary Ore Transfer Area (Removed from Phase 2 Proposal)

To support commissioning of the North railway, a temporary ore transfer area was proposed to be constructed along the Northern Transportation Corridor at approximately km 57. This transfer area was to be used when construction on the northern half of the North Railway was complete, and would remain in operation until the railway terminal at the Mine Site was fully operational. Up to 12 Mtpa of ore was to be transported by trucks to this area, dumped on a small 12,000 tonne stockpile, and loaded onto railcars using front end loaders.

The Temporary Ore Transfer Area has been removed from the Phase 2 Proposal. No more than 6 Mtpa of ore will be transported along the Tote Road during the Phase 2 construction period.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – component has been removed from Phase 2 Proposal.
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2.3 MILNE PORT

Table 2.9: Milne Port Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
245 ha PDA	415 ha PDA	175 ha increase in PDA

In order to accommodate the shipment of 12 Mtpa and the North Railway operation, the Milne Port PDA must be expanded. The expanded PDA will cover 415 ha of land. The existing 36 ha foreshore lease area will not require amendment for Phase 2.

The additional Phase 2 facilities and activities required at Milne Port will consist of:

- Expansion of the Milne Port PDA;
- Construction and operation of a second ore dock capable of berthing capesize ore carriers;
- Modifications/expansion of ore stockpiling, new ore crushing/screening facility and ore handling systems;
- Construction and operation of railway maintenance facilities;
- Expansion of the Port Site Complex, potable water treatment plant and associated sewage treatment plant;
- Expansion of the existing power plant;
- Expansion and re-purposing of laydown areas and ancillary facilities;
- Construction and operation of a landfill site; and
- Increased shipping activities through Milne Port.

The proposed layout for the expanded Milne Port site is presented on Figure 2.3.

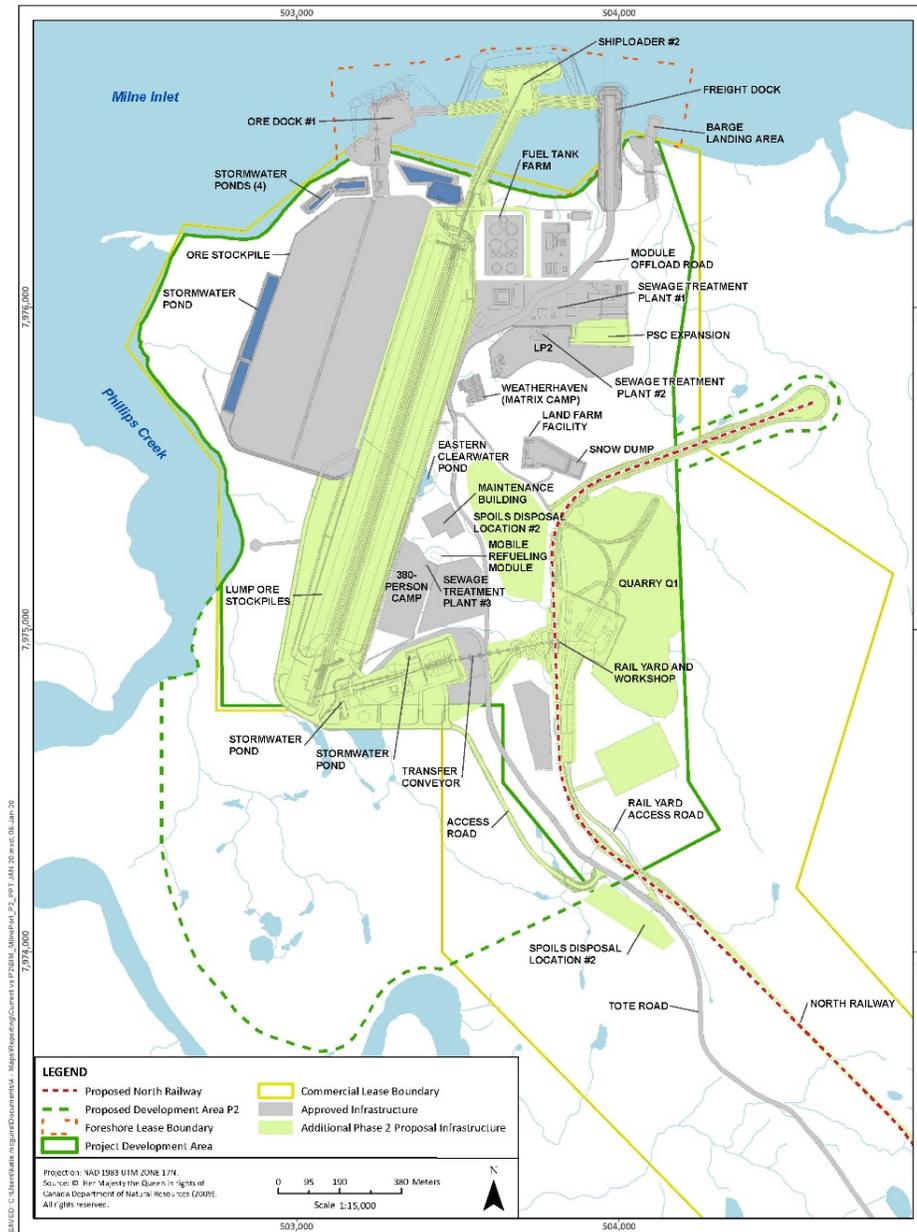


Figure 2.3: Phase 2 Proposal Milne Port Layout

2.3.1 Rail Unloading, Ore Crushing, Stockpiling and Shiploading

Table 2.10: Rail Unloading, Ore Crushing, Stockpiling and Shiploading Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
No crushing or screening	Secondary crushing and screening (12Mt throughput)	Secondary crushing and screening
5Mt~ stockpile capacity	7.8Mt stockpile capacity	2.8Mt stockpile capacity

Ore arriving in rail cars will be unloaded using a rotary dumper without any requirement to uncouple the cars. The material will be stockpiled in a small run-of-mine (ROM) stockpile that feeds the crushing and screening plant. Ore is conveyed from the rail unloading area to the ROM stockpile followed by the crushing and screening plant.

As part of the currently operating Early Revenue Phase, ore arriving to Milne Port by truck from the Mine Site has already been crushed and screened into lump ore and fine ore products, with the following sizes:

- Lump ore - 31.5 mm to 6.3 mm in size; and
- Fine ore - less than 6.3 mm in size.

The Phase 2 Proposal will add enclosed secondary ore crushing and screening facilities to Milne Port. Stockpile sizes will increase to a 7.8 Mt capacity in accordance with the increased quantity of ore being loaded onto ships. Fine ore will be loaded into vessels at the existing ore dock only; lump ore will be loaded into vessels berthing at the new capesize ore dock.

The crushing and screening plants will consist of large cone crushers fed from large vibrating screens, which will produce the lump and fine ore products to the same specifications as the crushing and screening operation at the Mine Site.

Placement of the crushers and screens indoors will substantially reduce dust emissions and lower noise levels. Dust collectors will be installed at ore screening and crusher transfer points. A transfer conveyor will deliver lump and fine ore from the crushing and screening plant to a stacker/reclaimer at the lump ore stockpile, and to the mobile radial stackers at the stockpile.

During the shipping season, ore from the lump ore stockpile will be reclaimed using the new travelling (rail-mounted) stacker/reclaimer which will load the ore onto the stacking/reclaim conveyor. Reclaimed ore will then be transferred onto a shiploader feed conveyor for transport to the new shiploader. The new shiploader will be used to load ore from the lump stockpile onto Panamax, Supermax and Capesize vessels at the new ore dock. Ore from the fines stockpile will be loaded onto the existing shiploader as is currently undertaken. The existing shiploader will be used to load ore from the fines stockpile onto Panamax and Supermax size vessels at the existing ore dock. Weigh scales and product samplers will be installed on the conveyors to facilitate inventory recording and quality control sampling.

Increased rates of ore handling and stockpiling at Milne Port are considered in the Phase 2 FEIS Addendum, specifically the Atmospheric Assessment (TSD-7) and the Evaluation of Exposure Potential from Ore Dusting Events in Selected VECs (TSD-11).

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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2.3.2 Ore Dock

Table 2.11: Milne Port Ore Dock Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
Ore dock with Supramax vessel capacity	Second ore dock with Capesize vessel capacity	Additional shipment of 6 Mtpa of ore

A second ore dock capable of berthing capesize ore carriers will be required to deliver 12 Mtpa of ore to market via Milne Port. The orientation of the dock (Ore Dock No. 2) allows for a clear approach for vessels parallel to the berth face and clearing the existing ore dock. The position of the new dock relative to the existing dock also considered the spacing requirements for vessels when both docks are in use. Mooring lines from vessels at the adjacent docks will not be crossed, which is desirable from a safety and operations aspect.

The second ore dock is considered in the Phase 2 FEIS Addendum, specifically in the Marine Environmental Effects Assessment (TSD-17), the Conceptual Marine Offsetting Plan (TSD-23) and the Marine Mammals Assessment (TSD-24).

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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2.3.3 Ancillary Infrastructure

2.3.3.1 Workshops

A railway maintenance facility will be constructed at Milne Port and will include the following:

- Maintenance shops and management offices;
- Repair areas for locomotives and cars;
- Shop for the care of track maintenance equipment;
- General storage area for spare parts and consumables;
- Wheel and axle repair area; and
- Locomotives will be moved in and out of the maintenance shop by a railcar mover.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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2.3.3.2 Accommodations

Table 2.12: Milne Port Accommodations Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
500 beds	710 beds	210 beds

An additional 210 beds will be relocated from the Mine Site Complex and added to the existing Port Site Complex, bringing the facility total to 330 beds. For Milne Port this will bring the overall total of available beds for operations to 710. A temporary 300-bed camp will be installed to accommodate personnel during construction. Following construction and commissioning, the 300-bed camp will be removed.

The existing water supply infrastructure and maximum daily water consumption approved under the Type A Water Licence will accommodate the increase in camp occupancy. Potable water will continue to be sourced from Philips Creek and the lake at kilometer 32. The potable water treatment plant will be expanded.

The sewage treatment plant will be expanded to accommodate the larger camp facilities. Treated sewage effluent will continue to discharge to Milne Inlet via the existing discharge location.

Increased accommodations have been considered in the Phase 2 Water License Amendment Application.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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2.3.3.3 Power Generation

Table 2.13: Milne Port Power Generation Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
9.45 MW installed capacity	22 MW installed capacity	12.55 MW installed capacity

Seven 1.35 MW diesel generators are currently installed at Milne Port, with a capacity of 6.75 MW (2 generators are for standby).

The expanded port facility including ore crushing and screening operations and a second shiploader will require additional power. Peak power requirements are estimated to be 22 MW during the shipping season and average 8 MW throughout the remainder of the year.

The increase in power generation at Milne Port has been considered in the Phase 2 FEIS Addendum, specifically in the Atmospheric Assessment (TSD-7) and Evaluation of Exposure Potential from Ore Dusting Events in Selected VECs (TSD-11).

Installation of wind turbines for power generation was included in the FEIS Addendum, but has been removed from the scope of the Phase 2 Proposal.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	Yes – Wind turbines have been removed from the Phase 2 Proposal.
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2.3.3.4 Landfill

A landfill at Milne Port will be constructed for the Phase 2 Proposal. The landfill will be developed and operated in accordance with the Nunavut Water Board (NWB)-approved management plan for the Mine Site landfill. The Milne Port landfill will be designed based on the design of the existing landfill at the Mine Site. The Milne Port landfill will be constructed inside the boundaries of the exhausted Quarry Q1 following construction. The area method will be used for waste disposal wherein a low height berm will be constructed along up to two sides of the landfill site (or using a quarry face) and then waste will be disposed of against the berms and directly onto the ground downstream of the berms. Sand and gravel will be used as the cover material. To achieve permafrost encapsulation in the landfill site, the final cover will be thicker than the active layer. Appropriate surface water, erosion and sediment control measures will be implemented during operations. The landfill is not expected to significantly change the quality of surface waters in the area due to the inert nature of the waste and small landfill footprint. Because the landfill will be positioned within a rock quarry, no groundwater monitoring is proposed.

The additional landfill has been considered in the Phase 2 Water License Amendment Application.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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2.4 MARINE TRANSPORTATION

2.4.1 Shipping Season

Table 2.14: Shipping Season Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
July 15 - October 15 (approximate)	July 1 - November 15 (approximate – ice condition dependent)	Nominal 45 day increase, dependent on ice conditions

Baffinland is proposing to ship between periods of landfast ice presence along the Northern Shipping Corridor. In the Phase 2 FEIS Addendum Baffinland provided a nominal shipping window of July 1 to November 15. These dates are based on the greatest known extents of ice free periods documented over the last 27 years in Milne Inlet and Eclipse Sound. There is significant variability in the timing of break up (July 18 average; 21 days of variability) and freeze up (November 14 average; 29 days variability) along the northern shipping route for the recorded 20 year period between 1997 and 2016.

Actual shipping will only occur each year based on established criteria, including:

- Community. MHTO must confirm in writing that the floe edge is no longer being actively used by community members
- Environmental Landfast ice must be broken along the entire shipping corridor.
- Marine Safety Requirements. Vessels must obtain NORDREG permission to navigate in prevailing ice conditions.
- Ecological. No icebreaking will occur during sensitive seal life cycle periods. Transit restrictions will be applied during seasonal migratory movements of narwhal into Eclipse Sound and Milne Inlet.

The actual operational season will vary from year to year, however history and experience has shown that an average operational timeline starting in the third week of July to the third week of October is realistic with assistance from ice breakers and ice management vessels. Baffinland is planning additional workshops with community representatives to finalize its approach towards the shipping season and will report the outcomes of these meetings to the NIRB as they are available.

The extended shipping season is considered in the Phase 2 FEIS Addendum, specifically in the Ice Study (TSD-16), the Marine Environmental Effects Assessment (TSD-17), the Ballast Water Dispersion Modelling Report (TSD-18), the Fuel Spill Modelling Report (TSD-19), the Hydrodynamic Modelling Report (TSD-20), the Risk Assessment for Aquatic Invasive Species Report (TSD-21), the Ship-Wake and Propeller Wash Assessment (TSD-22), the Conceptual Marine Offsetting Plan (TSD-23), the Marine Mammals Assessment (TSD-24) and the Ice-Breaking Assessment.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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2.4.2 Shipping Route

Table 2.15: Shipping Route Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
Northern Shipping Route through Milne Inlet and Eclipse Sound	Northern Shipping Route through Milne Inlet and Eclipse Sound	No change to shipping route

All shipping traffic will enter Eclipse Sound via Baffin Bay and sail down Milne Inlet to Milne Port, as shown on Figure 2.4. The shipping route is unchanged from the route that is currently used for the Early Revenue Phase.

No alternative shipping routes (including Navy Board Inlet and the Northwest Passage) are being considered as part of the Phase 2 Proposal.

The shipping route is considered in the Phase 2 FEIS Addendum, specifically in the Ice Study (TSD-16), the Marine Environmental Effects Assessment (TSD-17), the Ballast Water Dispersion Modelling Report (TSD-18), the Fuel Spill Modelling Report (TSD-19), the Hydrodynamic Modelling Report (TSD-20), the Risk Assessment for Aquatic Invasive Species Report (TSD-21), the Ship-Wake and Propeller Wash Assessment (TSD-22), the Conceptual Marine Offsetting Plan (TSD-23), the Marine Mammals Assessment (TSD-24) and the Ice-Breaking Assessment.

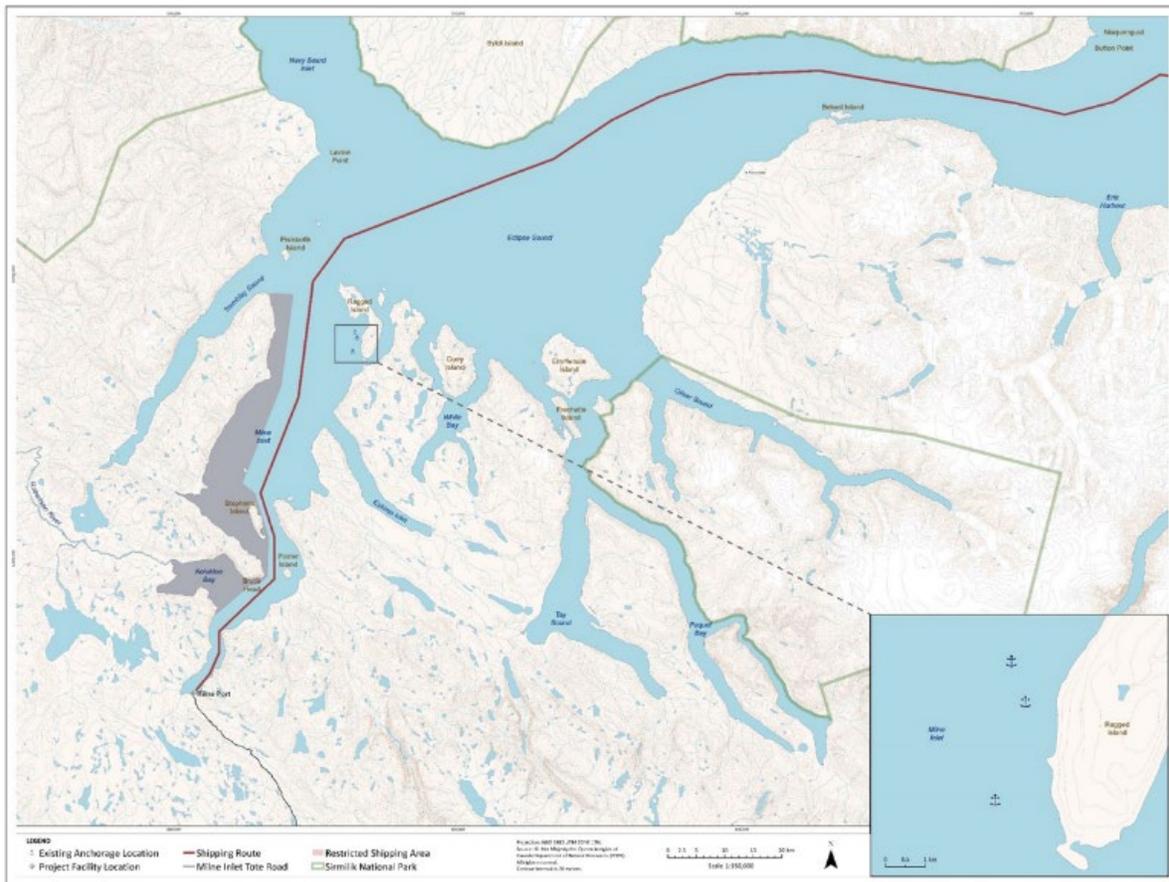


Figure 2.4: Northern Shipping Route

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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2.4.3 Number and Type of Ships

Table 2.16: Number and Type of Ships Summary

Previously Assessed and Approved	Proposed for Phase 2	Marginal Increase
Supramax maximum vessel size Maximum 58 ore carrier voyages per year for 4.2Mt; Maximum 86 ore carrier voyages per year for 6Mt	Capesize maximum vessel size Maximum 176 ore carrier voyages per year	Addition of Capesize vessel size Increase of 90-118 ore carrier voyages per year

Increasing shipment of ore during the shipping season will be made possible by using larger ore carriers. A variety of market vessels will be used depending on the time of year and the availability of vessels, including:

- Supramax vessels (50,000 - 60,000 deadweight tonnage (DWT));
- Panamax vessels (65,000 - 80,000 DWT);
- Kamsarmax (Post Panamax) vessels (80,000 DWT); and
- Capesize vessels (150,000 - 250,000 DWT).

The suite of vessels for the shipping season will be a function of commercial availability and ice conditions. The shipping season will be maximized each year based on these factors.

The maximum number of ore carrier voyages is 176, which has been used in the marine effects assessment. There are no changes to anchorage locations as part of the Phase 2 Proposal.

An estimate of 24 voyages for other vessels (e.g. wet/dry re-supply) has been considered in this assessment.

For tugs, a range of between 6 to 10 tugs will be operating for the same period of time that ore carriers are loading in Milne Inlet. As tugs operate predominantly within Milne Port an estimate of 10 voyages has been included for assessment purposes.

For ice breakers, operations could require one to two vessels operating for the first 15 – 20 or more days of the shoulder season, weather dependent, and then again for the same duration at the end of the season.

For sake of clarification, a voyage constitutes the entering and exiting transits of a vessel within the Northern Shipping Corridor. Where BIM has provided numbers in trips/year this refers to a voyage. A transit is considered to be a one-way track either to or from Milne Port by any of the vessels. A voyage represents two transits through the Northern Transportation Corridor.

Table 2.17: Voyages Summary

Vessel Type	Upper Bound # of voyages per annum	# of Vessels considered in the Marine Assessment
Ore-Carriers	176	176
Tugs	10	10
Ice-Breaker	Variable based on ice conditions	Up to 1-2 ice breakers could be needed
Wet/dry re-supply	24	24

January, 6 2020

The number and type of ships are considered in the Phase 2 FEIS Addendum, specifically in the Ice Study (TSD-16), the Marine Environmental Effects Assessment (TSD-17), the Ballast Water Dispersion Modelling Report (TSD-18), the Fuel Spill Modelling Report (TSD-19), the Hydrodynamic Modelling Report (TSD-20), the Risk Assessment for Aquatic Invasive Species Report (TSD-21), the Ship-Wake and Propeller Wash Assessment (TSD-22), the Conceptual Marine Offsetting Plan (TSD-23), the Marine Mammals Assessment (TSD-24) and the Ice-Breaking Assessment.

Project Description component modified since Phase 2 FEIS Addendum Submission, October 2018?	No.
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3 OPERATIONAL FLEXIBILITY

Baffinland wishes to take this opportunity to clarify its intentions respecting the operational flexibility that it is requesting in relation to the Phase 2 Proposal. At the Phase 2 hearing in November of 2019, it was made clear that interveners were requesting that Baffinland describe its intention towards production limits on an annual basis. As described at the hearing, Baffinland would like to see terms and conditions related to the activities that have been assessed in the Phase 2 FEIS addendum and which have the potential to cause environmental impacts – namely transportation limits rather than a production based limit. This approach is consistent with the approach used to set the terms and conditions for the Steensby portion of the Mine and inherently provides the flexibility to Baffinland to manage its operations to account for unexpected circumstances on a year to year basis without having to interrupt normal operations or return to a regulatory review process.

The approach to operational flexibility that Baffinland is requesting for Phase 2 is similar to what was granted by the NIRB in relation to the Early Revenue Phase (ERP). Operational flexibility continues to be an important consideration for Phase 2 given the fact that mining operations experience variability due to many factors including ore production, logistics, weather and market demand. Flexibility is required so that when the actual operating conditions in a specific year reduce the mining, transportation and shipment of ore, Baffinland has the ability to make up for such reductions by increasing production, ground transportation and shipping subsequently in more favorable years.

As described in Section 3.1.1 of this document (“Increased Production Rate”), the production rate from Deposit 1 will increase as part of the Phase 2 Proposal. The total mine production will eventually increase to 30 million tonnes per annum (Mtpa), with 12 Mtpa being transported via the North Railway to Milne Port and 18 Mtpa transported via the South Railway to Steensby Port, with 20% operational flexibility allowed for the South Railway.

While Baffinland is seeking flexibility with respect to overall tonnage, it is important to emphasize that Baffinland is also committed to never surpass more than 176 ore carrier voyages (352 transits) to Milne Port or more than 10 train trips (20 transits) in a given day between Milne Port and the Mine Site. Therefore, Baffinland proposes that operational flexibility for Phase 2 would permit Baffinland the ability to make up ore production and transportation shortfalls within any given year (i.e. years where less than 12 MT/a of ore is shipped via Milne Port) in the following year by up to 20% (i.e. 14.4 MT/a) or the stated activity limits on ground transportation and shipping, whatever limit is reached first. For clarity, this would mean that if in a given year 11 MT were transported the following year could see the transportation of 13 MT if this can be achieved within the stated activity limits of 176 ore carrier voyages per shipping season and an average of 10 train trips per day.

Given that this operational flexibility is intended to make up for shortfalls in previous years, the proposed 20% operational flexibility on ore tonnage will not impact the overall predicted mine life. Furthermore, the added activity limits on ground transportation and shipping ensure the potential impacts of operational flexibility on ore tonnage have been assessed in the Phase 2 FEIS Addendum and the technical materials subsequently filed with NIRB by Baffinland throughout the Phase 2 reconsideration process.

4 CONCLUSION

The preceding sections provide a comprehensive, accurate and firm understanding of the Phase 2 Proposal project components as originally proposed, and in a limited number of cases, modified. These modifications, however, are objectively positive developments reflecting adaptations in response to the review process and further contribute to the sustainability of the Phase 2 Proposal. The following is a summary of the modifications that have been made to the project description through the NIRB's reconsideration process:

- The number of level Tote Road crossings of the North Railway has been reduced from 10 to 8
- The temporary ore transfer area has been removed, no more than 6 Mtpa of iron ore will be transported by truck during the Phase 2 construction period
- Wind turbines have been removed
- Additional land user access features have been added to the Northern Transportation Corridor, including:
 - Provision of dedicated pick-ups and trailers to move land users between Milne Port and the Mine Site
 - Implementation of a controlled access program for the Tote Road once the North Railway is in operation, similar to what occurs at the Meadowbank Mine outside of Baker Lake.
 - Provision of refuge cabins at three locations, tentatively at km 24, 55 and 85
 - Provision of snow machine trails in five areas totaling 20.25 km.
 - Up to 30 crossings along the North Railway
- The North Railway design has been modified to increase wildlife permeability, including:
 - Flattening of railway embankment slopes below 4 meters in height (1:1.5 to 1:2)
 - Smoother fill material to be used along entire alignment (Type 12 to Type 8)
- The North Railway alignment, specifically the deviation area around the km 67 hill, continues to be investigated; Baffinland has already committed to move forward with alternative Route 3.

Based on the above list it is clear that the modifications to the project description are both limited to the North Railway and positive. Further, the modifications have generally been proposed to resolve issues raised by Intervenor and/or community members. This is a reasonable approach to environmental assessment and clearly demonstrates Baffinland's commitment to build and operate the Phase 2 Proposal in a manner that is both environmentally sustainable and respects community priorities.

As is identified throughout the description of project components, the Phase 2 FEIS Addendum, its technical supporting documents, and additional materials filed during the reconsideration process, provide systematic and comprehensive coverage of the Phase 2 Proposal potential impacts. Furthermore, the Phase 2 FEIS Addendum is robust enough to include the potential impacts of the modified components.

Baffinland's approach to operational flexibility remains consistent with what has been proposed in previous years, with the exception that activity limits for both ground transportation and shipping will provide added security that the operation of the Phase 2 Proposal will remain within the limits of the Phase 2 FEIS Assessments.

APPENDIX A

Overview of Marine Operations
(Appendix 12 of Baffinland Response to Information Requests)

APPENDIX 12

OVERVIEW OF MARINE OPERATIONS



Phase 2 Proposal Information Request Supporting
Document:
Overview of Marine Operations

Baffinland Iron Mines Corporation
Mary River Project
NIRB File No. 08MN053



TABLE OF CONTENTS

Table of Contents	i
List of Tables.....	i
1 Shipping Season - Addresses: (GN-IR-66 (2); GN-IR-66 (3); GN-IR-66 (4); PCA-4	3
2 Example Handling Times - Addresses: (GN-IR-66 (4))	2.1
3 Vessel Communication (Shipping Instructions to Masters) - Addresses: (GN-IR-66 (4); QIA 64; PCA-1(c))	3.1
4 Ice-Management vs. Ice-Breaking	4.2

LIST OF TABLES

Table 1: Predicted voyage and vessel numbers.....	4
Table 2: Example Shipping Schedule 1.....	6
Table 3: Example Shipping Schedule 2.....	6
Table 4: Example Shipping Schedule 3.....	7

1 SHIPPING SEASON - ADDRESSES: (GN-IR-66 (2); GN-IR-66 (3); GN-IR-66 (4); PCA-4

Baffinland is proposing a shipping window that potentially commences in early July and ends in the middle of November, the exact duration of the annual shipping season will be dictated by the ice conditions for that year. Accordingly, any dates provided in the Phase 2 FEIS Addendum are nominal and intended to aid reviewers in conceptualizing what is being proposed only.

The dates provided in the FEIS addendum reference a period of **July 1 – November 15**. The operative limit of the proposed shipping window is the commitment **to not break land fast ice**. As demonstrated in Tables 2 and 4 from TSD-16, there is significant variability in the timing of break up (July 18 average; 21 days of variability) and freeze-up (November 14 average; 29 days variability) along the northern shipping route for the recorded 20 year period between 1997 and 2016.

The date range of July 1 – November 15 has been selected as the nominal shipping season to provide Baffinland and land-users certainty in expectations of when operations may begin and end. This date range provides for contingency in unexpected weather patterns (e.g. early ice break-up) and contingency for unexpected operational delays through the open water season. The actual operational season will vary from year to year, however history and experience has shown that an average operational timeline starting in the third week of July to the third week of October is realistic with assistance from ice breakers and ice management vessels.

To open and close each season, Baffinland will rely on a combination of technical factors and known land use, both of which are tied to ice conditions:

Technical – The Arctic Ice Regime Shipping System (AIRSS) is used by a ship’s captain to validate access in each area according to current ice conditions. The AIRSS uses a four-step process that includes defining the ice regime, obtaining ice multipliers, calculating ice numerals, and obtaining permission (NORDREG). This process is described in more detail in Section 3 of TSD 16. This system, along with input from contractors, allows all vessels to assess the current and predicted ice conditions to allow for safe navigation.

Land Use – Making sure Baffinland’s shipping activities are safe for employees and land users is always the first priority. Before Baffinland commences its shipping season each year it will rely on a protocol with the community of Pond Inlet to inform Baffinland that residents are no longer using the sea ice. The protocol will be jointly developed and finalized with the community of Pond Inlet.

Use of ‘as required’ throughout the FEIS addendum when referring to shipping during periods of ice break and ice formation refers to the prevailing ice conditions and the shipping operations that will commence after landfast ice has fractured. Transport Canada regulations, Polar Water Operations Manual, availability of ice-breaker escort, vessel ice class design capabilities and Inuit land-use are all factors (but not limited to this list) that will be taken into consideration when starting and ending the annual shipping operations.

Vessel Information and Shipping Schedule

Addresses: (GN-IR-66 (2); QIA 65; QIA 66; DFO 3.2.1; PCA-1(a); PCA-1(b); WWF-03

a. Vessel Information

The suite of vessels for the shipping season will be a function of vessel commercial availability and ice conditions. As such, an exact shipping schedule which outlines the number of vessels during each period of the shipping season

year over year is not possible to provide. The shipping season will be maximized each year based on commercial availability of vessels and weather conditions.

The shipping class and types of ore carriers proposed for use are provided below:

- a) Ice class designs for ore carriers include (not an exhaustive list, but based on current knowledge of market availability):
 - i) Non Ice Class (Type E)
 - ii) Ice Class 1C (Type D)
 - iii) Ice Class 1B (Type C)
 - iv) Ice Class 1A (Type B)
 - v) Ice Class 1A Super (PC 7)
- b) Types of ore carriers include (not an exhaustive list, but based on current knowledge of market availability):
 - i) Supramax
 - ii) Panamax
 - iii) Kamsarmax
 - iv) Capesize

For assessment purposes assumptions have been made to ensure a conservative ship management approach has been used. Baffinland recognizes the FEIS addendum for the Phase 2 proposal has discrepancies in the values provided for vessel numbers.

For clarification the following information is provided and should be referred to as the definitive numbers that were used for assessment purposes.

- a) Total number of ore carrier voyages is 176. 176 ore carriers have been used in the marine effects assessment. This number does not include tanker related voyages, re-supply related voyages, tug related voyages and/or ice breaker/management related voyages.
- b) An estimate of 24 voyages for other vessels (e.g. wet/dry re-supply) has been considered. For re-supply vessels, efforts are currently underway to increase the cubic capacity of vessels employed by BIM, meaning number of voyages might be reduced.
- c) For tugs, a range of between 6 to 10 tugs will be operating for the same period of time that ore carriers are loading in Milne Inlet. As tugs operate predominantly within Milne Port an estimate of 10 voyages has been included for assessment purposes.
- d) For Ice Breakers, operations could require one to two assets operating for the first 15 – 20 or more days of the shoulder season, weather dependent, and then again for the same duration at the end of the season.
- e) For sake of clarification, a voyage constitutes a round trip between a load port (Milne Inlet) and the designated discharge port for that vessel. Trips/year throughout the document refers to a voyage. A transit is considered to be a one-way track either to or from Milne Inlet by any of the vessels. A voyage represents two transits through the Northern Transportation Corridor.

Table 1: Predicted voyage and vessel numbers

Vessel Type	Upper Bound # of voyages per annum	# of Vessels considered in the Marine Assessment
Ore-Carriers	176	176 or carriers
Tugs	10	10

Ice-Breakers	Variable based on prevailing ice conditions	Up to 1-2 ice breakers could be needed (not included in assessment)
Wet/dry re-supply	24	24

b. Shipping Schedule

Example shipping models have been provided to demonstrate the feasibility of transporting ore using a two dock system, currently commercially available vessels and using expected dates that ice breaking would start and end in order to meet the required quantity of ore shipped in a season. The example schedules use the highest probability of dates that will allow for positive ice numerals for the ore carriers with currently available information. An exact shipping schedule over the period of 2019-2035 cannot be provided and is not required for assessment purposes. See Table 2-4 below. All three schedules use the same number of vessels and start and end dates. The difference in the three schedules is how the number of vessels is displayed over various time periods which reflect specific reviewer requests on how an example schedule should be presented.

The shipping model demonstrates 176 voyages to ship approximately 12 million tonnes between July 20 and October 16. It is understood that yearly ice conditions will dictate the start and end dates of the Shipping Season at Baffinland. If ice conditions allow (the break-up of land fast ice, positive ice numerals, available ice breaker and ice management assets, etc.), Baffinland would endeavor to begin shipping operations as early as July 1st and end as late as November 15th. The models shown assumes that the average ice conditions of the past will continue in the short-term, hence the reason we have shown a theoretical model that begins loading ore vessels on July 20th and completing on October 16th.

The model was built utilizing vessel tonnage that is currently available for charter with the current loading, transit times and discharge times experienced since 2015. It does not allow for any delays on site, delays discharging in Europe, weather delays or any downtime between vessels. The model assumes a consistent flow of vessels to the port and that all of these vessels will be available for charter during these periods of time. Any contingency required would be best served by starting the year earlier and/or ending later in the season. The model also assumes that at least one icebreaker (and possibly two) would be required at the beginning and at the end of the season in order to allow the ore carriers for safe transiting.

The example schedule was created utilizing a large number of the total ice class tonnage vessels available in the market at this time, however additional tonnage is currently under construction and could be called upon to assist with the Project.

A schedule for re-supply vessels and fuel tankers has not been provided as they would be scheduled to arrive on an annual and as-needed basis. Given that re-supply vessels are similar class vessels to ore carriers, the shipping season would mimic that for ore carriers.

Table 2: Example Shipping Schedule 1

Assumes Start Date of July 20th and Completion Date of October 16th	<u>July 1 - August 4</u>		<u>August 5 - October 15*</u>		<u>October 16 - November 15</u>		<u>Totals</u>
	<u>Dock #1</u>	<u>Dock #2</u>	<u>Dock #1</u>	<u>Dock #2</u>	<u>Dock #1</u>	<u>Dock #2</u>	
Number of Voyages	15	15	72	72	1	1	176
Ice Class Supramax	11		54		1		66
Ice Class Ultramax	4	4	12	4			24
Ice Class Panamax		11		54		1	66
Non-ice Class Panamax			5				5
Non-ice Class Kamsarmax			1				1
Non-ice Class Cape				14			14

*Baffinland recognizes that non-ice class tonnage would only be used August 16-September 20th as represented in Table 4.

Table 3: Example Shipping Schedule 2

Assumes Start Date of July 20th and Completion Date of October 16th	<u>July</u>		<u>August</u>		<u>September</u>		<u>October</u>		<u>Totals</u>
	<u>Dock #1</u>	<u>Dock #2</u>	<u>Dock #1</u>	<u>Dock #2</u>	<u>Dock #1</u>	<u>Dock #2</u>	<u>Dock #1</u>	<u>Dock #2</u>	
Number of Voyages	11	11	31	31	30	30	16	16	176
Ice Class Supramax	7		23		20		16		66
Ice Class Ultramax	4	4	8		4	4			24
Ice Class Panamax		7		25		18		16	66
Non-ice Class Panamax					5				5
Non-ice Class Kamsarmax					1				1
Non-ice Class Cape				6		8			14

Table 4: Example Shipping Schedule 3

Assumes Start Date of July 20th and Completion Date of October 16th	<u>July 20 - August 15</u>		<u>August 16 - September 20</u>		<u>September 21 - October 16</u>		<u>Totals</u>
	<u>Dock #1</u>	<u>Dock #2</u>	<u>Dock #1</u>	<u>Dock #2</u>	<u>Dock #1</u>	<u>Dock #2</u>	
Number of Voyages	26	26	36	36	26	26	176
Ice Class Supramax	22		22		22		66
Ice Class Ultramax	4	4	8		4	4	24
Ice Class Panamax		22		22		22	66
Non-ice Class Panamax			5				5
Non-ice Class Kamsarmax			1				1
Non-ice Class Cape				14			14

2 EXAMPLE HANDLING TIMES - ADDRESSES: (GN-IR-66 (4))

Using data from the current Approved Project, the below provides estimates for the average expected handling time (hour or days) of an ore, freight and fuel vessel using the Milne docking facilities:

- a) Berthing / Unberthing time for Kamsarmax, Panamax to Supramax vessels is about 1.5 hrs per movement.
- b) Berthing / unberthing time for Capesize vessels will be slightly longer given the larger dimensions associated with said vessels.
- c) Load rate for an ore carrier (ie Supramax, Panamax, Kamsarmax, Baby Cape, Capesize) is about 1 day (+/- 15%).
- d) Discharge rate for re-supply vessels depends on discharge method. Current methods via tug and barge, then fully loaded vessel requires about 4 – 5 days to discharge.
- e) Similar to re-supply vessels, discharge rate for tankers depends on method. Current methods via floating hose and OHF Tier at Level 1, then rate is 150 M3 per hour, or about 6 – 7 days assuming QTY of ULSD to be discharged is 20,000 M3.

3 VESSEL COMMUNICATION (SHIPPING INSTRUCTIONS TO MASTERS) - ADDRESSES: (GN-IR-66 (4); QIA 64; PCA-1(C))

The Standing Instructions to Master (SITM) address matters pertaining to speed limitations approved anchorage locations, locations where vessels can perform a controlled drift as well as other vessel traffic management practices. Baffinland also employs an on-site Port Captain who is responsible for, among other duties, communicating with vessels to ensure the flow of traffic.

- 1) Vessel speed (regardless of vessel type) has been assessed at max of 9 knots through Eclipse Sound and 5 knots in Milne Port.
- 2) 24 hours of operation can be expected. Decisions as to when a vessel can/should or cannot/should not proceed are influenced by day light hours; and this is taken into consideration when Captains look to transit to and from Milne Inlet. Please note that decisions are made on a case by case basis and take into account the prevailing ice, weather, etc. conditions at the time of transit.
- 3) Communication with vessel operators is provided via SITM as well as regular email communication as vessels arrive near the Northern Shipping Corridor. The on-site Port Captain coordinates with all vessels entering and exiting Eclipse Sound to and from Milne Inlet. Directions from the Port Captain include, but are not limited to, speed constraints, local marine traffic, anchoring/drifted positions and potential loading date.
- 4) The SITM provides all vessels with the waypoints for the approved ship track from the entrance of Eclipse Sound to Milne Inlet. Vessels are requested to maintain that track when feasible. The only times when the track is not followed is when a navigational hazard exists (ice berg, another vessel, etc.) or during the period of ice infested waters. During ice breaker operations, the vessel track is normally performed and dictated by the ice concentration. Ice breaker(s) and the following vessels will normally take a track through the least amount of ice as is possible to ensure the safety of the vessels. This track may or may not be the shortest route, but rather the safest path.
- 5) SITM is a live document and is updated on an annual basis as well as during the actual shipping season.
- 6) Compliance related matters are managed via direct electronic communication with vessel owner / operators and verbal communications from Port Captain to each vessel

4 ICE-MANAGEMENT VS. ICE-BREAKING

Addresses: (PCA-5; WWF-03)

There is a distinction between Ice Management and Ice Breaker operators. The former envisions the use of Ice Class Tugs, or another asset with similar dimensions, to prevent large ice floes or ice bergs from making contact with vessels in Milne Inlet, port infrastructure or other objects. Ice Breaker operations involves the use of an ice breaker to facilitate the passage of ice class vessels through prevailing ice conditions.

- 1) Ice breakers are used to facilitate the safe passage of vessels through prevailing ice conditions which are predominantly expected during the shoulder seasons (i.e both the start and end of the shipping season). More precisely, ice breaking operations create a safe track for ore carriers to transit. The Ice Breaker operations will be performed when prevailing ice conditions require Ice Class 1A – 1C ore carriers to operate under escort. Generally speaking, the Ice Breaker(s) will operate from the time of break-up to freeze-up within the nominal shipping window (July 1-November 15) – As demonstrated in Tables 2 and 4 from TSD-16, there is significant variability in the timing of break up (July 18 average; 21 days of variability) and freeze-up (November 14 average; 29 days variability).
- 2) Ice management operations are more focused on preventing floes of ice or ice bergs from making contact with vessel(s), port infrastructure or other. Ice management operations will be performed when ice bergs or floes make their way down to Milne Inlet. This type of operation, unlike the ice breaker operations, could occur throughout the entire duration of shipping season. This is due to the fact that ice bergs or large floes can make their way along Lancaster Sound, south via Navy Board and then down to Milne Inlet.

Ice breaker and ice management operations are one of the measures used to ensure human and vessel safety. To ensure safe operations, communication between Captain of the ice breaker and Captain of vessels under escort are live and vessels are in direct communication throughout the course of the escort operations. Further, ice breaker, ice management and all vessels are in constant communication with the on-site Port Captain to ensure communications are always maintained.

Specific Information Requests Related to Ice-Breaking

- 1) Will ice breaking be undertaken regardless of Inuit use of ice within Eclipse Sound, Pond Inlet and Milne Inlet?

No. Communication between BIM and relevant personnel will be maintained so as to ensure that such operations do not hinder use of land fast ice.

- 2) At what threshold of use will Baffinland cease ice breaking/ice management activities?

Several factors will determine when operations could come to a close, including:

- i) Prevailing ice conditions prevent ore carriers from rendering a positive ice numeral;
- ii) Annual shipping requirements have been achieved;
- iii) Presence of landfast ice has been identified.

- 3) Please clarify what the shipping frequency will be during the shoulder seasons when landfast ice is present and/or when ice management and/or breaking activities are being carried out.
 - a) Operations will not be executed when landfast ice is present and prevents ore carriers from rendering a positive ice numeral. Current operations do not require use of Polar Class 4 vessel or operations in landfast ice.
 - b) Assuming landfast ice is no longer present, then ore carriers will operate under ice breaker escort. A prerequisite for said operations is the need to submit ice numerals to NORDREG.

- c) Frequency of shipping will be assessed on a day to day basis, taking into consideration prevailing ice conditions and operational requirements at the two ore docks.

Attachment 2 - Commitments and terms and conditions following the Public Hearings

Summary of Baffinland Commitments for the Phase 2 Expansion Project
[As at January 6 2020]

This document includes:

- Table 1: a list of all ongoing commitments made by Baffinland during the NIRB Phase 2 environmental assessment to date, including: wording of the commitment made; who the commitment was made to/ reference number of final comment; and the agreed upon deadline.
- Table 2: a list of all terms and conditions that Baffinland proposed or agreed to terms and conditions that should be included in the amended Project Certificate 005.

This document will be further updated during the Phase 2 NIRB process to reflect additional commitments or specific terms and conditions that Baffinland agrees should be presented to the NIRB, and also will note any revisions that occur as a result of our ongoing engagements.

Table 1: Summary of Baffinland Phase 2 Commitments to Dates

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
CIRNAC-05	Freshwater Environment	Baffinland shall complete thermal modeling of the Waste Rock Facility and include the results in the Waste Rock Management Plan prior to the conclusion of Water Licence Amendment process, subject to NWB requirements.	Ongoing	Updated Waste Rock Management Plan was submitted on December 31, 2019. Proposed commitments and terms and conditions may change as a result.
CIRNAC-07	Freshwater Environment	Baffinland shall confirm the origin of elevated concentrations of aluminum, mercury and copper in Shake Flask Extraction test results for rock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries as part of water licensing. The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and implemented.	Post PC Amendment	
DFO 3.3	Marine Environment	Baffinland will implement a system where any bowhead whale observations will be reported to the Port Captain, who will send a notification to all incoming and outgoing ships to proceed with caution in the designated area.	Post PC Amendment	Baffinland notes that the surveillance measures implemented in the Gulf of St Lawrence, as referenced by DFO, are to spot right whales and implement the 10 knot speed restriction. This additional mitigation measure is not required in the RSA as a blanket 9 knot speed limit is in place for the entire season. The only mitigation measure more restrictive than the speed limit is a 15 day shut down for non-tended fixed gear fisheries. Again, this is not applicable to Mary River operations.
DFO 3.4	Marine Environment	The following clarifications will be added to the Shoulder Season Shipping Operational Guide to reflect the environmental and ecological conditions for closing the shipping season. Environmental - The formation of fastice along the shipping route will trigger the end of the shipping season. Ecological - There are no ecological triggers to close the shipping season, however, monitoring and adaptive management will be applied to ensure no significant impacts occur.	Post PC Amendment	Seals - During the Fall Season Seals are just beginning to establish breathing holes in the ice as part of their development of an overwinter territory, but this is not considered a critical life cycle period. Seals may avoid establishing breathing holes along the shipping route during this period, but this would be limited to general area of the ship path, which is minimal in extent. Seals do not start denning until January when enough snow is available on the ice for them to build a den. Shipping would not overlap with the denning period. Narwhal- The fall shoulder season will overlap with the outmigration of narwhal throughout October and November. Aerial surveys are planned each year to confirm no entrapment events have occurred, and to inform adaptive management, should it be required.
DFO 3.5.1.	Marine Environment	During Phase 2 Operations, Baffinland commits to using the walrus haul out buffer zone guidelines set by the US Fish and Wildlife Service (USFWS) and the US Federal Aviation Administration (FAA).	Post PC Amendment	Per FWS Response
DFO 3.5.2	Marine Environment	Baffinland will not break ice in closed embayment's and inlets where landfast ice exists. Should other areas of high seal density be encountered along the shipping route during the shoulder season, the Ship Board Observer Program will record and report this for potential adaptive management actions. This may include notices to Masters of project ships operating within the RSA	Post PC Amendment	Post FWS Commitment

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
		to exercise due caution in order to minimize the likelihood of interaction with the mammals. In such events, Masters will be authorized to adjust speed or alter course within safe and prudent navigational constraints to avoid to the extent possible interactions with high density seal areas.		
DFO 3.5.3	Marine Environment	Baffinlands Ship Board Observer Program will confirm the current predictions that no seal strikes will occur as a result of project shipping. Should monitoring demonstrate that the predictions are incorrect, Baffinland will implement adaptive management measures in consultation with the MHTO and MEWG.	Post PC Amendment	
DFO 3.5.4	Marine Environment	Baffinland is not proposing to ship during sensitive lifecycle periods for seal, which typically occur in the months between March and May. No additional mitigation measure is necessary for the current Shoulder Season Shipping Guide.	Post PC Amendment	
DFO 3.5.5	Marine Environment	<ul style="list-style-type: none"> • Before commencing shipping, Baffinland must receive written confirmation from the MHTO that the floe edge is no longer being used by community members. No transits to Milne Port will be permitted until confirmation is received. • Baffinland will not break ice during ringed seal denning, pupping, nursing or mating periods and will manage its vessel traffic during the Eclipse Sound narwhal summer stock spring migratory period. • Furthermore, Baffinland has established several precedent-setting mitigations to minimize potential effects on ringed seal as a result of ice breaking activities, including: • Restricting the number of transits during the early shoulder season where ice concentrations above 3/10 cannot be avoided. • Implementation of speed restrictions (9 knots) that are more conservative than Government of Canada guidelines for speed reduction to 10 knots. • Local Inuit Marine Wildlife Observers (MWOs) will be stationed on all icebreaker transits in the RSA and are responsible for alerting vessel Master and crew to observed potential risk of ship strikes on pinnipeds and other marine mammals, or record other signs of disturbance to marine wildlife. <p>Implementation of a 40-km buffer zone around the floe edge at the entrance of the RSA to reduce interactions between Project vessels and marine mammals (vessels entering the RSA during the spring shoulder season must wait 40 km to the east of the RSA until clearance from the Port Captain is obtained to enter the RSA).</p>	Post PC Amendment	
DFO 3.5.6	Marine Environment	<p>Baffinland will updated the Marine Monitoring Program to make it clear what behavioral indicators are recorded during the Ship Board Observer Program. These indicators include breaching, flipper slapping, lob tailing, diving, fluking, blowing, resting, looking, feeding, hauled-out, milling, swimming, surfacing. Other recorded information includes initial distance from vessel, minimum distance from vessel (i.e. closest point of approach), and bearing from vessel and movement direction. These methods and indicators are currently described in annual Ship Board Observer Reports.</p> <p>Baffinland will provide this plan to MEWG members prior to ice breaking activities occurring under the Phase 2 Proposal for review and comment, with sufficient time to implement changes to the plan, if necessary. Behavioral indicators will be outlined in this plan.</p>	Prior to Phase 2 Shipping	

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
DFO 3.6.2 DFO 3.6.6	Marine Environment	<p>Baffinland is committed to undertaking an end-of-season aerial survey of the LSA for each year shoulder season shipping occurs, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey.</p> <p>Baffinland will describe how survey results will be reported and analyzed in an aerial survey monitoring plan. This plan will be provided to MEWG members prior to carrying out the fall aerial surveys for review and comment, with sufficient time to implement changes to the survey plan, if necessary. This plan will include provisions for adaptive management, should repetitive ice entrapments occur.</p> <p>Should local knowledge indicate that ice formation during the fall shoulder season has interrupted travel routes on the sea ice, Baffinland will work with the local community to develop an appropriate monitoring program and/or adaptive management response.</p>	Prior to Phase 2 Shipping	Per FWS Response.
DFO 3.7.2	Marine Environment	<p>Empirical data on ship noise levels have now been collected as part of JASCO's passive acoustic monitoring program for the Project. These data have been analyzed to calculate LRR for these additional areas in the RSA (Eclipse Sound, North Milne Inlet, Koluktoo Bay). Calculations of LRR associated with ship transits at these representative locations will be presented in a 'technical memorandum' or 'technical response', scheduled for delivery to DFO on February 17, 2020. The technical memorandum will include an analysis to estimate the LRR estimations for Phase 2 shipping operations based on the empirical results calculated for 2018 and 2019 shipping operations.</p>	Prior to Technical Meetings	
DFO 3.7.4	Marine Environment	<p>An analyses will be conducted using data collected during the 2019 shipping season to characterize the degree of conservatism in the sound propagation modelling that has been conducted. Additional AMARs have been deployed and will collect data during the Fall 2019 and Spring 2020 seasons to further this analysis.</p>	Post PC Amendment	See commitment to DFO 3.8.4 for long term acoustic monitoring.
DFO 3.8.4	Marine Environment	<p>Baffinland will continue to undertake acoustic monitoring supportive of its operations in accordance with terms and conditions of the existing Project Certificate No. 005.</p>	Post PC Amendment	
DFO 3.9.1	Marine Environment	<p>Baffinland will implement an incidental marine mammal monitoring program with vessel operators calling on Milne Port, which will request incidental observations of marine mammals to be recorded and relayed to Baffinland. In support of this program, Baffinland will develop educational materials for vessel crew to assist in marine mammal identification and data recording. Baffinland will provide a draft of the materials and program for review by the MEWG before they are finalized.</p>	Post PC Amendment	Baffinland and DFO are continuing to discuss commitment wording and will provide an update to the NIRB as it is available
DFO 3.10.2 TC-02	Marine Environment	<p>Baffinland will revise the Ballast Water Management Plan to include a requirement for all vessels to conduct ballast water exchanges (with or without D2 treatment systems) prior to calling on Milne Port, until such a time that ballast water treatment systems are compliant with the D2 standards set by the IMO.</p> <p>Should Baffinland wish to discontinue the practice of exchange plus treatment, Baffinland will provide updated ballast water modelling that reflects the range of salinity that may be present in the ballast water tanks where no exchange occurs.</p>	Post PC Amendment	Baffinland and DFO are continuing to discuss commitment wording and will provide an update to the NIRB as it is available

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
DFO-3.10.3, DFO-3.10.4, TC-02, QIA-45, DFO-3.10.4, QIA-44	Marine Environment	Baffinland will implement a pilot ballast water biological monitoring program for ships calling on Milne Port. This program will be designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017. This program will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island.	Post PC Amendment	Baffinland is continuing to discuss a resolution to TC-02 regarding the sampling of multiple ballast water tanks in circumstances where ballast water is taken on at multiple locations. Baffinland will mirror any commitment to TC here for DFO.
DFO 3.10.5	Marine Environment	Baffinland will update the AIS monitoring program to describe the process it follows for identifying high-risk biological species discovered through its sampling programs.	Post PC Amendment	Baffinland and DFO are continuing to discuss commitment wording and will provide an update to the NIRB as it is available
DFO 3.10.6	Marine Environment	Baffinland will work with DFO to develop a management and response approach in the event a non-indigenous species is identified during monitoring. This response approach will be added as an attachment to the AIS monitoring program.	Post PC Amendment	Baffinland and DFO are continuing to discuss commitment wording and will provide an update to the NIRB as it is available
DFO-3.12	Freshwater Environment	Baffinland will provide rationale for the selection of crossing infrastructure for fish bearing watercourses, as part of the application for an authorization under the Fisheries Act for the railway.	Post PC Amendment	Per FWS Response.
DFO-3.13.1	Freshwater Environment	Baffinland will provide a discussion on lessons learned from the Tote Road crossings with the crossing selection rationale as part of the application for an authorization under the Fisheries Act.	Post PC Amendment	Per FWS Response.
DFO-3.13.2	Freshwater Environment	Baffinland commits to providing updated hydrological assessment of proposed watercourses crossings (that includes, but is not limited to, crossing selection and design criteria, flow rates, velocities and discharge) to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Post PC Amendment	Per FWS Response.
DFO-3.14.1	Freshwater Environment	Baffinland commits to providing a detailed water withdrawal plan (that includes an in-depth risk analysis informed by site-specific fish and fish habitat features for the waterbodies chosen for water withdrawal) to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Post PC Amendment	Per FWS Response.
DFO-3.14.2	Freshwater Environment	Localized assessments of water withdrawals will be undertaken and presented in a Detailed Water Withdrawal Plan that will be provided to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Post PC Amendment	Per FWS Response.
DFO-3.14.3	Freshwater Environment	The limits for water withdrawal were established as a screening tool to identify suitable waterbodies on the Northern Transportation Corridor. The limits are conservative but require additional site-specific assessments to confirm the avoidance of impacts on fish and fish habitat. These site-specific assessments will be provided as part of the Request for Review Application to DFO as part of project permitting.	Post PC Amendment	Per FWS Response.
ECCC-FC1 HC-FC-02	Atmospheric Environment	Baffinland will reflect the commitments provided in its response in the Air Quality and Noise Abatement Management Plan following the issuance of an amended Project Certificate. In the interim these commitments will be captured in a commitment register, to be provided to the Board during the Public Hearings. Baffinland does not object to having relevant terms and conditions modified to reflect this commitment.	Post PC Amendment.	Post FWS Commitment

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
ECCC-FC2	Atmospheric Environment	Baffinland commits to investigate and implement NOX reductions measures, where feasible, and report on this in the 2020 annual air quality report (to be submitted by March 31, 2021)	Post PC Amendment	Post FWS Commitment
ECCC-FC3 HC-FC-02	Atmospheric Environment	Baffinland will reflect the commitments provided in its response in the Air Quality and Noise Abatement Management Plan following the issuance of an amended Project Certificate. In the interim these commitments will be captured in a commitment register, to be provided to the Board during the Public Hearings. Baffinland does not object to having relevant terms and conditions modified to reflect this commitment.	Post PC Amendment	Post FWS Commitment
ECCC-FC4	Marine Environment	Baffinland commits to investigate and implement black carbon reduction measures, where feasible, and report on this in the 2020 annual air quality report (to be submitted by March 31, 2021). The investigation will consider the use of distillate fuels as a reduction measure for local black carbon emissions.	Ongoing	Post FWS Commitment
ECCC-FC-5	Marine Environment	Baffinland remains committed to updating the Phase 1 Waste Rock Management Plan and evaluating the appropriateness of the 0.2% cutoff for PAG classification, irrespective of the Phase 2 approvals process.	Ongoing	Updated Waste Rock Management Plan was submitted on December 31, 2019. Proposed commitments and terms and conditions may change as a result.
ECCC-FC6 WWF-FWS 06	Marine Environment	Baffinland commits to conduct additional Arctic diesel fuel spill modelling to account for shoulder season shipping and update the SSRP as necessary (Appendix G). This will occur prior to the 2020 shipping season.	Prior to Phase 2 Shipping	Per FWS Response.
GN-01	Project Description	Unless otherwise approved by the NIRB, in any given day, the total number of ore haul truck transits along the Milne Inlet Tote Road should not exceed 280 for the duration of the Phase 2 construction period, which should not last longer than 6 years.	Post PC Amendment	Baffinland is no longer pursuing trucking of iron ore in excess of 6Mtpa during the Phase 2 construction period. This commitment will require modification.
GN-02 WWF-FWS 07 MHTO-03	Terrestrial Environment	Baffinland is committed to updating the TEMMP and to develop a mutually acceptable caribou research agreement.	TBD	The caribou research agreement is currently with the GN for review.
GN-03	Terrestrial Environment	<p>Baffinland commits, subject to safety and detailed engineering considerations, to build sections of the railway embankment less than 4 metres high with a gentler slope (i.e. 1:2) and smoother (e.g., type 8) fill material.</p> <p>Baffinland commits to implement an adaptive management approach to the installation of additional or extended gentler railway embankment slopes, should land users or caribou monitoring programs demonstrate that the North Railway is posing a barrier to caribou movement and causing greater than predicted impacts. This process will be outlined in the Additional Level Crossing Construction Decision Matrix and submitted to the NIRB within 6 months of the approval of an amended Project Certificate.</p> <p>The process, to be discussed with the TEWG members prior to submission to the NIRB, will likely include the following elements:</p> <ul style="list-style-type: none"> • Land-user identified need for additional crossing enhancements are acted on as requested as outlined in the Additional Level Crossing Construction Decision Matrix • Additional areas for crossing enhancement may also be identified through monitoring programs, such as snow tracking, environmental monitor observations, height-of-land 	Post PC Amendment	Baffinland and GN are continuing to discuss commitment wording and will provide an update to the NIRB as it is available

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
		<p>observations, collar data, camera monitoring data, or other data as may be available at the time.</p> <ul style="list-style-type: none"> • If we start to see diversions based on the monitoring data, and the correlation is not apparent, we may choose to further investigate with a camera program to help us determine the cause of diversion and formulate additional mitigations. • The observations and data analysis will occur on an annual basis in line with the annual terrestrial environment monitoring report and scheduled TEWG meetings to facilitate further discussion and mitigation actions. • Mitigations will be applied where a correlation is made apparent between caribou diversions and the North Railway, and may include construction of additional, or extended crossings, at a length and slope to be determined in collaboration with the TEWG. • The monitoring program will continue until impacts are sufficiently mitigated, as agreed up with the TWEG. <p>The Railway Management Plan and Terrestrial Environment Mitigation and Monitoring Plan will be updated to reflect these commitments.</p>		
GN-04	Terrestrial Environment	Baffinland will update the Additional Level Crossing Construction Decision Matrix to include advice from the Terrestrial Environment Working Group (TEWG).	Post PC Amendment	Post FWS Commitment
GN-05	Terrestrial Environment	BIMC will update the Terrestrial Environment Mitigation and Monitoring Plan to reflect that it will undertake research to estimate the Zone(s)-of-Influence (ZOI) and disturbance coefficients (DC) exerted by the Project on caribou, and shall provide to NIRB updated estimates of cumulative habitat losses for caribou, at least every 5 years.	Post PC Amendment	Post FWS Commitment
GN-06	Human Environment	<ol style="list-style-type: none"> 1. The Proponent shall work with the GN through their MOU to promote greater female employment at the Mary River Project, with the goals of a) employing and retaining more women with the Project including in more senior level positions, and b) attracting more women into the mining industry more generally. 2. The Proponent will assess the ongoing implementation of current and proposed gender-specific initiatives, including their successes and challenges, in conjunction with monitoring female employment rates at the Project through its Socio-Economic Monitoring Plan. The Proponent will report to the QSEMC and SEMWG, as appropriate, on the effectiveness of these gender-specific initiatives. 	Post PC Amendment	Per FWS Response

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
GN-07	Human Environment	<p>1. The Proponent will update its Workplace Harassment Policy and Workplace Harassment and Violence Program and include a component on sexual harassment that addresses the unique nature of sexual harassment in the workplace and supports the specific needs of sexual harassment victims. The Government of Nunavut will be engaged in this process. This update will occur within 6 months of amended Project Certificate issuance.</p> <p>2. The Proponent will update its employee orientation program to reflect the revisions in the Workplace Harassment and Violence Program, including components related to sexual harassment in the workplace and bystander intervention. This update will occur within 6 months of amended Project Certificate issuance.</p> <p>3. The Proponent will work with the GN to establish a sub-committee through their MOU to review implementation of Company policies and initiatives regarding sexual harassment in the workplace, subject to all applicable privacy laws, and to explore potential new ways to address this issue at the Mary River Project. The proponent and GN will move forward on this issue through the MOU within 6 months of issuance of the Project Certificate. Baffinland Human Resource Staff will be available to specifically address this topic through the MOU subcommittee as and when required.</p>	Post PC Amendment	Per FWS Response
GN-08	Human Environment	<p>1. The Proponent shall work with the GN through their MOU to promote employment opportunities with the Mary River Project across all Qikiqtani communities, consistent with relevant provisions of the Mary River Inuit Impact and Benefit Agreement. Initiatives may include training opportunities in non-point of hire communities, posting employment and training opportunities in all Qikiqtani communities, communicating with unsuccessful job applicants, and continuing to provide travel for all Inuit Baffinland employees from across the Qikiqtani Region to a point of hire community.</p>	Post PC Amendment	Per FWS Response.
GN-09	Human Environment	<p>1. Baffinland will submit to NIRB a Safety Protocol and a Communications Plan prior to construction of the North Railway or within 18 months of issuance of the Project Certificate; and a Safety Protocol and a Communications Plan prior to operation of the North Railway. The protocols and plans will include:</p> <p>Safety Protocol and Communications Plan – prior to railway construction or within 18 months of Project Certificate issuance:</p> <ul style="list-style-type: none"> a. Complete a risk register prior to construction b. Address safety issues related to both the road and rail, during the construction period c. Be implemented by the Company, its contractors, and non-Project land users d. Integrate Baffinland’s existing Hunter and Visitor Site Access Procedure e. Communicate to land users the rules and procedures for using the Tote Road and other project roads, visiting the project site, and the risks associated with the road and the North Railway during the construction period f. Include Rules of the Road, such as speed limits, signs on the road, right of way protocols, safety restrictions regarding the discharge of firearms in proximity to the road and rail construction areas, etc. 	Post PC Amendment	Post FWS Wording

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
		<p>g. Identify potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, construction areas, and washouts</p> <p>h. Identify the location of safety features such as rail crossings, emergency shelters and safe access routes to the Mine Site and Milne Port</p> <p>i. Identify the location of safety features such as emergency shelters and safe access routes to the Mine Site and Milne Port, and construction shelters and accommodations</p> <p>j. Be developed in consultation with the North Baffin Communities, with a particular focus on the Communities of Pond Inlet and Igloolik</p> <p>k. Identify the means and frequency of communicating the safety protocol, and to whom the information will be communicated</p> <p>Safety Protocol and Communications Plan – prior to railway operation</p> <p>a. Complete a risk register prior to operation</p> <p>b. Address safety issues related to both the road and rail, during operations</p> <p>c. Be implemented by the Company, its contractors, and non-Project land users</p> <p>d. Integrate Baffinland’s existing Hunter and Visitor Site Access Procedure</p> <p>e. Communicate to land users the rules and procedures for using the Tote Road and other project roads, crossing the North Railway, visiting the project site, and the risks associated with the road and the North Railway</p> <p>f. Include Rules of the Road, such as speed limits, signs on the road, right of way protocols, safety restrictions regarding the discharge of firearms in proximity to the road and rail</p> <p>g. Identify potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, and washouts</p> <p>h. Identify potential hazards with the rail line such as train traffic, sharp corners, loading and unloading areas</p> <p>i. Identify the location of safety features such as rail crossings, emergency shelters and safe access routes to the Mine Site and Milne Port</p> <p>j. Identify the location of safety features such as emergency shelters and safe access routes to the Mine Site and Milne Port, and construction shelters and accommodations</p> <p>k. Be developed in consultation with the North Baffin Communities, with a particular focus on the Communities of Pond Inlet and Igloolik</p> <p>l. Identify the means and frequency of communicating the safety protocol, and to whom the information will be communicated</p> <p>m. Describe how the Operation Lifesaver program will be implemented, including information on when it may be offered, to whom, and how often</p>		
HC-FC-02	Human Environment	Baffinland will update the Air Quality and Noise Abatement Management Plan with the following text: "Use the existing continuous air quality monitors on site to validate the predictions of NO2 and other air quality contaminants in the EIS moving forward. Share results through reporting mechanisms, such as the annual report. Should exceedances occur beyond the EIS predictions, include an updated human health risk assessment in the annual report."	Post PC Amendment	Post FWS Commitment

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
HC-FC-03	Human Environment	<p>Baffinland will continue with monitoring of COPCs reported in the country foods risk assessment during all phases (including closure). If increases in a specific COPC are confirmed to be occurring outside or inside (in the closure phase) of the Potential Development Area (PDA) and if country foods could be influenced by those changes, Baffinland will update the human health risk assessment model with the new data. Decisions related to extending the monitoring program to any relevant country foods would be made based on consideration of risk assessment outcomes.</p> <p>Updated modelling would be triggered by changes from any of the monitoring stations where harvesting could occur. Any remodeling effort should also consider changes (or lack thereof) using a distance gradient approach from the edge of PDA: Near (0–100 m); Far (101 –1,000 m); and Control (>1,000 m) and more ecologically relevant distant stations (i.e., those stations located between 100 m and 1,000 m from the PDA boundary). Consideration of change at PDA (closure phase), near sites (0 – 100m) and far sites (100 – 1,000 m), relative to baseline data, and environmental quality guidelines, in conjunction with statistical analyses, would be used to identify the need for supplementary risk assessment modelling.</p>	Post PC Amendment	Per FWS Response
HPI	Human Environment	Baffinland will undertake to encourage students and youth to consider possible careers with Baffinland.	Ongoing	Per FWS Response.
HPI	Human Environment	<p>Baffinland will undertake to promote access to employment for Inuit women.</p> <p>Following the Technical Meeting held in Iqaluit April 8-10, 2019, Baffinland committed to working with the GN through the implementation of the MOU to promote female employment at Mary River.</p>	Ongoing	Per FWS Response
HPI	Human Environment	As part of Baffinland’s early engagement in the planning stages for the Phase 2 Project, Mittimatalik raised concerns with respect to year round icebreaking resulting in Baffinland’s commitment not to ship in land fast ice	Ongoing	Per FWS Response
HPI	Human Environment	To further Baffinland’s goal of meaningful consultation and engagement it has committed to the development of community-specific engagement guidelines. The development of these guidelines will serve to improve the two-way dialogue between the Company and Inuit.	Post PC Amendment	Per FWS Response
HPI	Human Environment	Baffinland remains committed to ongoing engagement with Mittimatalik throughout the Project’s lifetime. As noted in Baffinland’s new IQ Management Framework (Baffinland, 2019a), the Company is in the process of developing community-specific consultation guidelines for the North Baffin communities; these will be developed in consultation with individual communities in the near future. As the guidelines are developed, they will be appended to Baffinland’s Community and Stakeholder Engagement Plan (TSD-28, Appendix Z).	Ongoing	Per FWS Response
HPI	Human Environment	Pending approval of the Phase 2 Proposal, Baffinland has committed to provide \$1.2 million/year to each of the five North Baffin communities for the life of the mine (\$6 million/year total). These amounts are intended to support socio-economic opportunities, cultural opportunities, and hunter support opportunities.	Post PC Amendment	Per FWS Response

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
HPI-1	Human Environment	Baffinland will conduct a review of internal procedures related to the conduct of community-focused research and identify areas for potential improvement. Baffinland will update its IQ Management Framework with information on research ethics and will provide clear direction on the procedures to be followed when applying for, securing, renewing, and reporting on research licensing. Baffinland will continue to engage the Nunavut Research Institute (NRI) in this process and will additionally provide NRI with annual IQ work plans for review and comment.	Post PC Amendment	Per FWS Response.
HPI-10	Human Environment	Baffinland is committed to using best efforts to improve its Inuit employment record each year, whether the MIEG has been met or not.	Ongoing	Per FWS Response
HPI-11	Human Environment	Baffinland commits to working with the Hamlet of Mittimatalik: <ul style="list-style-type: none"> to establish community- specific engagement guidelines, and to ensure the active participation and representation of Mittimatalik on the Inuit Advisory Panel. 	(a) Ongoing (b) Post PC Amendment	Per FWS Response
MHTO-2a	Terrestrial Environment	Baffinland will undertake geotechnical drilling to further establish technical feasibility for Route 3, but at this time based on a preliminary review Baffinland does not anticipate that such drilling will reveal any fundamental issues with the route. This work will be carried out prior to construction.	Post PC Amendment	Baffinland has selected Route 3 as its preferred deviation alignment. There are no Post PC Amendment conditions required to finalize selection, including the results of geotechnical drilling.
MHTO-2b	Human Environment	Baffinland has committed to the development of Community-specific engagement guidelines. Baffinland believes that the development and implementation of these guidelines will serve to improve the two-way dialogue between the Company and Inuit. These guidelines will be developed in consultation with the MHTO, as well as North Baffin community representatives. As the guidelines are developed, they will be appended to Baffinland's Community and Stakeholder Engagement Plan.	Post PC Amendment	Per FWS Response.
MHTO-3	Terrestrial Environment	Baffinland is committed to continual improvement of its terrestrial monitoring program design, data analysis, and integration of Inuit perspectives and IQ.	Ongoing	Per FWS Response.
MHTO-4a	Marine Environment	Baffinland confirms it is committed to consultation with the MHTO regarding shipping plans.	Ongoing	Per FWS Response.
MHTO-5d	Human Environment	Baffinland is committed to increase training provided to Inuit who participate in monitoring programs, including data analysis. This was carried out in 2019 for an individual working on the 2019 aerial survey out of the Golder office in Victoria, BC. Baffinland will continue to seek further means to better integrate Inuit researcher's knowledge into monitoring programs throughout the life of the Project.	Ongoing	Per FWS Response.
MHTO-5e	Marine Environment	Baffinland commits to continue to evaluate the feasibility of the development of a laboratory in Pond Inlet, in consultation with MHTO.	Post PC Amendment.	Per FWS Response See also DFO-3.10.3, QIA-44 (re pilot ballast water biological monitoring program)
MHTO-6a	Human Environment	With the discontinuation of ore haulage under Phase 2, it is possible for Baffinland to develop a policy that ensures the safety of all land users to travel the Tote Road with recreational vehicles, and that of Baffinland employees. Baffinland will look to engage the MHTO in the development of this policy, as well as the timeline for its implementation.	Post PC Amendment	Per FWS Response.
MHTO-7a	Human Environment	Baffinland is committed to incorporating Inuit knowledge into its identification of indicators and development of thresholds. One example where this is currently being done is at the MEWG, which the MHTO is a member of, which is currently working on the development of early warning indicators for marine mammals.	Post PC Amendment	Per FWS Response.

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
NRCan-01	Terrestrial Environment	<p>Baffinland commits to:</p> <ul style="list-style-type: none"> • Conducting the summer 2019 mapping program in areas where the railway corridor deviates from the Tote Road, including along the Route 1 deviation alignment. This summer mapping program was completed in summer 2019. • Conducting the winter 2019/2020 drilling program along the deviation route, following the proposed Route 3 deviation alignment, and near the port terminus to obtain additional information on subsurface conditions to inform the final design. • Conducting a pre-drilling program, to be completed by the railway contractor and supervised by BIM's Engineer during the construction period. Boreholes will be advanced into permafrost along the rail alignment prior to the railway earthworks. Boreholes will be used to delineate zones of ice-rich and ice-pore permafrost and to determine the required permafrost treatment prior to making cuts and placing fill for the embankments. • Installing thermistors and other monitoring instruments along the rail alignment including along the Route 3 deviation during the pre-drilling programs to establish baseline conditions prior and during rail construction. 	Post PC Amendment	Per FWS Response
NRCan-02	Terrestrial Environment	<p>Baffinland commits to:</p> <ul style="list-style-type: none"> • Implementing the recommendations to accommodate the 30-year design life provided in the project memorandum 'Analysis of Proposed Rail Line Cut Sections and Port Area Structures Considering a Mine Life of 30 Years' (Hatch, 2019) including those related to pile length embedment and number of piles required for foundations. • Continue to refine the thermal, stability and creep analysis incorporating new data collected during geotechnical investigations and from instrumentation along the railway corridor, along the Route 3 deviation alignment as well the rail alignments outside the rail deviation, to support final design of embankments and bridges. • Consider local factors (such as snow accumulation and presence of water bodies) in the 2D thermal modelling to support final design of embankments, cuts and bridges. • Establish instrumentation along the rail alignment, including along the Route 3 deviation alignment, prior to and during construction to improve characterization of baseline ground conditions, support final design, evaluate impacts due to construction and railway performance, and to inform the implementation of mitigation /maintenance measures when triggers are reached. 	Post PC Amendment	Per FWS Response
PCA-02	Marine Environment	Baffinland commits to amend the Terms of Reference for the MEWG in collaboration with MEWG Members.	Post PC Amendment	Per FWS Response
PCA-04c	Marine Environment	Should Phase 2 be approved, Baffinland will continue to engage DFO and Parks Canada through the MEWG for the purposes of ensuring our proposed mitigation and monitoring programs are robust, effective, and responsive.	Post PC Amendment	Per FWS Response.
QIA-01, QIA-02,	Human Environment	Baffinland will establish and adequately fund and support, until Project Termination, an Inuit Advisory Panel, including the development of a Terms of Reference for this body within 12 months of the issuance of an amended Project Certificate. Finalized terms of reference are to be decided	Post PC Amendment	Commitment made to QIA in relation to proposed TC wording, set out in Tables B and C below.

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
QIA-05, QIA-09, QIA-46, QIA-49, QIA-51		upon by Committee members. This IAP will provide recommendations on investigation, direction of additional data gathering, and development and implementation of adaptive management and thresholds/triggers for effects on Inuit culture, resources and land use. Baffinland will provide an annual report responding to all recommendations made by the committee.		
QIA-01 QIA-03, QIA-05, QIA-08, QIA-10, QIA-11	Human Environment	Baffinland and QIA will jointly develop a culturally appropriate component of the Culture, Resources and Land-Use ("CRLU") monitoring program that addresses harvest surveys. Adaptive management measures will be informed by the results of the surveys and the CRLU monitoring program. This development will be completed within 12 months of the issuance of the amendment to the Project Certificate implementing Baffinland's Phase 2 proposal to align with the development and implementation of the CRLU monitoring program.	Post PC Amendment	Commitment made to QIA in relation to proposed TC wording, set out in Tables B and C below.
QIA-01	Terrestrial Environment	Baffinland commits to support a harvester's survey as described by QIA in QIA-01, however, such a study must be led by harvesters, not Baffinland.	Post PC Amendment	Per FWS Response
QIA-02	Terrestrial Environment	Based on input provided during the Crossing Selection Workshop from HTO participants representing Pond Inlet, Igloolik, as well as QIA and GN, the following modifications have been proposed for the design of the North Railway to aid in caribou crossing: <ul style="list-style-type: none"> • 30 level crossings to be installed at locations identified by community representatives during the workshop (subject to Transport Canada and Community Acceptance). • A smoother fill material (Type 8 - 6 inches or less in size) will be used along the entire railway embankment (change from Type 12 - 24 inches or less). • A gentler slope (1:2 ratio) will be used for all portions of the railway embankment between 2 and 4 meters (change from 1:1.5). • A gentler slope will be created at the edges of crossings to assure approach from any angle is safe. • 4 additional plate arch culverts will be installed in areas where the railway embankment is high enough to allow an underpass (10 plate arch culverts were already proposed at fish bearing water crossings, which may also serve to allow passage for terrestrial wildlife throughout the year). 	Post PC Amendment	Per FWS Response
QIA-02	Terrestrial Environment	<ul style="list-style-type: none"> • Baffinland commits to the following mitigation measures with respect to the operation of the railway to reduce interference with caribou: • Temporary speed restrictions may be implemented in areas where caribou have been observed over the previous 24hrs. • Permanent speed restrictions of 30km/hr will be applied to sections with steep hills for train safety. • If large groups of migratory caribou are moving through the area, rail operations will be temporarily suspended to allow caribou to cross the rail line. • In white out conditions, train crews will be required to travel at a speed suitable to stop before hitting an object based on sight distance, i.e. if you can see 50m ahead you need to be able to stop in 25m. 	Post PC Amendment	Per FWS Response

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
QIA-03	Human Environment	<ul style="list-style-type: none"> Baffinland will carry out engagement with the 5 North Baffin communities during 2020 in order to identify, together with Inuit and in consultation with QIA, the specific metrics that Inuit identify should be monitored as part of the CRLU program, and to identify, together with Inuit and in consultation with QIA, thresholds for change that should trigger adaptive management by the company. Baffinland would report on changes and trends in monitoring, based on previous reports. Baffinland will consider adaptive management actions and consult with the community on the best path forward in relation to any changes to CRLU identified through the CRLU monitoring program. For clarity, Baffinland would not only consider adaptive management in the event that effects exceed the FEIS addendum estimations but instead would have regard to triggers for action identified through consultation with the community. 	Post PC Amendment	Per FWS Response
QIA-04	Marine Environment	Baffinland commits to developing a ringed seal monitoring plan that incorporates Inuit perspectives into the design, planning and implementation phases.	Post EA Amendment	Per FWS Response.
QIA-07	Human Environment	<p>Baffinland commits to integrating IQ into the objectives of its terrestrial and marine environmental management plans. Reporting will focus on the topics as outlined in the QIA's original technical comment:</p> <ol style="list-style-type: none"> Show respect to animals; Leave animals alone unless hunting them; Animals are to be used, not wasted; Each animal has its own habitat; and Protect animal habitat. 	Ongoing	<p>Per FWS Response</p> <p>Baffinland's commitment to the Inuit Advisory Panel is provided in QIA-03.</p>
QIA-08	Human Environment	Baffinland commits to develop a risk communication strategy focused on gathering and dissemination of information to Inuit related to the Baffinland Iron Ore Mines Project, and linkages between the Project and human health and ecological risk assessment topics. The strategy will focus on building capacity within community groups to understand the mining process, elements of the mining process and how substances produced from the mining process move in the environment.	Ongoing	Per FWS Response
QIA-21	Freshwater Environment	Implementation of the Water Compensation Agreement, particularly with respect to the integration of IQ, will require a collaborative effort between Baffinland and the QIA to which Baffinland remains fully committed. As a Water Compensation Agreement is required under Section 63 of the Nunavut Waters and Surface Rights Tribunal Act and Article 20 (Part 3) of the Nunavut Land Claims Agreement, Baffinland maintains that a process to establish compensation in respect of Inuit Water Rights exists and will be adhered to outside of the Project Certificate amendment process.	Prior to issuance of Type A Water Licence	
QIA-22	Corporate Environment	Unless otherwise approved by the NIRB, in any given day, the total number of ore haul truck transits along the Milne Inlet Tote Road should not exceed 280 for the duration of the Phase 2 construction period.	Post PC Amendment	Post FWS Commitment
QIA-24 QIA-26	Corporate Environment	The final monitoring plan for the operations phase of the railway will be finalized following completion of the construction monitoring phase, when data collected has been analyzed and final recommendations can be provided. Adaptive management will be incorporated into the rail geotechnical monitoring program, to the extent practical.	Post PC Amendment	Per FWS Response
QIA-31	Corporate Environment	Regarding the North Railway, Baffinland is committed to providing a construction plan that indicates specific monitoring locations and site-specific conditions that would lead to additional monitoring locations, and what construction monitoring results would trigger additional monitoring during	Post PC Amendment	Per FWS Response.

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
		operations which will be provided through the water licensing and Commercial Lease. These monitoring programs are currently being incorporated into an update to the Surface Water and Aquatic Ecosystems Management Plan that will be provided to the Nunavut Water Board in advance of the NWB technical meeting on November 12-13, 2019.		
QIA-33 QIA-34 QIA-35 QIA-36	Human Environment	Baffinland will work with QIA to develop an updated Inuit Training Plan that covers the period between Phase 2 construction and the first three years of operations. This plan will provide updates on programs that will be offered and how Baffinland intends to maximize Inuit engagement with the Project. This updated plan will be developed within six months of issuance of the amended Project Certificate.	Post PC Amendment	Per FWS Response.
QIA-37	Human Environment	Baffinland commits to continue to work with QIA to mitigate negative impacts and enhance positive Project opportunities and benefits through the Mary River IIBA.	Ongoing	Per FWS Response
QIA-38	Human Environment	Baffinland commits to the development of socio-economic monitoring thresholds and actions, in consultation with the Mary River Socio-Economic Monitoring Working Group (SEMWG). Once finalized, these will be reflected in an updated Socio-Economic Monitoring Plan.	Post PC Amendment	Per FWS Response.
QIA-39	Human Environment	Baffinland commits to continue to work with QIA to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.	Ongoing	Per FWS Response
QIA-41	Freshwater Environment	The Tote Road Monitoring Program will be expanded to include the future railway development, both in proximity to the existing Tote Road Monitoring Program locations and along the rail route deviation from the Tote Road. Baffinland has committed to long-term monitoring of water quality within the Northern Transportation Corridor with the Tote Road Monitoring Program to assess the potential for project-related effects on water quality. Until monitoring of water quality indicates the potential for the Project to have an effect on water quality, the expansion of monitoring to include sediment quality and biota in Phillips Creek is not necessary. Should impacts to Arctic char populations be identified through the AEMP studies, the source of these effects will be evaluated through review of all potential variables including sedimentation. Baffinland will continue to utilize the 1mm threshold for sedimentation effects.	Post PC Amendment	Per FWS Response.
QIA-42	Freshwater Environment	Baffinland has committed to continue to address existing fish passage issues on the Tote Road, and to address fish passage issues on the railway during the design phase, with verification monitoring post-construction. Baffinland will evaluate fish passage along the alternative rail line but this may not be done before the November NWB technical meetings. This is mainly an issue for the Fisheries Act authorization.	Post PC Amendment	Per FWS Response.
QIA-43	Terrestrial Environment	Baffinland has committed to conducting a desktop review of available data to evaluate the hydrological, geomorphological and sediment transport regime at the Project site.	Post PC Amendment	Per FWS Response
QIA-45	Marine Environment	Baffinland has committed to implementing a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island.	Post PC Amendment	Per FWS Response See also TC-02, DFO-3.10.3, QIA-44

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
QIA-46	Marine Environment	Baffinland will continue to work with members of the MEWG on the selection of appropriate Early Warning Indicators (EWIs) for noise impacts on marine mammals, for implementation prior to the start of Phase 2 shipping.	Ongoing	Per FWS Response.
QIA-47	Marine Environment	Baffinland provided a detailed Draft Communication Protocol as part of the Phase 2 submission. The communication protocol is considered a live document, and will be updated on an annual basis, as needed, based on feedback about the effectiveness of the communication system received by MHTO during annual pre- and end-of-season shipping meetings. Additional communication tools or frequencies may also be adjusted ad hoc throughout the shipping season to address real-time concerns, which would again be captured in annual updates to the protocol as needed.	Ongoing	Per FWS Response
QIA-48, TC-04	Human Environment	Baffinland will ensure there is a consistent description of ice conditions amongst its relevant management plans and standards of practice and that these terms are translated to Inuktitut for use more generally. Baffinland commits to providing dates and information on the conditions under which the shipping season was opened and closed each season in its Annual Report to NIRB.	Ongoing	Per FWS Response
QIA-50	Marine Environment	Baffinland formally commits to not having vessels go into the North Water Polynya (<i>Pikialasorsuaq</i>), subject to vessel safety. This commitment will be recognized in the Shipping and Marine Wildlife Management Plan and the Standing Instructions to Masters.	Post PC Amendment	Per FWS Response
QIA-53	Marine Environment	BIM does recognize that there may be interactions between its vessels and other activity outside the RSA and agrees to participate as a key stakeholder in regional federal government initiatives and programs including federal initiatives aimed at evaluating regional cumulative effects in the Eastern Canadian Arctic.	Post PC Amendment	Per FWS Response
QIA-NEW	Terrestrial Environment	Baffinland will continue to comply with the existing QIA caribou protection measures and will work with relevant IPG's as well as the TEWG and Inuit Advisors to develop a Caribou Protection Map and project protection zones, if and where appropriate to enhance caribou protection. Development of any Caribou Protection Map or project protection zones will take into account all relevant available IQ and scientific information, including results of an IQ study of caribou use with HTOs and QIA to be carried out through the CRLU Monitoring Program;	Post PC Amendment	Post FWS Commitment
TC-01	Corporate Environment	Baffinland will contact Transport Canada's NPP Office prior to the submittal of any information to confirm regulatory requirements under the CNWA, should the project be approved to proceed.	Post PC Amendment	Per FWS Response
TC-04	Corporate Environment	For the purposes of shoulder season vessel traffic management, Baffinland considers uninterrupted transits through ice concentrations of 3/10 or less as the open water shipping season. This will be considered in any relevant management plans or operating procedures.	Post PC Amendment	Per FWS Response
TC-05	Marine Environment	Baffinland will make the recommended change from TC-05 to the Spill at Sea Response Plan (SSRP).	Post PC Amendment	Per FWS Response.
TC-06	Marine Environment	Baffinland will update the SSRP to designate additional Tier 2 response equipment at Milne Port to enable a dual response as proposed by Transport Canada.	Post PC Amendment	Per FWS Response.
TC-07	Marine Environment	Baffinland agrees that the use of lifeboats should be avoided and will be removed as part of the spill response equipment on pages 88 and 103 of the SSRP.	Post PC Amendment	Per FWS Response
TC-08	Marine Environment	Baffinland will update the SSRP to make it clear no oil discharge is permitted in Arctic waters per the ASSPPR.	Post PC Amendment	Per FWS Response

FWS ID#	Topic	Commitment	Commitment Due Date	Notes
WWF-FWS 01	Marine Environment	Baffinland is committed to the development of Early Warning Indicators but must reiterate this is not a conventional undertaking and all members of the MEWG are expected to provide meaningful input. As Phase 2 levels of shipping are not expected to occur before 2022 Baffinland is confident that Early Warning Indicators will be developed by that time based on a rigorous investigation of IQ and Inuit perspectives, scientific literature, and the expert opinions of MEWG members.	Post PC Amendment	Per FWS Response
WWF-FWS 02	Corporate Environment	The NIRB has already initiated the development of the Mary River Monitoring Framework for attachment to Project Certificate 005, circulating a draft Appendix A Framework for public comment in 2017. Baffinland supports this initiative and will continue to participate in the development process following the completion of the Phase 2 reconsideration process.	Ongoing	Per FWS Response
WWF-FWS 04	Marine Environment	Should the NIRB wish to facilitate a Marine Spatial Planning exercise in the future, either directly or through the Nunavut Marine Council, Baffinland would participate as the only operator with precedent-setting mitigation in place in the given region.	Post PC Amendment.	Per FWS Response.
WWF-FWS 08	Atmospheric Environment	Baffinland is committed to developing a comprehensive Climate Change Strategy. A critical component of this strategy will relate to the marine environment, where important developments are occurring at the international level that our world class fleet of vessels and ship contractors are poised to comply with, including the 2020 Sulphur Cap and a potential ban on Heavy Fuel Oil in the Arctic.	Post PC Amendment.	Per FWS Response.
NEW	Terrestrial Environment	Baffinland has selected Route 3 as its preferred deviation alignment. There are no Post PC Amendment conditions required to finalize selection, including the results of geotechnical drilling.	Post PC Amendment	Commitment made during Final Public Hearings

Table 2: Summary of Baffinland Proposed or Agreed to Terms and Conditions

FWS ID#	TOPIC	Wording of Term and Condition and Rationale	Intervenor	Notes
New	Freshwater Environment	Baffinland shall develop a detailed site program to monitor the thaw consolidation and soil deformation under the structures/embankments constructed as part of the Phase 2 Project. The monitoring results shall be compared with the Final Environmental Impact Statement Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.	CIRNAC	Related to CIRNAC-05 Updated Waste Rock Management Plan was submitted on December 31, 2019. Proposed commitments and terms and conditions may change as a result.
New	Terrestrial Environment	Term and Condition: Baffinland shall develop effective criteria for identification of potentially acid generating rock following industry best practice. Baffinland shall incorporate these criteria in an updated Waste Rock Management Plan and Interim Closure and Reclamation Plan, to be submitted for review during the Water License Amendment process, subject to Nunavut Water Board requirements.	CIRNAC	Related to CIRNAC-06 & 08 Updated Waste Rock Management Plan was submitted on December 31, 2019. Proposed commitments and terms and conditions may change as a result.
New	Terrestrial Environment	The Proponent to include discussions on the triggers for modifying rail crossings (e.g. HTO formal application, repeated observations, individual observations etc.) at any and all future rail routing meetings. The draft Additional Level Crossing Construction Decision Matrix to be finalized with input from QIA and North Baffin Communities at least 6 months prior to construction.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Terrestrial Environment	Baffinland will work with QIA to develop an Inuit-based water quality monitoring program, including the consideration and inclusion of Inuit use and IQ. Such program shall include (a) baseline data collection and (b) thresholds of acceptable change, including adaptive management strategies and implementation processes. Baffinland and QIA will develop a framework for this program to be presented jointly to the North Baffin Communities within 180 days of the issuance of the amendment to the Project Certificate implementing Baffinland's Phase II proposal.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Terrestrial Environment	The Proponent shall conduct soil sampling to determine metal levels of soils in areas with culturally important plants in Inuit preferred harvesting areas near any Project infrastructure or activities outside of the PDA at the same frequency as soil monitoring under the TEMP. Rationale: All vegetation is considered to be impacted within the PDA. Baffinland suggests that soil monitoring to be conducted at the same frequency as soil monitoring under the TEEM, given that increases in soil metal concentration are highly unlikely to be observed on an annual basis. Soil monitoring frequency is currently conducted every three years.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Terrestrial Environment	The proponent will work with the North Baffin Communities to establish a community based monitoring program based on priorities identified by the North Baffin Communities, which may include but not be limited to culturally important vegetation, terrestrial monitoring, and/or marine monitoring. Rationale: The Community Based Monitoring (CBM) Fund will finance monitoring by community representatives through application to the CBM Fund. The framework of the monitoring program will be developed jointly by QIA and Baffinland within 180 days of issuance of the amendment to the Project Certificate and presented to the North Baffin Communities within 240 days of the said	QIA	Baffinland proposes to combine and modify all community based monitoring term and condition requests provided by the QIA

FWS ID#	TOPIC	Wording of Term and Condition and Rationale	Intervenor	Notes
		issuance. The monitoring financed by the CBM Fund will not replace, replicate or interfere with on-site project monitoring which shall remain Baffinland's responsibility. Monitoring financed by the CBM Fund will be focused on priority areas of the North Baffin Communities.		
New	Terrestrial Environment	Proponent to work with QIA and the North Baffin Communities to develop revegetation standards for inclusion in the Final Closure and Reclamation Plan. The revegetation standards will be developed taking into consideration IQ and available scientific knowledge for reclamation and revegetation and will give due consideration to cultural use and addressing community concerns with respect to re-establishing use of critical areas.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Terrestrial Environment	Proponent to work with QIA and HTOs to support the implementation of a harvester's survey for North Baffin caribou and develop a culturally appropriate component of the CRLU monitoring program that addresses harvest surveys. Adaptive management measures will be informed by the results of the surveys and CRLU monitoring program. Rationale: This term and condition commits community members to complete a survey annually. Baffinland cannot enforce this action or ensure that 20 hunters are willing and able to complete a survey annually. Baffinland is limited from requesting certain sensitive information that may be necessary to support such a survey and an annual requirement to do so could be considered overly invasive and not required. Baffinland would need QIA and MHTO support to complete harvest surveys. Components of the CRLU will focus on changes to harvesting efforts.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Terrestrial Environment	Proponent to develop a local monitoring program in vicinity of the railway, to identify potential high collision locations and trigger additional mitigations when caribou are in the area. The Program to be developed in collaboration with TEWG members. A review of best practices and techniques will be undertaken at other Northern mines where interactions with caribou occur to inform development of the plan. The monitoring program must address IQ-based concerns regarding the potential for the rail embankment to attract caribou and result in an increased risk of direct mortality. This monitoring program will be established 6 months prior to operation of the North Railway.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
Mod	Terrestrial Environment	The Proponent shall demonstrate consideration for the following: a) Steps taken to prevent caribou mortality and injury as a result of train and vehicular traffic, including operational measures meant to maximize the potential for safe traffic relative to operations on the railway, Milne Inlet Tote Road and associated access roads. i. Specific measures intended to address the reduced effectiveness of visual protocols for the Milne Inlet Tote Road and access roads/trails during times of darkness and low visibility must be included. b) Monitoring and mitigation measures at points where the railway, roads, trails and flight paths pass through caribou calving areas, particularly during caribou calving times. The details of these monitoring and mitigation measures shall be developed in conjunction with the Terrestrial Environment Working Group. c) Evaluation of the effectiveness of proposed caribou crossings over the railway, Milne Inlet Tote	QIA	Baffinland supports QIA's modification (bolded) to term and condition PCCC53

FWS ID#	TOPIC	Wording of Term and Condition and Rationale	Intervenor	Notes
		<p>Road and access roads as well as the appropriate number.</p> <p>d) Development of a surveillance system along the railway corridor to identify the presence of caribou in proximity to the train tracks and operational protocols for the train to avoid collisions and enable caribou to cross the train tracks unimpeded.</p> <p>e) Protocols for documentation and reporting of all caribou collisions and mortalities, as well as mechanisms for adaptive management responses designed to prevent further such interactions.</p> <p>e) Protocols for documentation and reporting of all caribou collisions and mortalities.</p> <p>f) Thresholds and clear triggers, based on science and IQ knowledge of north Baffin caribou movement patterns and typical group sizes, as well as mechanisms for adaptive management responses designed to address those triggers and prevent detrimental north corridor interactions, including requirements for construction of additional crossing locations if needed.</p>		
New	Terrestrial Environment	<p>The Proponent to follow best practice and consideration of both science and IQ in all future rail design to limit harm to caribou including but not limited to:</p> <p>a. Where possible, ensure all embankments that are lower than 1.5 m and within areas of high usage are built at 1:2 or lower.</p> <p>b. Use computer modelling and Inuit IQ to identify areas of high importance for wildlife travel as data becomes available through regional monitoring programs</p> <p>c. Ensure Type 8 material is used for embankment fill throughout, with finer materials used in key areas of caribou movement as identified through engagement with IQ holders</p> <p>d. Complete a robust science and IQ-based process for identifying high crossing locations, including additional workshops with IQ holders</p> <p>e. Baffinland commits to implement an adaptive management approach to the installation of additional or extended gentler railway embankment slopes, should land users or caribou monitoring programs demonstrate that the North Railway is posing a barrier to caribou movement and causing greater than predicted effects.</p>	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
Mod	Marine Environment	<p>Prior to the commercial shipping of iron ore, the Proponent shall conduct fuel spill dispersion modeling that will, at a minimum, consider:</p> <p>a) Modeling of oil spills for both the Northern and Southern Shipping Routes, in representative locations, identified by the Proponent, in consultation with the Marine Environment Working Group along both Shipping Routes, and including:</p> <ul style="list-style-type: none"> · Pinch points; · The approaches into Steensby Inlet and Milne Inlet; · Shallow water and shorelines; and, · Areas that have been identified as having high flows and/or high concentrations of marine mammals, marine fish or seabirds. <p>b) Open water and, where applicable, ice-covered conditions</p> <p>c) Spill volumes up to and including loss of a full tanker cargo</p>	QIA	Baffinland supports QIA's modification (bolded) to term and condition PCCC97

FWS ID#	TOPIC	Wording of Term and Condition and Rationale	Intervenor	Notes
		<p>d) Differences in the quantity and properties of each type of bulk fuel transported by vessels when they are at, or in transit to, the ports at Steensby Inlet and Milne Inlet</p> <p>e) <i>Spill models shall be re-examined and reassessed as required where changes to Project shipping are contemplated that have not been considered through previous assessments</i></p>		
Mod	Marine Environment	<p>The Proponent shall revise the proposed “surveillance monitoring” to improve the likelihood of detecting strong marine mammal, seabird or seaduck responses occurring too far ahead of the ship to be detectable by observers aboard the ore carriers. A baseline study early in the shipping operations could employ additional surveillance to detect potential changes in distribution patterns and behavior. At an ambitious scope, this might be achieved using unmanned aircraft flown ahead of ships, or over known areas of importance for seabirds or haul-out sites in the case of walrus, in accordance with the requirements of their Special Flight Operations Certificate.</p> <p>QIA Recommendation: Proposed revision to PCC is “Additional surveillance techniques that can detect potential changes in distribution patterns and behavior shall be considered, with periodic re-assessment of options and opportunities and technology advances. This monitoring...”</p>	QIA	Baffinland supports QIA’s modification to term and condition PCCC107
Mod	Marine Environment	The Proponent and MEWG to work with Inuit to develop IQ based metrics to be incorporated into Early Warning indicators for the Project.	QIA	Baffinland supports QIA’s modification to term and condition PCCC110
Mod	Marine Environment	The Proponent to develop, with input from the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) and the Mary River Socio-Economic Working Group (SEMWG), a food security monitoring plan which outlines what food security data needs to be collected, analyzed (and by whom), reported, and tied to adaptive management triggers in relation to the Mary River Project.	QIA	Baffinland supports QIA’s modification to term and condition PCCC148
New	Corporate Environment	The Proponent to develop and implement with the North Baffin communities a Culture, Resources, and Land Use Risk Communication Strategy/Program, focused on gathering and dissemination of information to Inuit on the health of the land and country foods in the Project-affected area. The Proponent to recognize that each community may have different information needs, including method of delivery (i.e. workshops, pamphlets etc.) and concerns and will support the customization of the program where required.	QIA	Baffinland supports the QIA proposed term and condition as written.
New	Corporate Environment	Proponent to support and adequately fund for the life of the Project an ongoing robust collection and updating of IQ and culture, resources, land use data (including gathering of spatial data). Inuit spatial data collection interviews and on-territory mapping exercises with best efforts to include an appropriate cohort of the affected community, including Elders, women hunters and youth, will be updated at minimum every three years, and integrated into the overall CRLU Monitoring Program, and subject to review and potential recommendations by the Inuit Committee/Inuit Panel.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Corporate Environment	Proponent to develop, with Inuit communities and QIA, and support a CRLU monitoring program, with completion of the Program on a maximum three-year interval basis, including updating of Inuit use and value mapping, revisiting of FEIS Addendum effects estimations, studies specific to understanding alienation effects and Inuit Future Use, and ties to the Adaptive Management Plan for any effects that materially exceed FEIS addendum estimations.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.

FWS ID#	TOPIC	Wording of Term and Condition and Rationale	Intervenor	Notes
New	Corporate Environment	Proponent to adequately fund and support for the life of the Project, the adoption of an Inuit Advisory Panel with the development of a Terms of Reference for this body within 12 months of Project approval. Finalized terms of reference to be decided by Panel members.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Corporate Environment	Unless otherwise approved by the NIRB, in any given day, the total number of ore haul truck transits along the Milne Inlet Tote Road should not exceed 280 for the duration of the Phase 2 construction period. Following commissioning of the North Railway, unless otherwise approved by the NIRB, in any given day, the total number of train transits along the North Railway should not exceed 20 and the number of ore haul truck transits along the Milne Inlet Tote Road is 0.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Corporate Environment	Should the Proponent not commission the Railway in the first six years following Amendment 2 to the Project Certificate, unless otherwise directed by the NIRB, Baffinland shall construct the Tote Road to the design included in Amendment 1 to support continued ore haulage by truck. Should this design no longer be valid, the Tote Road shall be designed for its intended uses.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Corporate Environment	The Proponent shall ensure all potentially acid generating rock, as defined in the FEIS or as agreed to by the Landowner, unless otherwise directed by the NIRB, shall be transported and stored in the Waste Rock Facility	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.
New	Corporate Environment	Prior to Project shipping in Canadian waters via any alternative to the nominal routes identified in the FEIS (Southern Route: Steensby Inlet-Foxe Basin- Hudson Strait-Davis Strait-Labrador Sea) and ERP EIS (Northern Route: Milne Inlet-Eclipse Sound-Pond Inlet-Baffin Bay-Davis Strait-Labrador Sea) the Proponent shall complete, for public review, a comprehensive environmental effects assessment, including potential cumulative and transboundary effects, of proposed shipping along the alternative route(s). The Proponent shall report the routing and timing of all Project vessel transits in relation to sea ice conditions.	QIA	Baffinland supports the proposed term and condition as written.
New	Corporate Environment	The Proponent will revisit the cumulative effects assessment conclusions on marine mammals that may interact with the Northern and Southern shipping corridors prior to commencing shipping from Steensby Port for the purposes of establishing marine monitoring programs.	QIA	Baffinland proposes alternative term and condition wording to what was provided by the QIA.

**Attachment 3 - Response from Baffinland to QIA
Suggested Terms and Conditions for PC005**

Response from Baffinland to QIA Suggested Terms and Conditions for PC005

[As at January 6 2020]

This document includes:

- Table 1: a response from Baffinland to QIA Suggested Terms and Conditions for PC005 (Submitted to the NIRB November 2, 2019)

This document will be further updated during the Phase 2 NIRB process to reflect additional commitments or specific terms and conditions that Baffinland agrees should be presented to the NIRB, and also will note any revisions that occur as a result of our ongoing engagements.

Table 1: Response from Baffinland to QIA Suggested Terms and Conditions for PC005 (Submitted to the NIRB November 2, 2019)

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
After PCC15	New	The Proponent to provide information on technical and economic feasibility of multiple alternative rail routes during any reconsideration of rail routing, including considerations of safety and Inuit land and water use. All information, including assessment criteria, to be provided in plain language to communities when seeking confirmation of the preferred route. Selection of the preferred route to be based on environment and social criteria rather than construction timelines. The Proponent will provide evidence to NIRB that its final preferred alternative has community support.	Term and Condition is not necessary, Baffinland has confirmed its selection of Route 3 based on the preferences expressed by representatives from Pond Inlet and Igloolik. Baffinland is no longer seeking approval of multiple deviation alignments.
After PCC15	New	The Proponent to include discussions on the triggers for modifying rail crossings (e.g. HTO formal application, repeated observations, individual observations etc.) at any and all future rail routing meetings. The draft Additional Level Crossing Construction Decision Matrix to be finalized with input from QIA and North Baffin Communities at least 6 months prior to construction.	Baffinland supports the proposed term and condition as written.
After PCC15	New	At least 6 months prior to construction the Proponent to provide a description of the process and or decisions matrix for the new rail route construction to ensure that all environmental and engineering parameters are accounted for. Update and report on the Rail Deviation Alignment Decision Work Plan including any inputs from the CLRU Monitoring Program and feedback from the Inuit Committee/Inuit Panel. Include a description of trigger points that would require BIMC to modify or change the proposed alternative route, including discovery of archaeological sites and places of importance, and parameters around permafrost sensitivity and ice lenses etc.	Term and Condition is not necessary, Baffinland has confirmed its selection of Route 3 based on the preferences expressed by representatives from Pond Inlet and Igloolik. Baffinland is no longer seeking approval of multiple deviation alignments.
PCC21	Mod	The Proponent shall ensure that the scope of the Aquatic Effects Monitoring Plan (AEMP) includes, at a minimum: Monitoring of non-point sources of discharge, selection of appropriate reference sites, measures to ensure the collection of adequate baseline data and the mechanisms proposed to monitor and treat runoff, and sample sediments Measures for dustfall monitoring designed as follows: To establish a pre-trucking baseline and collect data during Project operation for comparison To facilitate comparison with existing guidelines and with thresholds to be established by the Proponent using studies of Arctic char egg survival and/or other studies recommended by the Terrestrial Environment Working Group (TEWG) To assess the seasonal deposition (rates, quantities) and chemical composition of dust entering	Baffinland cannot support the proposed term and condition. Baffinland agrees with adding the railway to the dustfall monitoring (dustfall at right angles to the linear infrastructure in the Northern Transportation corridor). For the recommendation to assess and monitor inputs to Phillips creek, Baffinland worked closely with QIA in 2018 to develop the Tote Road Monitoring program, which has adaptive management triggers to assess if a project-related effect is occurring, in consideration of natural variation of suspended sediment in surface water. Additionally, in 2018 Baffinland committed to a sediment sampling program to assess long term loading of metals in surface water adjacent to the Tote Road, and the first year of this monitoring was implemented in 2019 with the subsequent sampling planned for 2024. Based on these commitments and the work that has been completed to date to integrate and collaborate with QIA on water quality monitoring along the Tote Road, there is no need to provide additional project certificate conditions.

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
		<p>aquatic systems along representative distance transects at right angles to the Tote Road and radiating outward from Milne Port and the Mine Site.</p> <p>QIA Recommendation: QIA also recommends a minor addition to ensure the Rail Route is included in effects monitoring: “and chemical composition of dust entering aquatic systems along representative distance transects at right angles to the Tote Road and Railway(s)”, and adding a requirement to “assess and monitor inputs and aquatic effects of Project-generated dust and sediment on the water quality, sediment deposition, and biota of a representative reach(s) of Phillips Creek that is crossed by the tote road and would also be crossed by the proposed railway.”</p> <p>Reporting Requirement: Annually. Rationale: To inform adaptive management</p>	
After PCC25	New	<p>Proponent to work with QIA, and North Baffin Inuit Communities to develop Inuit-based water quality monitoring program including strong consideration and inclusion of Inuit use and IQ. Program to include baseline data collection for program and identification of IQ based Indicators and thresholds of acceptable change including adaptive management strategies and implementation processes</p>	<p>Baffinland proposes the following alternative term and condition wording:</p> <p><i>Baffinland will work with QIA to develop an Inuit-based water quality monitoring program, including the consideration and inclusion of Inuit use and IQ. Such program shall include (a) baseline data collection and (b) thresholds of acceptable change, including adaptive management strategies and implementation processes. Baffinland and QIA will develop a framework for this program to be presented jointly to the North Baffin Communities within 180 days of the issuance of the amendment to the Project Certificate implementing Baffinland’s Phase II proposal.</i></p>
After PCC34	New	<p>The Proponent shall conduct soil sampling to determine metal levels of soils in areas with culturally important plants in Inuit preferred harvesting areas near any Project infrastructure or activities.</p>	<p>Baffinland proposed the following alternative term and condition wording:</p> <p><i>The Proponent shall conduct soil sampling to determine metal levels of soils in areas with culturally important plants in Inuit preferred harvesting areas near any Project infrastructure or activities outside of the PDA at the same frequency as soil monitoring under the TEEMP.</i></p> <p>Rationale: All vegetation is considered to be impacted within the PDA. Baffinland suggests that soil monitoring to be conducted at the same frequency as soil monitoring under the TEEMP, given that increases in soil metal concentration are highly unlikely to be observed on an annual basis. Soil monitoring frequency is currently conducted every three years.</p>
After PCC38	New	<p>Proponent to develop and implement an (improved) approach for monitoring impacts on the quality and availability of culturally important vegetation, based on IQ and driven by a community-based monitoring program</p>	<p>Baffinland proposes to combine and modify all community based monitoring term and condition requests to:</p> <p><i>The proponent will fund a community based monitoring program. Monitoring priorities to be established by communities and may include but not be limited to culturally important vegetation, terrestrial monitoring, and marine monitoring.</i></p> <p>Rationale: The Community Based Monitoring (CBM) Fund will finance monitoring by community representatives through application to the CBM Fund. The framework of the monitoring program will be developed jointly by QIA and Baffinland within 180 days of issuance of the amendment to the Project Certificate and presented to the North Baffin Communities within 240 days of the said issuance. The monitoring financed by the CBM Fund will not replace, replicate or interfere with on-site project monitoring which shall remain Baffinland’s responsibility. Monitoring financed by the CBM Fund will be focused on priority areas of the North Baffin Communities.</p>
After PCC39	New	<p>Proponent to work with QIA and the North Baffin Communities to develop revegetation standards based on IQ for reclamation and revegetation including meeting standards for cultural use and addressing community concerns with respect to re-establishing use of critical areas.</p>	<p>Baffinland proposed the following alternative term and condition wording:</p> <p><i>Proponent to work with QIA and the North Baffin Communities to develop revegetation standards for inclusion in the Final Closure and Reclamation Plan. The revegetation standards will be developed</i></p>

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
			<i>taking into consideration IQ and available scientific knowledge for reclamation and revegetation and will give due consideration to cultural use and addressing community concerns with respect to re-establishing use of critical areas.</i>
PCC47	Mod	<p>The Proponent shall ensure that all Project infrastructure in watercourses are designed and constructed in such a manner that they do not unduly prevent and limit the movement of water in fish bearing streams and rivers.</p> <p>QIA Recommendation:</p> <p>Project Phase(s): change to Construction and Operations.</p> <p>Rationale: blockages and restrictions are also a likely to occur during operations</p> <p>Term or Condition: suggested wording “The Proponent shall ensure that all Project infrastructure in watercourses is designed, constructed, and maintained in such a manner that it does not unduly prevent or limit the movement of water and natural movements of fish in fish bearing streams and rivers.”</p> <p>Rationale: need to change the focus on both “movement of water” and “maintenance of fish passage”. Too much water passing through a culvert can be as limiting to fish passage as too little, so it is important to design stream crossings to maintain fish passage under a range of flows.</p> <p>Reporting Requirement: Annual report to NIRB and stakeholders that details crossing remediation’s completed or required, the results of annual monitoring of fish passage and Arctic char health at Project water crossings, and archives all related fish and stream monitoring data for future comparison. Rationale: monitoring data should be provided to ensure they are reviewed and archived for long-term comparison.</p>	<p>Baffinland cannot support the proposed term and condition as written. This is a Fisheries Authorization (FA) monitoring requirement and does not require additional guidance from the Project Certificate. Baffinland reports the results of its FA monitoring requirements annually to Fisheries and Oceans Canada. Baffinland can commit to share its annual reports with the NIRB, pending approval of Fisheries and Oceans Canada. In any event, Fisheries and Oceans Canada will remain the authority on enforcement actions.</p>
After PCC50	New	<p>Proponent to work with TEWG, QIA, and North Baffin Inuit Communities to review adequacy of existing, and develop enhanced and independent, Inuit community-based terrestrial monitoring programs.</p>	<p>Baffinland cannot support the suggested term and condition. The community-based monitoring program referred to is established through section 17.8 of the Mary River IIBA, and titles the ‘Wildlife Monitoring Program’. The effectiveness of the community based Wildlife Monitoring Program is already subject to annual review by Baffinland, QIA, and the MHTO under Section 17.8.3 of the Mary River IIBA. A term and condition integrating the TEWG into an IIBA program evaluation is not appropriate.</p> <p>Baffinland proposed to combine and modify all community based monitoring term and condition requests to:</p> <p><i>The proponent will fund a community based monitoring program. Monitoring priorities to be established by communities and may include but not be limited to culturally important vegetation, terrestrial monitoring, and marine monitoring.</i></p> <p>Rationale: The Community Based Monitoring (CBM) Fund will finance monitoring by community representatives through application to the CBM Fund. The framework of the monitoring program will be developed jointly by QIA and Baffinland within 180 days of issuance of the amendment to the Project Certificate and presented to the North Baffin Communities within 240 days of the said issuance. The monitoring financed by the CBM Fund will not replace, replicate or interfere with on-site project monitoring which shall remain Baffinland’s responsibility. Monitoring financed by the CBM Fund will be focused on priority areas of the North Baffin Communities.</p>
After PCC51	New	<p>Proponent to work with QIA and HTOs to support the implementation of a harvester’s survey for North Baffin caribou. At a minimum, this project must include annual interviews with up to 20 hunters, to be identified by HTOs, to determine the behavior, health, population and condition of</p>	<p>Baffinland proposed the following alternative term and condition wording:</p> <p><i>Proponent to work with QIA and HTOs to support the implementation of a harvester’s survey for North Baffin caribou and develop a culturally appropriate component of the CRLU monitoring</i></p>

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
		<p>caribou. The proponent must commit to developing additional mitigations and/or protection measures for caribou based on the results of these interviews. Every three years, this program will include a survey more broadly of other harvesting practices and impacts, as part of the CRLU.</p>	<p><i>program that addresses harvest surveys. Adaptive management measures will be informed by the results of the surveys and CRLU monitoring program. At a minimum, this project must include annual interviews with up to 20 hunters, to be identified by HTOs, to determine the behavior, health, population and condition of caribou. The proponent must commit to developing additional mitigations and/or protection measures for caribou based on the results of these interviews. Every three years, this program will include a survey more broadly of other harvesting practices and impacts, as part of the CRLU.</i></p> <p>Baffinland also proposes the following commitment to QIA: Baffinland and QIA will jointly develop a culturally appropriate component of the Culture, Resources and Land-Use (“CRLU”) monitoring program that addresses harvest surveys. Adaptive management measures will be informed by the results of the surveys and the CRLU monitoring program. This development will be completed within 12 months of the issuance of the amendment to the Project Certificate implementing Baffinland’s Phase II proposal to align with the development and implementation of the CRLU monitoring program.</p> <p>Rationale: This term and condition commits community members to complete a survey annually. Baffinland cannot enforce this action or ensure that 20 hunters are willing and able to complete a survey annually. Baffinland is limited from requesting certain sensitive information that may be necessary to support such a survey and an annual requirement to do so could be considered overly invasive and not required. Baffinland would need QIA and MHTO support to complete harvest surveys. Components of the CRLU will focus on changes to harvesting efforts.</p>
<p>After PCC51</p>	<p>New</p>	<p>Proponent to work with GN, QIA and HTOs to develop and support a regional monitoring program for caribou, to monitor caribou use of habitat, avoidance of the railway, and changes in gene flow over time. The monitoring program must be based on clear science and IQ-based predictions of impacts to caribou from the proposed Phase 2 project. Pending community agreement, the regional monitoring program must include a community driven, IQ-based monitoring component, and a science-based program involving an appropriate minimum number of collars for monitoring movement and habitat use, as well as a genetic component to look at changes in gene flow over time. This program will be designed to inform impacts to caribou from the Phase 2 components of the project, including caribou use of habitat, changes in movement patterns, changes in gene flow, and changes in caribou health and condition.</p>	<p>Regional monitoring remains the mandate of the GN. However, Baffinland acknowledges that regional monitoring is important to understanding project effects monitoring. In consideration of this, Baffinland is negotiating a research agreement with the GN to financially support regional monitoring in the North Baffin (See response to GN-02). The GN remains responsible for developing regional monitoring programs and conducting appropriate consultation. Baffinland will not support regional monitoring programs that have not received approval by the MHTO. Baffinland recommends the QIA work closely with the GN to guide the development of their regional monitoring programs and consultation activities</p>
<p>After PCC51</p>	<p>New</p>	<p>The Proponent will support the strengthening and enactment of additional protection measures for North Baffin caribou. This condition must include full implementation of the existing protection measures, including the development of a Caribou Protection Map and project protection zones, in collaboration with the TEWG and Inuit Advisors.</p> <p>Activities to support this project include:</p> <ul style="list-style-type: none"> • Conducting an IQ study of caribou use with HTOs and QIA; • Reviewing existing protection measures to identify gaps • Fully implement existing protection measures; • Working with GN, QIA, HTOs to identify new protection measures in relation to the Project, including the identification of habitat protection areas and project protection zones. 	<p>Baffinland does not believe a term and condition is required. Baffinland proposes the following commitment wording:</p> <p><i>Baffinland will continue to comply with the existing QIA caribou protection measures and will work with relevant IPG’s as well as the TEWG and Inuit Advisors to develop a Caribou Protection Map and project protection zones, if and where appropriate to enhance caribou protection.</i></p> <p><i>Development of any Caribou Protection Map or project protection zones will take into account all relevant available IQ and scientific information, including results of an IQ study of caribou use with HTOs and QIA to be carried out through the CRLU Monitoring Program;</i></p>

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
After PCC52	New	<p>Proponent to develop a local monitoring program in vicinity of the railway, to identify high collision locations and trigger additional mitigations when caribou are in the area. The Program to be developed in collaboration with QIA, GN, HTO members, TEWG and other relevant parties. A review of best practices and techniques will be undertaken at other Northern mines where interactions with caribou occur to inform development of the plan. The monitoring program must address IQ-based concerns regarding the potential for the rail embankment to attract caribou and result in an increased risk of direct mortality.</p>	<p>Baffinland proposed the following alternative term and condition wording:</p> <p><i>Proponent to develop a local monitoring program in vicinity of the railway, to identify potential high collision locations and trigger additional mitigations when caribou are in the area. The Program to be developed in collaboration with QIA, GN, and MHTO TEWG members. A review of best practices and techniques will be undertaken at other Northern mines where interactions with caribou occur to inform development of the plan. The monitoring program must address IQ-based concerns regarding the potential for the rail embankment to attract caribou and result in an increased risk of direct mortality. This monitoring program will be established 6 months prior to operation of the North Railway.</i></p>
PCC53	Mod	<p>The Proponent shall demonstrate consideration for the following:</p> <ul style="list-style-type: none"> a) Steps taken to prevent caribou mortality and injury as a result of train and vehicular traffic, including operational measures meant to maximize the potential for safe traffic relative to operations on the railway, Milne Inlet Tote Road and associated access roads. <ul style="list-style-type: none"> i. Specific measures intended to address the reduced effectiveness of visual protocols for the Milne Inlet Tote Road and access roads/trails during times of darkness and low visibility must be included. b) Monitoring and mitigation measures at points where the railway, roads, trails and flight paths pass through caribou calving areas, particularly during caribou calving times. The details of these monitoring and mitigation measures shall be developed in conjunction with the Terrestrial Environment Working Group. c) Evaluation of the effectiveness of proposed caribou crossings over the railway, Milne Inlet Tote Road and access roads as well as the appropriate number. d) Development of a surveillance system along the railway corridor to identify the presence of caribou in proximity to the train tracks and operational protocols for the train to avoid collisions and enable caribou to cross the train tracks unimpeded. e) Protocols for documentation and reporting of all caribou collisions and mortalities, as well as mechanisms for adaptive management responses designed to prevent further such interactions. <p>QIA Recommendation:</p> <ul style="list-style-type: none"> e) Protocols for documentation and reporting of all caribou collisions and mortalities. f) Thresholds and clear triggers, based on science and IQ knowledge of north Baffin caribou movement patterns and typical group sizes, as well as mechanisms for adaptive management responses designed to address those triggers and prevent detrimental north corridor interactions, including requirements for construction of additional crossing locations if needed. 	<p>Baffinland supports the proposed term and condition modification as written.</p>
After PCC53	New	<p>The Proponent to follow best practice and consideration of both science and IQ in all future rail design to limit harm to caribou including but not limited to:</p> <ul style="list-style-type: none"> a. Where possible, ensure all embankments that are lower than 1.5 m and within areas of high usage are built at 1:2 or lower. b. Use computer modelling and Inuit IQ to identify areas of high importance for wildlife travel c. Ensure Type 8 material is used for embankment fill throughout, with finer materials used in key areas of caribou movement as identified through engagement with IQ holders d. Complete a robust science and IQ-based process for identifying high crossing locations, including additional workshops with IQ holders e. Avoid all caribou crossing locations identified by North Baffin Community members and through modelling efforts f. Employ viaducts at key locations to maintain valley bottom travel corridors 	<p>Baffinland cannot support the proposed term and condition as written. Baffinland proposes the following alternative term and condition:</p> <p>The Proponent to follow best practice and consideration of both science and IQ in all future rail design to limit harm to caribou including but not limited to:</p> <ul style="list-style-type: none"> a. Where possible, ensure all embankments that are lower than 1.5 m and within areas of high usage are built at 1:2 or lower. b. Use computer modelling and Inuit IQ to identify areas of high importance for wildlife travel as data becomes available through regional monitoring programs c. Ensure Type 8 material is used for embankment fill throughout, with finer materials used in key

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
			<p>areas of caribou movement as identified through engagement with IQ holders</p> <p>d. Complete a robust science and IQ-based process for identifying high crossing locations, including additional workshops with IQ holders</p> <p>e. Avoid all caribou crossing locations identified by North Baffin Community members and through modelling efforts</p> <p>f. Employ viaducts at key locations to maintain valley bottom travel corridors</p> <p>e. Baffinland commits to implement an adaptive management approach to the installation of additional or extended gentler railway embankment slopes, should land users or caribou monitoring programs demonstrate that the North Railway is posing a barrier to caribou movement and causing greater than predicted effects.</p> <p>Rationale:</p> <p>b. This could be done over time as additional IQ is collected through the CRLU monitoring program and empirical data is collected through our project specific and regional monitoring programs.</p> <p>e. This is not a feasible condition. The North Railway is a linear piece of infrastructure between two fixed points, overlapping crossing areas cannot be avoided, however, they will be accommodated.</p> <p>f. Baffinland has already proposed to install plate arch culverts at key locations based on input received during the Crossing Selection Workshop. These culverts are in addition to those already proposed to facilitate fish passage.</p> <p>e.(NEW) Baffinland is committed to an adaptive management process for the installation of additional or extended gentler slopes, as required.</p>
PCC89	Mod	<p>The Proponent shall develop and implement an effective ballast water management program that may include the treatment and monitoring of ballast water discharges in a manner consistent with applicable regulations and/or exceed those regulations if they are determined to be ineffective for providing the desired and predicted results. The ballast water management program shall include, without limitation, a provision that requires ship owners to test their ballast water to confirm that it meets the salinity requirements of the applicable regulations prior to discharge at the Milne Port, and a requirement noting that the Proponent, in choosing shipping contractors will, whenever feasible, give preference to contractors that use ballast water treatment in addition to ballast water exchange.</p> <p>QIA Recommendation:</p> <p>change from "...limitation, a provision that requires ship owners to test their ballast water to confirm that it meets the salinity requirements of the applicable regulations prior to discharge at the Milne Port, and..." to "...limitation, a provision that requires testing of a statistically meaningful sample of ballast water tanks from each Project vessel prior to discharge at Milne Port or Steensby Port to verify the compliance rate of Project vessels to ballast water exchange and treatment regulations and the efficacy of exchange and/or treatment options for reducing the risk of species introductions, and..."</p>	<p>Baffinland has provided the following commitments to the Department of Fisheries and Oceans in relation to ballast water management:</p> <ul style="list-style-type: none"> • Baffinland will revise the Ballast Water Management Plan to include a requirement for all vessels to conduct ballast water exchanges (with or without D2 treatment systems) prior to calling on Milne Port, until such a time that ballast water treatment systems are compliant with the D2 standards set by the IMO. • Baffinland will implement a pilot ballast water biological monitoring program for ships calling on Milne Port. This program will be designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017. This program will include sampling from one ballast tank on a total of five vessels per shipping season. • Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island.
PCC90	Mod	<p>The Proponent shall incorporate into its Shipping and Marine Mammals Management Plan provisions to achieve compliance with the requirements under the International Convention for the Control and Management of Ship's Ballast Water and Sediment (2004) or its replacement and</p>	<p>See response to modification request for PCC89.</p>

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
		<p>as implemented by the Canadian Ballast Water and Control Regulations as may be amended from time to time.</p> <p>QIA Recommendation:</p> <p>change to: “The physical and chemical characteristics of ballast water, from a statistically meaningful sample of ballast water tanks from each vessel, will be tested prior to discharge to assess risk related to differences between the ballast water and receiving environment and the presence of contaminants and/or treatment residuals.”</p>	
PCC91	Mod	<p>The Proponent shall develop a detailed monitoring plan for Steensby Inlet and Milne Inlet for fouling that complies with all applicable regulatory requirements and guidelines as issued by Transport Canada, and includes sampling areas on ships where antifouling treatment is not applied such as the areas where non-native species are most likely to occur.</p> <p>QIA Recommendation:</p> <p>suggested wording “The Proponent shall work with Regulators and the MEWG to develop a scientifically defensible monitoring program for assessing the presence, identity and abundance of non-indigenous species on the hulls of Project vessels, determining the efficacy of their antifouling measures, and informing adaptive management to prevent introduction of invasive fouling species at Project ports and anchorages. Section 5.2.2 of the Shipping and Marine Wildlife Management Plan (SMWMP) shall be revised accordingly.”</p>	See response to modification request for PCC89.
PCC97	Mod	<p>Prior to the commercial shipping of iron ore, the Proponent shall conduct fuel spill dispersion modeling that will, at a minimum, consider:</p> <p>a) Modeling of oil spills for both the Northern and Southern Shipping Routes, in representative locations, identified by the Proponent, in consultation with the Marine Environment Working Group along both Shipping Routes, and including:</p> <ul style="list-style-type: none"> • Pinch points; • The approaches into Steensby Inlet and Milne Inlet; • Shallow water and shorelines; and, • Areas that have been identified as having high flows and/or high concentrations of marine mammals, • marine fish or seabirds. <p>b) Open water and, where applicable, ice-covered conditions</p> <p>c) Spill volumes up to and including loss of a full tanker cargo</p> <p>d) Differences in the quantity and properties of each type of bulk fuel transported by vessels when they are at, or in transit to, the ports at Steensby Inlet and Milne Inlet</p> <p>QIA Recommendation:</p> <p>PCC should be updated to require re-assessments as Project shopping changes (e.g., larger vessels, extended shoulder seasons, etc.), through a new line item (e) – “ Spill models shall be reexamined and reassessed as required by changes to Project shipping (e.g., larger vessels, extended shipping seasons), as determined by the MEWG.”.</p>	<p>Baffinland cannot support the term and condition as written. Baffinland has already completed fuel spill modelling for the spring (July 15) and fall (Oct 15) shoulder seasons in support of Phase 2 (TSD-19). Additional fuel spill modelling has been committed to ECCC (ECCC-FC6) to cover a gap in the type of fuel modelled during the shoulder seasons (Arctic Diesel). Baffinland proposed the following alternative term and condition wording:</p> <p><i>(e) – “Spill models shall be reexamined and reassessed as required by where changes to Project shipping are contemplated that have not been considered through previous assessments. (e.g., larger vessels, extended shipping seasons), as determined by the MEWG.”.</i></p>

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
PCC107	Mod	<p>The Proponent shall revise the proposed “surveillance monitoring” to improve the likelihood of detecting strong marine mammal, seabird or seaduck responses occurring too far ahead of the ship to be detectable by observers aboard the ore carriers. A baseline study early in the shipping operations could employ additional surveillance to detect potential changes in distribution patterns and behavior. At an ambitious scope, this might be achieved using unmanned aircraft flown ahead of ships, or over known areas of importance for seabirds or haul-out sites in the case of walruses, in accordance with the requirements of their Special Flight Operations Certificate.</p> <p>QIA Recommendation:</p> <p>Proposed revision to PCC is “Additional surveillance techniques that can detect potential changes in distribution patterns and behavior shall be considered, with periodic re-assessment of options and opportunities and technology advances. This monitoring...”</p>	Baffinland supports the proposed term and condition as written.
After PCC110	New	The Proponent and MEWG to work with Inuit to develop IQ based metrics to be incorporated into Early Warning indicators for the Project.	Baffinland supports the proposed term and condition as written.
PC111	Mod	<p>The Proponent shall develop clear thresholds for determining if negative impacts as a result of vessel noise are occurring. Mitigation and adaptive management practices shall be developed to restrict negative impacts as a result of vessel noise. This shall include, but not be limited to:</p> <p>a) Identifications of zones where cumulative noise could be mitigated due to biophysical features (e.g., water depth, distance from migration routes, distance from overwintering areas etc.)</p> <p>QIA Recommendation:</p> <p>QIA disagrees with the removal of this condition and proposes the following additions:</p> <p>“b) Vessel transit planning, for all seasons, to determine the degree to which cumulative sound impacts can be mitigated through the seasonal use of different zones.</p> <p>The Proponent, in conjunction with the Marine Environment Working Group, shall develop a monitoring protocol that carefully considers the early warning indicator(s) that will be best examined to ensure rapid identification of negative impacts.”</p>	Baffinland cannot support the proposed term and condition modification. The Northern Shipping Route follows a relatively narrow passage through Eclipse Sound and Milne Inlet and no such options exist to identify and use seasonal zones for cumulative noise impact mitigation.
PC148	Mod	<p>The Proponent is encouraged to undertake collaborative monitoring in conjunction with the Qikiqtaaluk Socio-Economic Monitoring Committee’s monitoring program which addresses Project harvesting interactions and food security and which includes broad indicators of dietary habits.</p> <p>QIA Recommendation:</p> <p>The Proponent to develop, with input from the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) and the Mary River Socio-Economic Working Group (SEM WG), a food security monitoring plan which outlines what food security data needs to be collected, analyzed (and by whom), reported, and tied to adaptive management triggers in relation to the Mary River Project.</p>	Baffinland supports the proposed term and condition modification as written.
After PCC148	New	The Proponent to develop and implement with the North Baffin communities a Culture, Resources, and Land Use Risk Communication Strategy/Program, focused on gathering and dissemination of information to Inuit on the health of the land and country foods in the Project-affected area. The Proponent to recognize that each community may have different information	Baffinland supports the proposed term and condition as written.

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
		needs, including method of delivery (i.e. workshops, pamphlets etc.) and concerns and will support the customization of the program where required.	
After PCC163	New	Proponent to support and adequately fund for the life of the Project an ongoing robust collection and updating of IQ and culture, resources, land use data (including gathering of spatial data), as part of a strong, independent community-based monitoring system. Inuit spatial data collection interviews and on-territory mapping exercises with an appropriate cohort of the affected community will be updated at minimum every three years, and integrated into the overall CRLU Monitoring Program, and subject to review and potential actioning by the Inuit Committee/Inuit Panel.	Baffinland proposed the following alternative term and condition wording: <i>Proponent to support and adequately fund for the life of the Project an ongoing robust collection and updating of IQ and culture, resources, land use data (including gathering of spatial data), as part of a strong, independent community-based monitoring system. Inuit spatial data collection interviews and on-territory mapping exercises with an appropriate cohort of the affected community will be updated at minimum every three years, and integrated into the overall CRLU Monitoring Program, and subject to review and potential actioning recommendations by the Inuit Committee/Inuit Panel.</i>
After PCC163	New	Proponent to develop, with Inuit communities and QIA, and support a CRLU monitoring program, with full revisit of the Program on a maximum three-year interval basis, including updating of Inuit use and value mapping, revisiting of FEIS Addendum effects estimations, studies specific to understanding alienation effects and Inuit Future Use, and ties to the Adaptive Management Plan for any effects that exceed FEIS addendum estimations.	Baffinland proposed the following alternative term and condition wording: <i>Proponent to develop, with Inuit communities and QIA, and support a CRLU monitoring program, with full-revisit completion of the Program on a maximum three-year interval basis, including updating of Inuit use and value mapping, revisiting of FEIS Addendum effects estimations, studies specific to understanding alienation effects and Inuit Future Use, and ties to the Adaptive Management Plan for any effects that materially exceed FEIS addendum estimations.</i>
After PCC163	New	Proponent to adequately fund and support for the life of the Project, the adoption of a Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit Parties in scope and powers, with the development of a Terms of Reference for this body within 6 months of Project approval. Finalized terms of reference to be decided by Committee/Panel members. This Inuit Committee/Inuit Panel will have powers of investigation, direction of additional data gathering, and development and implementation of adaptive management and thresholds/triggers for effects on Inuit culture, resources and land use. A negotiated dispute resolution protocol or equivalent mechanism to be developed between the Inuit Committee/Inuit Panel and Proponent to address disagreement in approaches to management and or project design.	Baffinland proposed the following alternative term and condition wording: <i>Proponent to adequately fund and support for the life of the Project, the adoption of an Inuit Advisory Panel with the development of a Terms of Reference for this body within 12 months of Project approval. Finalized terms of reference to be decided by Panel members.</i> Additional commitment wording: <i>Baffinland will establish and adequately fund and support, until Project Termination, an Inuit Advisory Panel, including the development of a Terms of Reference for this body within 12 months of the issuance of an amended Project Certificate. Finalized terms of reference are to be decided upon by Committee members. This IAP will provide recommendations on investigation, direction of additional data gathering, and development and implementation of adaptive management and thresholds/triggers for effects on Inuit culture, resources and land use. Baffinland will provide an annual report responding to all recommendations made by the committee.</i> Rationale: 6 months is not achievable to develop the ToR. Baffinland cannot accept the Inuit Committee/Panel as a decision making body.
After PCC163	New	To fully meet the commitment to include conformity with Inuit wildlife laws and norms as an objective in all terrestrial and marine EMPs, the Proponent to gather information from Inuit parties on relevant Inuit laws and norms related to wildlife, and report on Project conformity with Inuit wildlife laws and norms as an element of an enhanced IQ-enriched monitoring system.	Baffinland has already agreed to focus reporting on the 5 Inuit laws and norms provided in QIA-07, which include: <ol style="list-style-type: none"> 1. Show respect to animals; 2. Leave animals alone unless hunting them; 3. Animals are to be used, not wasted; 4. Each animal has its own habitat; and 5. Protect animal habitat. Should QIA believe further consultation is necessary to establish a more definitive list of Inuit wildlife laws and norms, Baffinland will require the full partnership of QIA in the process.

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PCC179(b)	Mod	<p>Unless otherwise approved by the NIRB, in any given day, the total number of truck transits along the Milne Inlet Tote Road should not exceed 560 for the duration of the Phase 2 construction period. Following commissioning of the North Railway, unless otherwise approved by the NIRB, in any given day, the total number of train transits along the North Railway should not exceed 20</p> <p>QIA Recommendation:</p> <p>“Unless otherwise approved by the NIRB, in any given day, the total number of truck transits along the Milne Inlet Tote Road should not exceed 180 for the duration of the Phase 2 construction period. Following commissioning of the North Railway, unless otherwise approved by the NIRB, in any given day, the total number of train transits along the North Railway should not exceed 20 and the number of truck transits along the Milne Inlet Tote Road is 0. “</p>	<p>Baffinland cannot support the proposed term and condition as written. 180 truck transits cannot support a 6Mtpa trucking operation, which has been proposed and assessed through the Phase 2 FEIS Addendum. Baffinland cannot commit to reduce its operating revenue in a period where it will be making significant capital expenditure, nor is this a reasonable request. Baffinland will continue to maintain the road and monitor the impacts of increased trucking. Baffinland proposes the following alternative term and condition wording:</p> <p><i>Unless otherwise approved by the NIRB, in any given day, the total number of ore haul truck transits along the Milne Inlet Tote Road should not exceed 180 280 for the duration of the Phase 2 construction period. Following commissioning of the North Railway, unless otherwise approved by the NIRB, in any given day, the total number of train transits along the North Railway should not exceed 20 and the number of ore haul truck transits along the Milne Inlet Tote Road is 0.</i></p>
After PCC183	New	<p>Proponent to work with MEWG, QIA, and North Baffin Inuit Communities to review adequacy of existing and develop - enhanced and independent – Inuit community-based marine monitoring programs.</p>	<p>Baffinland cannot support the suggested term and condition. The community-based monitoring program referred to is established through section 17.8 of the Mary River IIBA, and titles the ‘Wildlife Monitoring Program’. The effectiveness of the community based Wildlife Monitoring Program is already subject to annual review by Baffinland, QIA, and the MHTO under Section 17.8.3 of the Mary River IIBA. A term and condition integrating the MEWG into an IIBA program evaluation is not appropriate.</p> <p>Baffinland proposed to combine and modify all community based monitoring term and condition requests to:</p> <p><i>The proponent will fund a community based monitoring program. Monitoring priorities to be established by communities and may include but not be limited to culturally important vegetation, terrestrial monitoring, and marine monitoring.</i></p> <p>Rationale: The Community Based Monitoring (CBM) Fund will finance monitoring by community representatives through application to the CBM Fund. The framework of the monitoring program will be developed jointly by QIA and Baffinland within 180 days of issuance of the amendment to the Project Certificate and presented to the North Baffin Communities within 240 days of the said issuance. The monitoring financed by the CBM Fund will not replace, replicate or interfere with on-site project monitoring which shall remain Baffinland’s responsibility. Monitoring financed by the CBM Fund will be focused on priority areas of the North Baffin Communities.</p>
After PCC183	New	<p>Proponent to work/develop, with North Baffin Inuit communities and QIA, and support an enhanced and efficient Inuit-based monitoring program strongly informed by IQ for ringed seals.</p>	<p>Baffinland proposed to combine and modify all community based monitoring PCs to:</p> <p><i>The proponent will fund a community based monitoring program. Monitoring priorities to be established by communities and may include but not be limited to culturally important vegetation, terrestrial monitoring, and marine monitoring.</i></p> <p>Rationale: The Community Based Monitoring (CBM) Fund will finance monitoring by community representatives through application to the CBM Fund. The framework of the monitoring program will be developed jointly by QIA and Baffinland within 180 days of issuance of the amendment to the Project Certificate and presented to the North Baffin Communities within 240 days of the said issuance. The monitoring financed by the CBM Fund will not replace, replicate or interfere with on-site project monitoring which shall remain Baffinland’s responsibility. Monitoring financed by the CBM Fund will be focused on priority areas of the North Baffin Communities.</p>
QIA NEW - #1	New	<p>Should the Proponent not commission the Railway in the first three years following Amendment 2 to the Project Certificate, BIMC shall construct the Tote Road to the design included in</p>	<p>Baffinland continues to suggest 6 years is a more appropriate timeframe to allow for unforeseen permitting and/or construction delays. This is consistent with the proposal put forward by the</p>

Location in PC005	New or Modified Term and Condition	Term or Condition as Proposed by QIA (November 2, 2019)	Baffinland Response to QIA (Current to January 6, 2020)
		Amendment 1. Should this design no longer be valid, the Tote Road shall be designed for its intended uses.	Government of Nunavut in GN-01. Baffinland proposes the following alternative term and condition wording: <i>Should the Proponent not commission the Railway in the first three six years following Amendment 2 to the Project Certificate, unless otherwise directed by the NIRB, BIMC shall construct the Tote Road to the design included in Amendment 1 to support continued ore haulage by truck. Should this design no longer be valid, the Tote Road shall be designed for its intended uses.</i>
QIA NEW - #2	New	The Proponent shall ensure all potentially acid generating rock, as defined in the FEIS or as agreed to by the Landowner, shall be transported and stored in the Waste Rock Facility next to Deposit 1.	Baffinland continues to suggest deleting 'next to Deposit 1'. Baffinland proposed the following alternative term and condition wording: <i>The Proponent shall ensure all potentially acid generating rock, as defined in the FEIS or as agreed to by the Landowner, unless otherwise directed by the NIRB, shall be transported and stored in the Waste Rock Facility next to Deposit 1.</i>
QIA NEW - #3	New	The Proponent shall develop an adaptive management plan which will include the following: <ul style="list-style-type: none"> • Outline the specific plans for monitoring Inuit employment, education and training, contracting and social and cultural impacts and benefits. • Identify triggers associated with impacts and benefits. • Identify the specific adaptive management measures or actions to be considered should benefits differ from benefits or impacts initially predicted. The Proponent shall implement this plan and take all adaptive management measures when triggered.	Baffinland cannot support the suggested term and condition. Nunavut Agreement Article 12.2.3 is clear about the NIRB's ability to require socio-economic benefits " <i>the mandate of NIRB shall not include the establishment of requirements for socio-economic benefits</i> ". Further, Inuit training and employment is dealt with between QIA and BIM through the implementation of the IIBA and the employment committee. The Socio-Economic Monitoring Program has been submitted as part of the Phase 2 Proposal and will be subject to the Adaptive Management Plan. Cultural impacts and benefits are proposed to be tracked through the proposed Culture, Resources and Land Use Plan, which will also include an adaptive management component. See Baffinland proposed wording in relation to QIA recommended term and condition regarding the CRLU Monitoring Program (After PCC163): <i>Proponent to support and adequately fund for the life of the Project an ongoing robust collection and updating of IQ and culture, resources, land use data (including gathering of spatial data), as part of a strong, independent community-based monitoring system. Inuit spatial data collection interviews and on-territory mapping exercises with an appropriate cohort of the affected community will be updated at minimum every three years, and integrated into the overall CRLU Monitoring Program, and subject to review and potential actioning recommendations by the Inuit Committee/Inuit Panel.</i>
QIA NEW - #4	New	Prior to Project shipping in Canadian waters via any alternative to the nominal routes identified in the FEIS (Southern Route: Steensby Inlet-Foxe Basin- Hudson Strait-Davis Strait-Labrador Sea) and ERP EIS (Northern Route: Milne Inlet-Eclipse Sound-Pond Inlet-Baffin Bay-Davis Strait-Labrador Sea) the Proponent shall complete, for public review, a comprehensive environmental effects assessment, including potential cumulative and transboundary effects, of proposed shipping along the alternative route(s). The Proponent shall report the routing and timing of all Project vessel transits in relation to sea ice conditions.	Baffinland supports the proposed term and condition as written.
QIA NEW - #5	New	Prior to the onset of ore shipments by Project vessels from Steensby Port, the Proponent shall complete a cumulative impact assessment of approved, existing, and reasonably foreseeable Project shipping that integrates the impacts of all shipping-related Project activities on all VECs and VSECs, in the context of other human activities, natural stressors such as climate change, and developments, and considering all interactions.	Baffinland cannot support the suggested term and condition. A complete update to the cumulative effects assessment is not warranted in relation to the commencement of shipping from Steensby Port. Baffinland proposed the following alternative term and condition: <i>The Proponent will revisit the cumulative effects assessment conclusions on marine mammals that may interact with the Northern and Southern shipping corridors prior to commencing shipping from Steensby Port for the purposes of establishing marine monitoring programs.</i>
QIA NEW - #6	New	If commencement of a major project component or infrastructure, or associated construction activities, has not occurred within 5 years of receipt of approval to proceed by means of issuance	Baffinland cannot support the suggested term and condition.

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		<p>of a project certificate, a full environmental impact re-assessment must be performed to incorporate new techniques and methodologies, technologies, Inuit Qaujimanituqangit, results and observations from project monitoring and adaptive management and other new information. For the purpose of the southern rail route between the Mary River Project site and the proposed Steensby Inlet Port site, and Steensby Inlet port site infrastructure, this date would be 5 years from the issuance of the Amended Project Certificate 005 following the Production Increase amendment review.</p> <p>Rationale: Through the assessment of many projects since the original PC005 was issued, there have been many lessons learned, precedents set, and predictions that have been assessed for accuracy. Major components originally approved for construction and operation have not been commenced as a project, and was assessed under now outdated information. To include new and updated information, the proponent must perform a full assessment of project components and activities not commenced within 5 years of approval. This is in line with the spirit and intent of the Nunavut Planning and Project Assessment Act s. 147 "Projects Not Carried Out".</p>	<p>Baffinland strongly disagrees that QIA's suggestion is in line with a proper interpretation of s. 147 of the <i>Nunavut Planning and Project Assessment Act</i>. The proper interpretation of section 147 of NuPPAA is whether a "Project" has commenced, not individual pieces of infrastructure. As per the approved Project Description, the Steensby Inlet rail and port infrastructure is an essential component of the Mary River Project, which has already commenced with the Early Revenue Phase in 2014. No changes to the previously approved Steensby Port and rail infrastructure are proposed as part of the Phase 2 Proposal. In any event, section 147 is not applicable to the Mary River Project, as it has already "commenced" with the Early Revenue Phase in 2014, and has been in production since 2015.</p> <p>To address QIA's concern, Baffinland has made the following relevant commitment:</p> <p>"The Proponent will revisit the cumulative effects assessment conclusions on marine mammals that may interact with the Northern and Southern shipping corridors prior to commencing shipping from Steensby Port for the purposes of establishing marine monitoring programs."</p> <p>Baffinland also regularly communicates with other project proponents in Nunavut regarding the outcomes of other assessments, and incorporates these in ongoing project operations through adaptive management.</p>

Attachment 4 - Responses to questions deferred during the Public Hearings

Questions Deferred During the Public Hearing

#	Date	Party Requesting/ Party Answering	Question	Answer Received	Comments	Prepared Response Post-Hearing
1.	Nov. 2	Oceans North to Baffinland	To what extent would the 11-page Economic Summary (Baffinland proposes to file in confidence) be compliant with the securities regulations that Baffinland is bound by? (E.g. would it be compliant with National Instrument 43-101?)			Baffinland is not aware of any securities regulation that would prevent it from providing the Economic Summary to the Nunavut Impact Review Board. As context, Baffinland's securities are not listed on any stock exchange. It is not a reporting issuer in any jurisdiction of Canada. This is what Baffinland means when it says it is not a public company: its stock is not publicly traded. Baffinland was a reporting issuer until April 1, 2011, at which point it ceased to be a reporting issuer in all jurisdictions where it was previously a reporting issuer. National Instrument 43-101 is a set of rules securities commissions use to make sure mining companies accurately describe the minerals they own. The Economic Summary does not describe Baffinland's iron ore, therefore the NI-43-101 rules do not apply to it.
2.	Nov. 2	Oceans North to Baffinland	To what extent is Baffinland's proposed spending on the expansion provided in the Economic Summary?			The Economic Summary does not address proposed spending on Phase 2 of the Mary River Project.
3.	Nov. 2	Oceans North to Baffinland	How does the Economic Summary differ from the Preliminary Offering Circular document?			They are different documents, prepared for different purposes. The Economic Summary explains why the current mine is not financially sustainable.
4.	Nov. 2	Oceans North to Baffinland	What kinds of additional information that hasn't been provided yet to date is provided in the Economic Summary that address the viability of the project?			The Economic Summary provides information on the viability of the current operations.
5.	Nov. 3	WWF to Baffinland	Ask that Baffinland clarify what the numbers are expected to be for all transits (i.e. ship traffic) that will occur under the Phase 2 Development Proposal scenario; specifically taking into account: tug activity;	On November 4, Baffinland provided a partial response, indicating that the information of the number of vessels or each type of carrier, tugs, and resupply vessels were provided in	Deferred to Marine Overview Presentations.	Refer to Memo: 'Summary of Vessel-related Information' (attached)

			resupply vessels, the ore carriers, and fuel tankers altogether (not just the numbers of transits for ore carriers)	an overview of marine operations summary provided to the NIRB in December 2018.		
6.	Nov. 3	Nunavut Impact Review Board staff to Baffinland	Request that Baffinland commit to file any market analysis they have relied on to assess the availability of ships that would meet Polar Code requirements?		On November 4, World Wildlife Fund requested clarification of Baffinland's commitment to provide the analysis as well	Refer to Memo: Market Vessel Analysis' (attached)
7.	Nov. 3	Qikiqtani Inuit Association to Baffinland	Could Baffinland clarify if operational flexibility requires larger trains with more cars on them under the 20-trip cap, and what would this mean in terms of a portion of time a train would likely be visible to or within the hearing of Inuit travelling through or harvesting within the area where the rail line is visible.	Baffinland provided partial answer on November 3	Deferred addressing the question of the potential noise effects associated with adding additional rail cars.	<p>The present train design of three trains with 64 cars was developed for a 12 Mtpa operation based on a dynamic simulation model that uses time assumptions for the following inputs:</p> <ul style="list-style-type: none"> • Railcar loading at the Mary River mine site • Train transit • Track maintenance and delays • Railcar unloading at Milne Port • Locomotive refueling • Railcar and locomotive failures • Switching out of railcars <p>While based on detailed design information and industry standards, these inputs are still theoretical at this stage and will be confirmed during railway operations. Therefore, there is the potential for longer (or shorter) trains based on actual conditions once the railway is operational.</p> <p>With respect to the technical component of the question, a single car to a train adds 10 meters in length. At the average train speed of 40km/hr, an additional car would add approximately one second to the period of time a land user or wildlife would hear the train pass by. Additional train cars would not appreciably increase the amount of time a train would be heard approaching or departing a fixed point along the rail line. Based on the 16 expected daily train transits, this would increase the cumulative daily noise exposure along the railway by 16 seconds for each train car added.</p>

						For a detailed description of operational flexibility for Phase 2, please see Baffinlands project description overview .
8.	Nov. 4	Mittimatalik HTO to Baffinland	Request Baffinland provide a break down regarding the letters of support for the Phase 2 Development Project provided to Baffinland by employees by location of residence...i.e. how many people from Nunavut communities are in support?			The employee feedback forms only asked if the individual was a resident of Nunavut or not. The form did not ask for specific community of residence. Please see Memo: 'Employee Support Letters' (attached)
9.	Nov. 4	Igloolik Hamlet to Baffinland	Have you vetted the Iqaluit translation for the word “deviation” (in the context of the railway alignment) because the translation suggests not a change to the route, but the postponement or delay of the development of the route?		Baffinland to discuss outside the Hearing to understand the difference in the translation and to report back to the Board and parties if necessary	Baffinland apologizes for the incorrect Inuktitut term provided in the Public Hearing presentations. As a matter of standard practice Baffinland has its translations verified before public release, however, the volume of translated materials developed for the Public Hearing, and the timeline to have them submitted to the NIRB challenged us to meet that standard. Baffinland has confirmed the translation of ‘deviation’ is correct in the presentations and written materials provided to community representatives at the crossing selection workshop and during the verification sessions. All of these materials can be found in the Rail Alignment Summary Report.
10.	Nov. 4	Igloolik Hamlet to Baffinland	Baffinland continues to indicate that the Business capacity start up fund is a benefit of the Project, but the current model does not appear to be working to benefit small, local businesses; how can this be fixed?		Deferred to Socio-Economic Session	Baffinland will discuss this subject with the Hamlet of Igloolik through planned engagement sessions prior to the scheduled technical meeting and pre-hearing conference. Further discussion on this subject at the technical meeting, pre-hearing conference and/or public hearing can occur, if necessary, at the appropriate point in the agenda.
11.	Nov. 4	Igloolik Hamlet to Baffinland and Government of Nunavut	Solutions need to be found to Nunavut Housing Corp.’s practice of increasing rent to reflect the salaries of employees at the mine		Deferred to Socio-Economic Session	The Nunavut Housing Corporation administers Nunavut’s Public Housing Rent Scale System. Baffinland is open to discussing public housing solutions with the Nunavut Housing Corporation through the Memorandum of Understanding signed with the Government of Nunavut in April 2019. Further discussion on this subject at the technical meeting, pre-hearing conference and/or public hearing can occur, if necessary, at the appropriate point in the agenda.

12.	Nov. 4	Natural Resources Canada to Baffinland	What steps will Baffinland be taking to establish baseline conditions in terms of slope stability and permafrost conditions when conducting their rail line routing geotechnical investigations?		Written response to be provided by Baffinland's rail engineer.	Refer to Memo: The Northern Railway – Instrumentation Monitoring Program (attached)
13.	Nov. 4	Natural Resources Canada to Baffinland	Will the selection of the Route 3 alignment of the railway affect the commitments made by Baffinland in response to Intervenor's comments; and will it affect the likelihood of following the recommendations in the Hatch Report (Geotechnical Recommendations for the Northern Railway)?		The areas associated with the Route 3 alignment will need to be updated.	Baffinland and NRCan have agreed to updated commitment wording in relation to NRCan-01 and NRCan-02 that resolves this issue. This wording was supplied to the NIRB on November 29, 2019 in Appendix 1 of Baffinland's Response to Nunavut Tunngavik Incorporated Motion to Adjourn of November 6, 2019.
14.	Nov. 4	Oceans North to Baffinland	Can Baffinland provide the fact sheet/Presentation Materials provided to employees in advance of them filling out the letters in support?		Baffinland to supply the fact sheet and presentation materials as an Exhibit (or to the NIRB)	Refer to Memo: 'Employee Support Letters' (attached)
15.	Nov. 4	World Wildlife Fund to Baffinland	Will Baffinland consider not building the railway at all?		Deferred to presentation on Alternatives Assessment but not subsequently answered directly.	The North Railway is an integral component of the Phase 2 Proposal. Not building the North Railway would mean dropping the Phase 2 Proposal. Baffinland does not plan on dropping the Phase 2 Proposal.
16.	Nov. 4	Guy Alikut to Baffinland	Can Baffinland demonstrate how the \$1 billion in contracts awarded by Baffinland benefitted Inuit?		Baffinland to provide a breakdown of all contracts by service that collectively resulted in the	Refer to Memo 'Inuit Firm Business Opportunities Since 2013' (attached)

					overall \$1 billion in spending.													
17.	Nov. 4	Madeleine Qumuatuq to Baffinland	Has Baffinland thought of any alternatives or models to compensate Inuit when the Project disrupts, the environment, wildlife and Inuit culture and principles?			Baffinland would like to clarify that the assessments within the Phase 2 FEIS Addendum do not anticipate significant disruptions to the environment, wildlife and Inuit culture and principles. These conclusions are based on the results of current monitoring, informed predictions, and the application of mitigation and monitoring programs developed in consultation with regulators and communities. Baffinland is open to discussing additional mechanisms for compensation in relation to Phase 2 beyond what is currently provided for the in Mary River IIBA, and is actively planning for this in its community engagement plans. Baffinlands first priority in environmental management, however, is to prevent disruptions to the environment that would require compensation from occurring.												
18.	Nov. 5	Mittimatalik HTO to Baffinland	What percentage of the train track will be located on a flat grade?			<p>The percentage of the North Railway which is located on a flat grade is 4.7%. The percentages of the North Railway considered uphill and downhill depends on the direction of train. Trains will travel loaded from the Mine Site to Milne Port, and will travel unloaded from Milne Port to the Mine Site. A summary of the North Railway on uphill, flat and downhill grades by direction (loaded vs unloaded) is provided here:</p> <table border="1"> <thead> <tr> <th></th> <th>Loaded (Mine->Milne)</th> <th>Unloaded (Milne->Mine)</th> </tr> </thead> <tbody> <tr> <td>Uphill</td> <td>40.7%</td> <td>54.6%</td> </tr> <tr> <td>Flat</td> <td>4.7%</td> <td>4.7%</td> </tr> <tr> <td>Downhill</td> <td>54.6%</td> <td>40.7%</td> </tr> </tbody> </table>		Loaded (Mine->Milne)	Unloaded (Milne->Mine)	Uphill	40.7%	54.6%	Flat	4.7%	4.7%	Downhill	54.6%	40.7%
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19.	Nov. 5	Mittimatalik HTO to Baffinland	What is Baffinland's current maximum daily crushing and processing rate at Milne Port; and what would the daily crushing and processing rate be with the Phase 2 Development Proposal's infrastructure in place?			<p>Baffinland does not currently crush ore at Milne Port, only the Mine Site. The current average daily crushing rates for the three Mine Site jaw crushers are provided here:</p> <ul style="list-style-type: none"> • Crusher "A" - 9900 Mt/day • Crusher "B" - 7200 Mt/day • Crusher "C" - 7200 Mt/day <p>For Phase 2, two (2) new C130 jaw crushers would replace the three (3) currently installed jaw crushers. Each of the new jaw crushers would have an average daily crushing rate of 20,000 Mt/ day.</p> <p>Note that average daily crushing rates do not account for extended shutdown periods required for maintenance, upgrades or inclement weather. Crushing also occurs as part of a circuit and its operating levels are synced with the capacity of the entire system. Baffinland cannot crush more than can be mined and delivered</p>												

						to the crusher pad, or produce more than can be transported to the port, stockpiled, and loaded onto ships.
20.	Nov. 5	Mittimatalik HTO to Baffinland	What is the current capacity built at Milne Port for ore stockpiles?			The current design of the stockpile pad at Milne Port can hold between 4.8 Mt and 5 Mt depending on the ratio of fines and lump ore. Note that capacity can increase or decrease based on the stockpile strategy. Recently, Baffinland has been segregating piles based on customer orders, which decreases the overall surface area available for stockpiling.
21.	Nov. 5	Madeleine Qumuatuq to Qikiqtani Inuit Association and Government of Nunavut	How are QIA and the GN contemplating on working on social issues to support healing in the communities? How have QIA and the GN prepared to work with people experiencing mental health issues and going through hardships with alcohol and other substances. Is there anything that you have in place for the people to rehabilitate in the communities or get help?			N/A
22.	Nov. 6	Government of Nunavut to Baffinland	Could Baffinland consider providing a technical memo/report that provides the difference in the costing for the development of embankments with gentler slopes than the 1:2 slope proposed by Baffinland (e.g. a slope of 1:3 or 1:4)		Baffinland did not commit to providing this information but would discuss this internally within Baffinland.	Baffinland will prepare materials in advance of the technical meetings to inform further discussions on railway embankments, including cost considerations.
23.	Nov. 6	Transport Canada to Baffinland	Could Baffinland clarify what is meant by the prohibition on “winter shipping” in the NPC Amendment No. 3?		Baffinland to consult technical supporting documents on the ice study to provide a response.	On February 3, 2017 Baffinland submitted the Project Proposal for the Mary River Phase 2 Expansion Project (Project Proposal) to the Nunavut Planning Commission (NPC) for a Land Use Conformity Determination as directed by the Nunavut Impact Review Board (NIRB). At the time the Project Proposal requested an allowance for sealift activities to occur between December and February of each year. On October 24, 2017 Baffinland withdrew the 'winter'

						sealifts from the Project Proposal based on concerns raised by Pond Inlet. At the request of several review participants, including the QIA, the NPC included explicit wording in Appendix P that the marine component of the transportation corridor "does not include winter shipping through ice". This prohibition was a direct response to the previously proposed December to February sealift.
24.	Nov. 6	World Wildlife Fund to Baffinland	Can Baffinland share with the WWF/Intervenors the application Baffinland sent to Transport Canada regarding "heavy fuel oil" use by shippers		Baffinland will need to confirm internally what can be shared (will not disclose commercially sensitive information and respect any restrictions Transport Canada may place on Baffinland.	Baffinland did not send an application to Transport Canada regarding 'heavy fuel oil' by shippers, it completed an Industry Survey in relation to the potential ban on heavy fuel oil in the Arctic. Baffinland has consistently confirmed that it will comply with any maritime regulations that apply to the shipping component of the Mary River Project. The information contained within the Transport Canada Industry Survey is not relevant to the Phase 2 review process and is not appropriate to share publicly.

From: Baffinland Iron Mines Corporation

File: 08MN053

Date: November 6, 2019

Reference: Summary of Vessel-related information

This document provides additional description and information about the relative differences between vessels sizes.


Description of Vessel-types

Supramax:	Supramax vessels have capacity between 50,000 to 60,000 DWT. Due to their small size, they are capable of operating in regions with small ports with length and draught restrictions.
Panamax:	Ships having the maximum permissible dimensions (length, breadth, and draft) for transiting the Panama Canal. The capacity varies from 65,000-80,000 DWT but is limited for the Panama canal.
Kamsarmax (i.e. Post-Panamax):	Type of ship, larger than panamax, that is suitable for berthing at the Port of Kamsar (Republic of Guinea). The capacity is approximately 80,000 DWT.
Capesize:	Capesize vessels are vessels which are too large in size (especially their draught) to pass through the Panama Canal. The capacity may range between 150,000 and 250,000 DWT.

Comparison of ship dimensions

Dimensions	Supramax	Panamax	Kamsarmax (post-panamax)	Capesize
Example	Federal Tiber	Nordic Orion	Gebe Oldendorff	Golden Kathrine
Length (m)	190	225	230	290
Draft (m)	12	14	15	18
Beam (m)	32	32	33	45

November 6, 2019

Reference: Summary of Vessel-related information

Predicted voyage and vessel numbers

Vessel Type	Upper Bound # of voyages ¹ per annum	# of Vessels considered in the Marine Assessment
Ore-Carriers	176	176
Tugs ²	10	10
Ice-Breaker ³	Variable based on ice conditions	Up to 1-2 ice breakers could be needed
Wet/dry re-supply	24	24

¹1 voyage constitutes 2 transits i.e. 176 voyages equals 352 transits.

²maximum to be brought to Milne Port each season; activity is restricted to berthing activities at Milne Port)

³Icebreakers are contracted to escort other vessels calling on Milne Port during the spring and fall shoulder seasons. The number of voyages they are required to escort is subject to prevailing ice conditions, which is variable. Baffinlands spring shoulder season operational guide limits transits based on ice conditions, and encourages convoys, further limiting the number of independent voyages that occur each season.

From: Baffinland Iron Mines Corporation

File: 08MN053

Date: January 6, 2020

Reference: Shipping Market Analysis

The following is a summary of existing maritime ice class bulk carriers in 2019. This is produced from a market analysis commissioned by Baffinland in support of the Phase 2 Proposal. Due to the commercially sensitive nature of the market analysis, only the material relevant to the information request has been provide here.

Existing Maritime Ice Class Bulk Carriers 2019							
Vessel	Dwt	1AS	1A	1B	1C	PC4	TOTAL
Capesize ¹	100,000+	1	0	0	2	0	3
Kamsarmax	80-84,999	0	0	2	10	0	12
Panamax	70-79,999	0	7	6	26	0	39
Ultramax	60-69,999	0	0	0	4	0	4
Supramax	50-59,999	0	2	0	13	0	15
TOTAL		1	9	8	55	0	73

Source:SSY

1. Two of the three Cape Size vessels will not be eligible to perform Phase 2 work as they will be over-age

Few ice-classed bulk carriers are classified higher than Ice-Class 1C. This means that the number of ships suitable for operating in ice zones is extremely limited being confined to 10 vessels with 1AS and 1A notation.

Note, Non-Ice class ships may trade in Zone 13 from 15th August to September 20th under ASSPPR.

To: From: Baffinland Iron Mines Corporation

File: 08MN053 Date: November 6, 2019

Reference: Employee Feedback Phase 2 – Additional Background Information and Summary Results

This information is provided in response to questions related to employee feedback forms submitted to the Nunavut Impact Board. A copy of these forms is attached.

Baffinland has shared information on the Phase 2 Proposal with employees in a number of forums including information posters at site (attached); the CEO Town Hall meetings (April, 2019) where information is shared in a discussion-like setting; and the Project Summary Sheet included with the feedback form. In addition activities undertaken by Baffinland which are open to the public (e.g., community tours) are also available to any residents who are also employed by Baffinland.

Baffinland informed employees of the ongoing review process, and provided an opportunity to submit comments to the NIRB itself, via info@nirb.ca, or through a drop box made available at the mine site. This was completely voluntary. Employees were informed that their submissions would be shared with the Board by the Company.

Table 1 provides a summary of the demographic information identified on the submitted forms.

Table 1 Summary of demographic information for survey respondents¹

	Nunavut Resident	Non-Nunavut Resident	Residency not indicated	TOTAL
Inuit	34	5	2	41
Non-Inuit	0	219	24	243
Not Indicated	0	2	5	7
TOTAL	34	226	31	291

¹as received to November 5, 2019

From: Baffinland Iron Mines Corporation

File: 08MN053

Date: November 6, 2019

Reference: The Norther Railway – Instrumentation Monitoring Program

The attached report (H353004-30000-229-230-0006) provides additional information related to the instrumentation monitoring program.

Many of the proposed monitoring systems can only be installed once constructed and only need to be installed during construction such as survey plates and beacons as well as bridge pier inclinometers.

Some of the thermistors are to be installed horizontally at the bottom of excavations once the excavation is complete and cannot be installed beforehand. For many of these, the baseline will be the first reading taken once the instruments are installed.

However, a selection of thermistors will be installed during the predrilling process to serve as a baseline. The project currently has thermistors installed at the port, mine and rail bridge locations. These form a good baseline for these areas, however baseline is also needed for the overall rail and as such a series of locations will be selected for cut, fill and culverts to provide such baseline data. This would be done in the months prior to the work commencing. Most of the monitoring systems need the works to be constructed before they can be installed.

The report referenced above is based on the Route 1 rail alignment. This report will be updated to reflect the Baffinland Iron Ore Mine decision to implement the Route 3 rail alignment. A series of instrument installation locations indicated for the Route 1 portion of the deviation would need to be updated to reflect the decision to follow Route 3 and new instrument locations will be identified. However the overall approach would remain the same. This includes relocating a bridge in the Route 1 alignment to a new location in the route 3 alignment.

From: Baffinland Iron Mines Corporation

File: 08MN053

Date: November 6, 2019

Reference: Inuit Firm business Opportunities since 2013

The following table (Table 1) summarizes Baffinland's spending on Inuit firms by contracting category; Table 2 presents a select list of Inuit Firms contracted by Baffinland.

Table 1 Summary of Baffinland Spending by Service Category

Service Category	Total
Catering, Housekeeping, Security Services	\$93.68 million
Charter Air Services	\$183.68 million
Civil Works ¹	\$421.93 million
Environmental Services	\$1.91 million
Infrastructure Construction	\$69.50 million
Miscellaneous	\$0.19 million
Mobile Equipment Supply/Maintenance	\$192.48 million
Professional Services	\$2.51 million
Sealift	\$68.14 million
Total Inuit Firm Spend to end of Q3 2019:	\$1,034.02 million

¹ e.g. drill and blast (quarrying); aggregate production (crushing); and load, haul, placement, and compaction of aggregate.

Table 2 Select List of Inuit Firms Providing Services to Baffinland Iron Mines²

Air Nunavut Ltd.	Nunavut Country Food
Almiq Constracting Ltd.	Nunavut Sealink N Supply Inc.
Arctic Co-operatives Limited	Nuna East Ltd.
Arqartuuq Services Ltd	Nunami Stantec Ltd.
ATCO Structure & Logistics	QC-Scarlet Security Services L
Baffin Building Systems	Qikiqtaaluk Environmental Inc
Eclipse Camp Solutions	Qikiqtaaluk Sana Ltd.
Fjord- Tech Arctic Inc	Qikiqtani First Aviation
Iglugili	Qikiqtani Industry Ltd.
Innirvik Support Services	R.L. Hanson Construction Ltd.
Larga Baffin Ltd.	Sarvaq
Merkosak Construction Ltd.	Savik Enterprises Ltd.
Nahanni Nunavut Construction	Simona Arntsiq Ltd.
NCC Development Limited	Summit Air Baffin Ltd.
NEAS - Nunavut Eastern Arctic	Toromont Arctic
Niqitaq Fisheries	Tower-EBS S.E.N.C.
NNL Moreau Inc.	Ungalaq Transportation
Nolinor Aviation - Sarvaq Logistics	Uqsuq Corporation

² This list is provided as an example and is not a full list of Inuit Firms.

Attachment 5 - Correspondence from Baffinland to representatives of the five (5) North Baffin communities requesting participation in a series of engagements to occur prior to the March Technical Meeting and Prehearing Conference



December 19, 2019

A/Mayor Stacy Kadlutsiak Hamlet of Hall Beach	Jopie Kaerner Chair, Hall Beach Hunter and Trappers Organization
Mayor Joshua Arreak Hamlet of Pond Inlet	Eric Ootoovak Chair, Mittimatalik Hunter and Trappers Organization
Mayor Merlyn Recinos Hamlet of Igloolik	Simonie Issigaitok Chair, Igloolik Hunter and Trappers Organization
Mayor Jerry Natanine Hamlet of Clyde River	Apiusie Apak Chair, Clyde River Hunter and Trappers Organization
Mayor Moses Oyukuluk Hamlet of Arctic Bay	Joshua Kango Chair, Arctic Bay Hunter and Trappers Organization

RE: 2020 Engagement Activities Proposal

Dear Mayors and Chairpersons,

Following the adjournment and resulting delay of the Phase 2 Public Hearings and the recent direction provided by the Nunavut Impact Review Board (NIRB of the Board) on December 16, 2019, Baffinland wishes to propose the attached calendar of engagement activities related to Phase 2 for each North Baffin Community.

The attached calendar provides proposed dates for several types of community engagements Baffinland believes will contribute to a greater understanding of each other's priorities and concerns as they relate to the Phase 2 Proposal, with an ultimate view to issue resolution. Baffinland notes that other opportunities for discussions outside of these activities will likely be necessary and will be planned as required. These proposed events currently include:

Community Visits – Baffinland staff will be available to meet with Hamlet representatives, Hunter and Trapper Organization representatives, and members of the public. During these community visits, staff will endeavor to hold radio shows and visit various public spaces to hold discussions with as many community residents as possible.

EA Workshops – Workshops will include representatives from each North Baffin Community Hamlet and Hunter and Trapper Organization. The intent will be to discuss and resolve outstanding issues with the Phase 2 Proposal raised by community groups during the public hearing, and further identified during the North Baffin Community meeting in Igloolik, currently scheduled for January 13-16, 2020.

Community Tour – Provided there is enough time between the NIRB's Technical Meeting and Prehearing Conference (tentatively scheduled for March 2020) and the Public Hearing (date to be determined), Baffinland will plan a Community Tour to deliver the results of the EA Workshops to the

broader community through a format to be determined with Hamlets and Hunter and Trapper Organizations.

As the dates of each engagement approach, Baffinland staff will be in touch to arrange for meetings and collaboratively develop agenda's. The Qikiqtani Inuit Association (QIA) will be notified of each Community visit as per Mary River Inuit Impact and Benefit Agreement Article 14.14 and invited to participate in the meetings and workshops.

Baffinland welcomes further suggestions from you on any additional engagements you would like to work on with Baffinland over the coming months, or any suggested revisions to the attached calendar.

The exact details and timing of these activities is subject to the availability of Hamlet and Hunter and Trapper Organization representatives, meeting space, accommodations, and internal planning.

As noted in the Board correspondence of December 16, 2020, the exact timing and details of the Phase 2 Technical Meeting and Pre-Hearing Conference, including Community roundtable, are yet to be determined. As a result, Baffinland is not able to provide suggested dates for further engagement activities in March at this time. As further guidance is provided by the Board, Baffinland will work with each of you on additional engagement activities throughout March and the second quarter of 2020.

I kindly request that you review the attached and provide any comments on the plan at your earliest convenience to Mr. Andrew Moore by email at Andrew.moore@baffinland.com. Baffinland continues to place the highest regard in our desire to develop a sustained positive relationship with your respective Communities and believes that with your help we can achieve that.

Sincerely,



Megan Lord-Hoyle
Vice President Sustainable Development
Baffinland Iron Mines

Enclosure (1)

c.c. Chief Administrative Officers
Jared Ottenhof, Qikiqtani Inuit Association
Udlu Hanson, Vice President Community and Strategic Development
Lou Kamermans, Director, Sustainable Development
Joe Tigullaraq, Head Northern Affairs
Andrew Moore, Manager, Government Relations and Public Affairs



Community Engagement Calendar January-February 2020

Event	LOCATION	DATE
Community Visit	Clyde River	January 19-22, 2020
Community Visit	Pond Inlet	January 20-24, 2020
All Community EA Workshop (Workshop #1)	Mary River Mine Site	January 27-31, 2020
Community Visit	Igloolik	February 3-6, 2020,
Community Visit	Hall Beach	February 6-8, 2020
Community Visit	Arctic Bay	February 10-13, 2020
All Community EA Workshop (Workshop #2)	Pond Inlet, pending accommodations <i>Alternative Mary River Mine</i>	February 17-21, 2020
All Community EA Workshop (Workshop #3)	Igloolik, pending accommodations <i>Alternative Mary River Mine</i>	Between Technical Meeting/Prehearing Conference and Public Hearing, if time permits
Community Tour	5 North Baffin Communities	Between Technical Meeting/Prehearing Conference and Public Hearing, if time permits

Attachment 6 - A Complete Summary of Phase 2 Reconsideration Process Document Submissions

Table 1: Complete Summary of Phase 2 Reconsideration Process Document Submissions

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
TSD-01: Alternatives	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Alternatives Assessment
TSD-02: Project Description Application to Amend Water Licence	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Project Description
TSD-02: Project Description	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Project Description
TSD-03: Phase 2 Community Workshops Report	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Public Consultation and Inuit Qaujimaningit
TSD-04: Public Consultation	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Public Consultation and Inuit Qaujimaningit
TSD-05: Mary River IQ Study Mapbook	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Public Consultation and Inuit Qaujimaningit
TSD-06: Climate Change Assessment	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Atmospheric
TSD-07: Atmospheric Assessment	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Atmospheric
TSD-08: Landforms Soil and Permafrost	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Terrestrial
TSD-09: Vegetation Baseline and Impact Assessment	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Terrestrial
TSD-10: Wildlife Baseline and Impact Assessment	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Terrestrial
TSD-11: Evaluation of Exposure Selected VECs	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Human Health and Exposure Potential Assessment
TSD-12: Birds Baseline and Impact Assessment	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Terrestrial
TSD-13: Surface Water	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Freshwater
TSD-14: Freshwater Biota Habitat	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Freshwater
TSD-15: Conceptual Freshwater Offsetting Plan	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Freshwater
TSD-16: Ice Study Updates 2016	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-17: Marine Environmental Effects	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-18: Ballast Water Dispersion Modelling	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-19: Fuel Spill Modelling	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-20: Hydrodynamics Modelling	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-21: Risk Assessment Aquatic Invasive Species from Ballast Water	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-22: Ship Wake and Propeller Wash Assessment	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-23: Conceptual Marine Offsetting Plan	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
TSD-24: Marine Mammals	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Marine
TSD-25: Socio-Economic Assessment	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Socio-Economics
TSD-26: Labour Market Analysis	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Socio-Economics
TSD-27: Cumulative Transboundary	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Cumulative Effects
TSD-28: Management Plans	3-Oct-19	FEIS Addendum Submission	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 1, GN-06 Attachment 1: Typical Cross Section for Caribou Crossing	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 1, GN-10 Attachment 1: Climate and Wind Data Summary	18-Dec-18	Information Request Response	Government of Nunavut	Atmospheric
Appendix 1, GN-10 Attachment 2: Dust Fall Monitoring Program	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 1, GN-10 Attachment 3: Detailed Summary of 2017 Continuous Ambient Air Quality Monitoring Results at the Mary River Mine Site and the Milne Inlet Port Site	18-Dec-18	Information Request Response	Government of Nunavut	Atmospheric
Appendix 1, GN-44 Attachment 1: Figures	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 1, GN-46 Attachment 1: List of Assumptions	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 1, GN-46 Attachment 2: Tables	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 1, GN-49 Attachment 1: Figure 1. The Extent of the PDA encompassed by Caribou Walk Paths, showing the PDA, Mapped Trails, and Movement Identified by Inuit Qaujimajatuqangit	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 1, GN-55 Attachment 1: Table 1. Soil and Chemical Characteristics affecting Oral Bioavailability of Metals	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 1, GN-56 Attachment 1: Figures	18-Dec-18	Information Request Response	Government of Nunavut	Atmospheric
Appendix 1, GN-66 Attachment 1: Summary of Shipping Frequency	18-Dec-18	Information Request Response	Government of Nunavut	Marine
Appendix 1, GN-68 Attachment 1: Full Response to GN-68	18-Dec-18	Information Request Response	Government of Nunavut	Marine
Appendix 1, GN-73 Attachment 1: Summary of Ship Track Data 2017-2018	18-Dec-18	Information Request Response	Government of Nunavut	Marine
Appendix 1, GN-76 Attachment 1: Table 1. Project Training Programs Offered in 2017	18-Dec-18	Information Request Response	Government of Nunavut	Socio-Economics

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix 1, GN-76 Attachment 2: Table 2. Project Training Programs Offered in Q1-Q3 2018	18-Dec-18	Information Request Response	Government of Nunavut	Socio-Economics
Appendix 1, GN-81 Attachment 1: FEIS Appendix 6A, Palaeontology Report	18-Dec-18	Information Request Response	Government of Nunavut	Terrestrial
Appendix 2, QIA-12 Attachment 1: Summary of Planned Engagement Activities for 2018 and 2018 Related to the Phase 2 Proposal	18-Dec-18	Information Request Response	Qikiqtani Inuit Association	Public Consultation and Inuit Qaujimaningit
Appendix 2, QIA-21 Attachment 1: Typical Cross Section for Caribou Crossing	18-Dec-18	Information Request Response	Qikiqtani Inuit Association	Terrestrial
Appendix 2, QIA-86 Attachment 1: Full Response	18-Dec-18	Information Request Response	Qikiqtani Inuit Association	Socio-Economics
Appendix 2, QIA-90 Attachment 1: Full Response	18-Dec-18	Information Request Response	Qikiqtani Inuit Association	Public Consultation and Inuit Qaujimaningit
Appendix 3, CIRNAC-10 Attachment 1: Appendix 6B-3 Geochemical Evaluation of Railway Quarry Materials	18-Dec-18	Information Request Response	Crown-Indigenous Relations and Northern Affairs Canada	Freshwater
Appendix 3, CIRNAC-10 Attachment 2: Geotechnical Investigations - Acid Rock Drainage Assessment	18-Dec-18	Information Request Response	Crown-Indigenous Relations and Northern Affairs Canada	Freshwater
Appendix 3, CIRNAC-10 Attachment 3: Trucking Feasibility Study Interim ML/ARD Assessment of Tote Road Quarry and Borrow Pit Samples Rev1 - Issued for DEIS	18-Dec-18	Information Request Response	Crown-Indigenous Relations and Northern Affairs Canada	Freshwater
Appendix 4, DFO 3.1.1 Attachment 1: List of Stream Crossings (Culverts), Bridges, Cuts/Diversions, and Lake/Pond Encroachments/Infills along the North Rail Alignment and Tote Road Realignment and Fish Habitat Summary	18-Dec-18	Information Request Response	Fisheries and Oceans Canada	Freshwater
Appendix 5, ECCC WL 02: Attachment 1. Mine Site Layout and MDMER/Water Licence Monitoring Locations	18-Dec-18	Information Request Response	Environment and Climate Change Canada	Freshwater
Appendix 10, WWF-04 Attachment 1: Tables	18-Dec-18	Information Request Response	World Wildlife Fund	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 10, WWF-05 Attachment 1: Fuel Spill Modelling, Northern Shipping Route Open Water Season	18-Dec-18	Information Request Response	World Wildlife Fund	Marine
Appendix 11, Commitment Registry	18-Dec-18	Information Request Response	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 12, Phase 2 Proposal Information Request Supporting Document: Overview of Marine Operations	18-Dec-18	Information Request Response	Government of Nunavut; Parks Canada	Marine

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix 13, Baffinland Iron Mines Corporation Mary River Project - Phase 2 Proposal, Labour Market Analysis	18-Dec-18	Information Request Response	n/a	Socio-Economics
Appendix 14, Mary River Project, Tote Road Earthworks Execution Plan and Design Report	18-Dec-18	Information Request Response	n/a	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 15, Memo: Truck Transportation of Ore (6 MTPA)	18-Dec-18	Information Request Response	Government of Nunavut	Project Description
Appendix 1, GN-12 Attachment 1: Associated Tables	30-Jan-19	Advance Technical Comment Response	Government of Nunavut	Multiple
Appendix 1, GN-13 Attachment 1: Full Response	30-Jan-19	Advance Technical Comment Response	Government of Nunavut	Multiple
Appendix 1, GN-27 Attachment 1: Noise Figure 5B and 6B	30-Jan-19	Advance Technical Comment Response	Government of Nunavut	Atmospheric
Appendix 1, GN-35 Attachment 1: Noise Figure 3B and 4B	30-Jan-19	Advance Technical Comment Response	Government of Nunavut	Atmospheric
Appendix 1, GN-39 Attachment 1: Noise Figure 10 and 11	30-Jan-19	Advance Technical Comment Response	Government of Nunavut	Atmospheric
Appendix 2, DFO 3.2.3 Attachment 1: Table 1. Ship-Based Observation Program - Marine Mammal Observations and Survey Time (2013 to 2015)	30-Jan-19	Advance Technical Comment Response	Fisheries and Oceans Canada	Marine
ECCC-4 Attachment 1: Detailed Emission Rates Calculations for Locomotives	30-Jan-19	Advance Technical Comment Response	Environment and Climate Change Canada	Atmospheric
Appendix 3, ECCC-5 Attachment 1: Figure D1B; Figure D3; Figure D4B; Figure D6; Figure D12B; Figure D15; Figure E1B; Figure E3; Figure E4B; Figure E6; Figure E12B; Figure E15; Figure F16B; Figure F19	30-Jan-19	Advance Technical Comment Response	Environment and Climate Change Canada	Atmospheric
Appendix 3, ECCC-6 Attachment 1: Tables	30-Jan-19	Advance Technical Comment Response	Environment and Climate Change Canada	Multiple
Appendix 3, ECCC-12 Attachment 1: Response to Information Request ECCC-12, Predictive Metal Loading in Phillips Creek from Dust Deposition at Milne Port Memo	30-Jan-19	Advance Technical Comment Response	Environment and Climate Change Canada	Freshwater
Appendix 3, ECCC-16 Attachment 1: Canadian Water Quality Guidelines for the Protection of Aquatic Life - Nitrate Ion	30-Jan-19	Advance Technical Comment Response	Environment and Climate Change Canada	Freshwater
Appendix 3, ECCC-16 Attachment 2: Canadian Water Quality Guidelines for the Protection of Aquatic Life - Ammonia	30-Jan-19	Advance Technical Comment Response	Environment and Climate Change Canada	Freshwater

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix 4, HC-02 Attachment 1: Full Response	30-Jan-19	Advance Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 4, HC-02 Attachment 2: Memo - Assessment of Potential Impacts of the Mary River Project's Phase 2 Proposal on Waterbodies used by Inuit - Response to Information Request HC-02	30-Jan-19	Advance Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 4, HC-03 Attachment 1: Full Response - Technical Response Health Canada Country Foods	30-Jan-19	Advance Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 4, HC-04 Attachment 1: Full Response, Air Quality Assessment	30-Jan-19	Advance Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 4, HC-05 Attachment 1: Figure D1B; Figure D3; Figure D4B; Figure D6; Figure D12B; Figure D15; Figure E1B; Figure E3; Figure E4B; Figure E6; Figure E12; Figure E15; Figure F16B; Figure F19	30-Jan-19	Advance Technical Comment Response	Health Canada	Atmospheric
Appendix 4, HC-07 Attachment 1: Tables	30-Jan-19	Advance Technical Comment Response	Health Canada	Atmospheric
Appendix 5, QIA-13 Attachment 1: Full Response	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Public Consultation and Inuit Qaujimaningit
Appendix 5, QIA-14 Attachment 1: Full Response	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Public Consultation and Inuit Qaujimaningit
Appendix 5, QIA-20 Attachment 1: Table 1	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Public Consultation and Inuit Qaujimaningit
Appendix 5, QIA-37 Attachment 1: TSS Exceedances	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Freshwater
Appendix 5, QIA-41 Attachment 1: Cut/Fill volume per km, graph	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Project Description
Appendix 5, QIA-59 Attachment 1: Full Response, Comparison of Modelled and Monitored Dustfall	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Terrestrial
Appendix 5, QIA-68 Attachment 1: Ice Interaction Design Criteria for Detailed Design - Ore Dock - Baffinland Iron Mines: Mary River Expansion Stage 3, December 13, 2018	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Marine
Appendix 5, QIA-83 Attachment 1: Table 1. Underwater Noise Scenarios Modelled in TSD #24, Appendix B	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Marine

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix 5, QIA-85 Attachment 1: Tables 1-8	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Marine
Appendix 5, QIA-95 Attachment 1: Adaptive Management Approach	30-Jan-19	Advance Technical Comment Response	Qikiqtani Inuit Association	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-1 Attachment 1: KLTR Site Photos	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-2 Attachment 1: Mary River Expansion Project - Railway Design Criteria and Design Rational	30-Jan-19	Advance Technical Comment Response	Transport Canada	Project Description
Appendix 6, TC-4 Attachment 1: CN Engineering Track Standards	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-4 Attachment 2: CN general Engineering Instructions for Canadian Lines	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-13 Attachment 1: Standard Specifications - Railcars Supplier Ore Car Specification Specialty Component List	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-15 Attachment 1: Mary River Project - Baffinland and Iron Mines LP, Information Request Response: Railway Equipment - Braking System	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-15 Attachment 2: Automated Train Brake Effectiveness (ATBE) Test Process at Canadian Pacific	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-15 Attachment 3: Update on Technology Driven Train Inspections at Canadian Pacific	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-16 Attachment 1: Railway Freight Car Inspection and Safety Rules GE	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-16 Attachment 2: Transportation Schedule Maintenance, 12-Cylinder AC Tier 4 Evolution Series Locomotive	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-17 Attachment 1: Drawing No. H353004-30000-224-262-0002-0001	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 6, TC-18 Attachment 1: Table 1, List of Derailment Equipment	30-Jan-19	Advance Technical Comment Response	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 7, Commitment Registry	30-Jan-19	Advance Technical Comment Response	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix 8, Thermal Analysis of Proposed Rail Line Cut Sections	30-Jan-19	Advance Technical Comment Response	Nunavut Impact Review Board	Terrestrial
Appendix 9, GWCI Polices	30-Jan-19	Advance Technical Comment Response	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 10, Railway Plan and Profile Drawings	30-Jan-19	Advance Technical Comment Response	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 1, CIRNAC-02 Attachment 1: 2016-2017-2018 Milne Port Geotechnical Investigation Factual Data Report	25-Mar-19	Technical Comment Response	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 1, CIRNAC-02 Attachment 2: Geotechnical Design Basis	25-Mar-19	Technical Comment Response	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 1, CIRNAC-07 Attachment 1: Summary of Geochemistry Testing of Rock and Overburden Samples Representative of Quarries, Borrow Pits, and Rock Cuts along the North Railway	25-Mar-19	Technical Comment Response	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 1, CIRNAC-14 Attachment 1: Table 1. Adequacy of Baseline Data Used or Each VSEC	25-Mar-19	Technical Comment Response	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 1, CIRNAC-16 Attachment 1: EIS Guidelines	25-Mar-19	Technical Comment Response	Crown-Indigenous Relations and Northern Affairs Canada	Corporate
Appendix 2, DFO 3.1.7 Attachment 1: 2018 Ship track Figures	25-Mar-19	Technical Comment Response	Fisheries and Oceans Canada	Marine
Appendix 3, ECCC 3.10 Attachment 1: Dustfall Monitoring Location	25-Mar-19	Technical Comment Response	Environment and Climate Change Canada	Terrestrial
Appendix 3, ECCC 3.10 Attachment 2: Monitored Values for SO2 and NOX	25-Mar-19	Technical Comment Response	Environment and Climate Change Canada	Atmospheric
Appendix 3, ECCC 3.11 Attachment 1: Detailed Response	25-Mar-19	Technical Comment Response	Environment and Climate Change Canada	Atmospheric
Appendix 3, ECCC 3.22 Attachment 1: Figures	25-Mar-19	Technical Comment Response	Environment and Climate Change Canada	Atmospheric
Appendix 4, GN-05 Attachment 1: Single Pass Rail Noise Levels versus Distance from Rail Centreline	25-Mar-19	Technical Comment Response	Government of Nunavut	Atmospheric
Appendix 4, GN-12 Attachment 1: Tables, Cut and Fill Data for the North Railway	25-Mar-19	Technical Comment Response	Government of Nunavut	Terrestrial
Appendix 4, GN-12 Attachment 2: Drawing	25-Mar-19	Technical Comment Response	Government of Nunavut	Terrestrial
Appendix 4, GN-20 Attachment 1: Tables, Water Quantity and Quality Effects, Mitigation, Monitoring, and Adaptive Management	25-Mar-19	Technical Comment Response	Government of Nunavut	Freshwater

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix 4, GN-21 Attachment 1: Table 1. Measured Dustfall and Phase 2 Modelled Dustfall, Port Site Monitoring Stations	25-Mar-19	Technical Comment Response	Government of Nunavut	Terrestrial
Appendix 5, HC-01 Attachment 1: Revised Noise Contour Plots	25-Mar-19	Technical Comment Response	Health Canada	Atmospheric
Appendix 5, HC-03 Attachment 1: Full Response, Country Foods	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 5, HC-04 Attachment 1: Full Response, Country Foods	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 5, HC-06 Attachment 1: Full Response, Air Quality	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 5, HC-07 Attachment 1: Certificate of Analysis Bulk Asbestos	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 5, HC-07 Attachment 2: Petrographic Description of Selected Drill Core and Channel Samples from the North Limb of Baffinland Iron Mines Corporation Deposit No. 1 at Mary River	25-Mar-19	Technical Comment Response	Health Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 5, HC-07 Attachment 3: Short Note on Microscopic Studies of Iron Ore from Baffin Island	25-Mar-19	Technical Comment Response	Health Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 5, HC-08 Attachment 1: Hunter and Visitor Site Access Procedure	25-Mar-19	Technical Comment Response	Health Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 5, HC-08 Attachment 2: Figure, Dust Deposition and Inuit Camping Areas	25-Mar-19	Technical Comment Response	Health Canada	Terrestrial
Appendix 5, HC-09 Attachment 1: Full Response, Human Health Risk Assessment	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 5, HC-09 Attachment 2: Worked Example of Exposure and Risk Estimates	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 5, HC-11 Attachment 1: Full Response, Human Health Risk Assessment	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 5, HC-12 Attachment 1: Full Response, Clarification Requested / Coordination Request	25-Mar-19	Technical Comment Response	Health Canada	Human Health and Exposure Potential Assessment
Appendix 9, QIA-25 Attachment 1: Foundation Recommendations for Rail Bridges	25-Mar-19	Technical Comment Response	Qikiqtani Inuit Association	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 9, QIA-29 Attachment 1: Waste Rock Production Schedule Comparison	25-Mar-19	Technical Comment Response	Qikiqtani Inuit Association	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 9, QIA-39 Attachment 1: Tables	25-Mar-19	Technical Comment Response	Qikiqtani Inuit Association	Adaptive Management, Management Plans, and Monitoring Programs

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix 11, WWF-03 Attachment 1: Overview of Commitments and Mitigation Measures	25-Mar-19	Technical Comment Response	World Wildlife Fund	Marine
Appendix 12, Baffinland Phase 2 Commitment Register	25-Mar-19	Technical Comment Response	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
Appendix 13, Inuit Qaujimagatuqangit (IQ) and the Mary River Project Phase 2 Proposal	25-Mar-19	Technical Comment Response	Nunavut Impact Review Board	Public Consultation and Inuit Qaujimaningit
Shapefiles from the Mine Site to Steensby Inlet	17-Apr-19	Post-Technical Meeting	Qikiqtani Inuit Association	Terrestrial
Freshwater Monitoring Program Fact Sheet, 2018 Aquatic Effects Monitoring Program Report, and 2018 QIA/NWB Annual Report	30-Apr-19	Post-Technical Meeting	Frank Tester; MHTO; Hamlet of Pond Inlet	Freshwater
CIRNAC-02: Borrow Source Investigation Factual Data Report	1-May-19	Post-Technical Meeting	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
CIRNAC-04, NRCAN-02, QIA-25: Geotechnical Recommendations for the North Railway Report	1-May-19	Post-Technical Meeting	Crown-Indigenous Relations and Northern Affairs Canada; Natural Resources Canada; Qikiqtani Inuit Association	Adaptive Management, Management Plans, and Monitoring Programs
DFO 3.8.1: Electronic Filing of the Ballast Water Certification Documents	1-May-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
DFO 3.10.1-3.10.4, 3.11.1-3.11.3: Supplemental Information Package: Project Infrastructure Interactions with Fresh Water Streams and Ponds and North Railway Freshwater Habitat Survey, 2018	1-May-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
ECCC 3.08: Memo: Updated Black Carbon Emission Estimates	1-May-19	Post-Technical Meeting	Environment and Climate Change Canada	Atmospheric
ECCC 3.09: Memo: Updated CAC Emission Estimates	1-May-19	Post-Technical Meeting	Environment and Climate Change Canada	Atmospheric
ECCC 3.10: Memo: Updated Annual Comparisons	1-May-19	Post-Technical Meeting	Environment and Climate Change Canada	Atmospheric
ECCC 3.11: Memo: Updated N02 Predictions	1-May-19	Post-Technical Meeting	Environment and Climate Change Canada	Atmospheric
ECCC 3.17: Memo: Milne Inlet Effluent Loadings	1-May-19	Post-Technical Meeting	Environment and Climate Change Canada	Marine
ECCC 3.19: Memo: BIM Response to ECCC WRMP Questions Part 1	1-May-19	Post-Technical Meeting	Environment and Climate Change Canada	Adaptive Management, Management Plans, and Monitoring Programs
GN-05: Memo: Noise Modelling for Train Passes	1-May-19	Post-Technical Meeting	Government of Nunavut	Atmospheric

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
HC-03: Confirmation of Data Availability and Influence on Assessment (Snow Geese)	1-May-19	Post-Technical Meeting	Health Canada	Terrestrial
HC-04: Memo: Conversion Factor Clarification	1-May-19	Post-Technical Meeting	Health Canada	Human Health and Exposure Potential Assessment
Management Plans - Package 1	1-May-19	Post-Technical Meeting	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
CIRNAC-06, QIA-18,19: Draft Interim Closure and Reclamation Plan	1-May-19	Post-Technical Meeting	Crown-Indigenous Relations and Northern Affairs Canada; Qikiqtani Inuit Association	Adaptive Management, Management Plans, and Monitoring Programs
Power Analysis of 2018 MEEMP Results	14-May-19	Post-Technical Meeting	Fisheries and Oceans Canada	Adaptive Management, Management Plans, and Monitoring Programs
CIRNAC 18, GN-15,26, PC-03: Cumulative Effects Assessment Addendum	16-May-19	Post-Technical Meeting	Crown-Indigenous Relations and Northern Affairs Canada; Government of Nunavut; Parks Canada	Adaptive Management, Management Plans, and Monitoring Programs
DFO 3.3.1, 3.4.1, 3.4.2, 3.4.3, 3.4.4; GN-24; PC-01,02; QIA-51: Icebreaking Assessment	16-May-19	Post-Technical Meeting	Crown-Indigenous Relations and Northern Affairs Canada; Government of Nunavut; Parks Canada; Qikiqtani Inuit Association	Marine
DFO 3.3.5, 3.5.5: Memo: Additional Modelling for one Cape size ore carrier at 13 kts at Eclipse Sound	16-May-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
DFO 3.5.4: Memo: Listening Space Reduction Analysis at 1kHz for 2018 Acoustic Monitoring Data	16-May-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
DFO 3.5.10: Memo: Sound Level (SPL) Contours to Levels <120 dB re 1 µPa	16-May-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
ECCC 3.20: Memo: BIM Response to ECCC WRMP Questions Part 1	16-May-19	Post-Technical Meeting	Environment and Climate Change Canada	Adaptive Management, Management Plans, and Monitoring Programs
Management Plans - Package 2	16-May-19	Post-Technical Meeting	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
DFO 3.1.1, 3.1.2, 3.1.3, 3.5.8; PC-01: Memo: Baffinland Vessel Traffic and Anchorage Study Final Report (Simulation Study Report)	16-May-19	Post-Technical Meeting	Fisheries and Oceans Canada; Parks Canada	Marine
DFO 3.3.3, 3.4.3: Draft Marine Monitoring Plan	10-Jun-19	Post-Technical Meeting	Fisheries and Oceans Canada	Adaptive Management, Management Plans, and Monitoring Programs
DFO 3.9.1-3.9.6: Revised Draft Conceptual Marine Offsetting Plan	10-Jun-19	Post-Technical Meeting	Fisheries and Oceans Canada	Adaptive Management, Management Plans, and Monitoring Programs
HC-05,10: Memo: Scaled Predictions for PAHs, VOC's, and DPM	10-Jun-19	Post-Technical Meeting	Health Canada	Atmospheric
Memo: Sensitivity Analysis of Ballast Water Modelling	15-Jun-19	Post-Technical Meeting	Fisheries and Oceans Canada; Parks Canada	Marine

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Memo: Statement on Thermal Analysis	3-Jul-19	Post-Technical Meeting	Natural Resources Canada	Adaptive Management, Management Plans, and Monitoring Programs
Memo: Statement on Waste Rock and ARD	3-Jul-19	Post-Technical Meeting	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
Memo: Statement on North Water Polynya	3-Jul-19	Post-Technical Meeting	Qikiqtani Inuit Association	Marine
Memo: Impacts of Icebreaking on Ice	3-Jul-19	Post-Technical Meeting	Government of Nunavut	Marine
Memo: Response to Transport Canada Written Submission pt 1&2	3-Jul-19	Post-Technical Meeting	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
Memo: Response to Natural Resources Canada Written Submission	3-Jul-19	Post-Technical Meeting	Natural Resources Canada	Adaptive Management, Management Plans, and Monitoring Programs
Memo: Response to WWF Written Submission	3-Jul-19	Post-Technical Meeting	World Wildlife Fund	Multiple
Additional Fisheries Figures for Cumulative Effects	3-Jul-19	Post-Technical Meeting	Fisheries and Oceans Canada	Freshwater
Rail Alignment Maps Showing Proposed Quarry Locations	3-Jul-19	Post-Technical Meeting	Mittimatalik Hunters and trappers Organization	Adaptive Management, Management Plans, and Monitoring Programs
Memo: Revised Black Carbon & CAC Emissions Estimate	3-Jul-19	Post-Technical Meeting	Environment and Climate Change Canada	Atmospheric
Memo: Statement on Ownership of Tote Road and Railway	3-Jul-19	Post-Technical Meeting	Transport Canada	Socio-Economics
Memo: Consideration of Fine Materials and Soils in Railway Embankment Construction	3-Jul-19	Post-Technical Meeting	Nunavut Impact Review Board	Adaptive Management, Management Plans, and Monitoring Programs
Memo: Response to Technical Review Comment QIA 21 – Water Quality Assessments - Magnitude Ratings and Quantitative Assessments	3-Jul-19	Post-Technical Meeting	Qikiqtani Inuit Association	Freshwater
HC-03, 04, 06: Memo Response to Health Canada Written Submission	12-Jul-19	Post-Technical Meeting	Health Canada	Human Health and Exposure Potential Assessment
TM2-GN-NEW2: Memo: RSA Sea-ice for Polar Bears	12-Jul-19	Post-Technical Meeting	Government of Nunavut	Marine
TM2-DFO-NEW2: Memo: Clarification of Assessment of Marine Fish Icebreaking Assessment	12-Jul-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
ECCC 3.13; GN-07, 19, 20, 21: Draft Revised Air Quality and Noise Abatement Management Plan	12-Jul-19	Post-Technical Meeting	Environment and Climate Change Canada; Government of Nunavut	Atmospheric
QIA-32: Report on Evaluation of 2018 Major Training Programs	12-Jul-19	Post-Technical Meeting	Qikiqtani Inuit Association	Socio-Economics
QIA-33, 34, 35, 36: Phase 2 Construction Training Plan	12-Jul-19	Post-Technical Meeting	Qikiqtani Inuit Association	Socio-Economics
TC-27: Draft Spill at Sea Response Plan	12-Jul-19	Post-Technical Meeting	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
DFO 3.1.4; GN-23: Environmental Review of Shipping through the Northwest Passage	12-Jul-19	Post-Technical Meeting	Fisheries and Oceans Canada; Government of Nunavut	Marine
GN-18: Updated Energy Protein Model	12-Jul-19	Post-Technical Meeting	Government of Nunavut	Terrestrial
TM2-GN-NEW1: Notice of Errata - "Summer and Open-Water" use in Icebreaking Assessment	12-Jul-19	Post-Technical Meeting	Government of Nunavut	Marine
DFO 3.5.6: Memo: Daily Ship Exposure Periods for Narwhal	15-Jul-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
Memo: Estimate of Mobile Equipment by Tier	19-Jul-19	Post-Technical Meeting	Environment and Climate Change Canada	Atmospheric
GN-12; QIA 14, 15: Revised Analysis of the North Railway Barrier Effect to Caribou	22-Jul-19	Post-Technical Meeting	Government of Nunavut; Qikiqtani Inuit Association	Terrestrial
Borrow Source Investigation Factual Data Report (Second Phase)	26-Jul-19	Post-Technical Meeting	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
GIS Files related to Animation	16-Aug-19	Post-Technical Meeting	Fisheries and Oceans Canada; Oceans North	Marine
DFO 3.1.7, 3.1.9; GN-22: Shipping Activity Animation	18-Aug-19	Post-Technical Meeting	Fisheries and Oceans Canada; Government of Nunavut	Marine
WWF-08: Draft Adaptive Management Plan	23-Aug-19	Post-Technical Meeting	World Wildlife Fund	Adaptive Management, Management Plans, and Monitoring Programs
TM1-HOPI-NEW1; TM2-TC-NEW3: Memo: Pond Inlet Consultation	23-Aug-19	Post-Technical Meeting	Hamlet of Pond Inlet; Transport Canada	Public Consultation and Inuit Qaujimaningit
Draft Revised Project Certificate 005 for Phase 2	23-Aug-19	Post-Technical Meeting	Nunavut Impact Review Board	Corporate
QIA-47: Draft Community Protocol for Shipping	23-Aug-19	Post-Technical Meeting	Qikiqtani Inuit Association	Adaptive Management, Management Plans, and Monitoring Programs
TM2-ON-NEW2: Draft Icebreaking Management Protocol	23-Aug-19	Post-Technical Meeting	Oceans North	Adaptive Management, Management Plans, and Monitoring Programs
TM2-DFO-NEW1; GN-15, 26; PC-03: Revised CEA Addendum	23-Aug-19	Post-Technical Meeting	Fisheries and Oceans Canada; Government of Nunavut; Parks Canada	Adaptive Management, Management Plans, and Monitoring Programs
TC-27: Revised Spill at Sea Response Plan	23-Aug-19	Post-Technical Meeting	Transport Canada	Adaptive Management, Management Plans, and Monitoring Programs
ECCC-08: Memo: BIM Response to ECCC Black Carbon	23-Aug-19	Post-Technical Meeting	Environment and Climate Change Canada	Atmospheric
Community Information Tour Summary Report	23-Aug-19	Post-Technical Meeting	Nunavut Impact Review Board	Public Consultation and Inuit Qaujimaningit
NIRB-TM1-NEW1: Report on Stratigraphy and Paleontology	23-Aug-19	Post-Technical Meeting	Nunavut Impact Review Board	Terrestrial
Draft IQ Management Framework	18-Sep-19	Post-Technical Meeting	Qikiqtani Inuit Association	Public Consultation and Inuit Qaujimaningit

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Power Analysis for Baffinland's Marine Environmental Effects Monitoring Program	8-Oct-19	Post-Technical Meeting	Fisheries and Oceans Canada	Marine
Appendix A: Response to Pond Inlet (Mittimatalik FWS)	16-Oct-19	Final Written Submission Response	Hamlet of Pond Inlet	Multiple
Appendix B: Response to the Mittimatalik Hunters and Trappers Organization	16-Oct-19	Final Written Submission Response	Mittimatalik Hunters and trappers Organization	Multiple
Appendix C, QIA-01 Attachment 1: Memo Request to Change Significance Determination for Caribou	16-Oct-19	Final Written Submission Response	Qikiqtani Inuit Association	Terrestrial
Appendix C, QIA-01 Attachment 2: Table 1. Summary of Areas Breakdown as Requested by QIA Final Written Submission QIA-01 (Part 3)	16-Oct-19	Final Written Submission Response	Qikiqtani Inuit Association	Terrestrial
QIA-01 Attachment 3: Caribou Protection Measures	16-Oct-19	Final Written Submission Response	Qikiqtani Inuit Association	Terrestrial
Appendix C, QIA-43 Attachment 1: Figures Relating to QIA-43, Discharge Hydrograph for Philips Creek Tributary	16-Oct-19	Final Written Submission Response	Qikiqtani Inuit Association	Freshwater
Appendix C, QIA-51 Attachment 1: Table Summary of Aerial Survey-Derived Density Data	16-Oct-19	Final Written Submission Response	Qikiqtani Inuit Association	Marine
Appendix E, CIRNAC-05 Attachment 1: Update on the Waste Rock Facility Investigation	16-Oct-19	Final Written Submission Response	Crown-Indigenous Relations and Northern Affairs Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix F, DFO 3.8.1 Attachment 1: Tables associated with DFO 3.8.1 Response	16-Oct-19	Final Written Submission Response	Fisheries and Oceans Canada	Marine
Appendix G, ECCC-FC1 Attachment 1: Phase 2 Passive Dustfall Monitoring	16-Oct-19	Final Written Submission Response	Environment and Climate Change Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix G, ECCC-FC1 Attachment 2: Human Health-Based Dustfall Thresholds for Mine and Port Site	16-Oct-19	Final Written Submission Response	Environment and Climate Change Canada	Human Health and Exposure Potential Assessment
Appendix G, ECCC-FC6 Attachment 1: Weathering of Arctic Diesel Release, Shoulder Season Figure	16-Oct-19	Final Written Submission Response	Environment and Climate Change Canada	Marine
Appendix L, ON-01-02 Attachment 1 Memorandum: Inuit Employment and the Phase 2 Proposal Economic Impact Model	16-Oct-19	Final Written Submission Response	Oceans North	Socio-Economics
Appendix L, ON-01-02 Attachment 2: Tables Associated with ON-01-02 Response	16-Oct-19	Final Written Submission Response	Oceans North	Marine

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix M, WWF-FWS 04 Attachment 1: Vessel Speeds in RSA during 2019 Shipping Season	16-Oct-19	Final Written Submission Response	World Wildlife Fund	Marine
Appendix M, WWF-FWS 06 Attachment 1: Spill Risk Analysis	16-Oct-19	Final Written Submission Response	World Wildlife Fund	Adaptive Management, Management Plans, and Monitoring Programs
Appendix N, Attachment 1: Memo Clarification Respecting Shipping through the Northwest Passage	16-Oct-19	Final Written Submission Response	Filed in Response to Final Written Submissions of WWF, ECCC, PC, TC, Oceans North	Project Description
Appendix N, Attachment 2: Technical Memo Analysis of 2018 Narwhal Tagging Data During Fall Shoulder Season	16-Oct-19	Final Written Submission Response	Filed in Response to Final Written Submissions of Oceans North	Marine
Appendix N, Attachment 3: Ballast Water Dispersion Modelling	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions of QIA, DFO, TC, Oceans North	Marine
Appendix N, Attachment 4: 2019 Marine Monitoring Update Memo	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions of MHTO, QIA, DFO, Oceans North	Marine
Appendix N, Attachment 5: 2019 Shipping Season Mitigation Summary	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions of Oceans North	Adaptive Management, Management Plans, and Monitoring Programs
Appendix N, Attachment 6: Review of Assessment Conclusions on the Effects of Icebreaking to Narwhal	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions of DFO, Oceans North	Marine
Appendix O, Attachment 1: Community Risk Assessment Workshop Report	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions of Hamlet of Pond Inlet and DFO	Public Consultation and Inuit Qaujimaningit
Appendix O, Attachment 2: Benefit Mitigation Tables	16-Oct-19	Final Written Submission Response	Hamlet of Pond Inlet; Oceans North; Qikiqtani Inuit Organization	Socio-Economics
Appendix O, Attachment 3: Food Security Assessment	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions from Hamlet of Pond Inlet and QIA	Socio-Economics
Appendix O, Attachment 4: Revised Working Group Terms of Reference	16-Oct-19	Final Written Submission Response	Qikiqtani Inuit Association; Parks Canada	Adaptive Management, Management Plans, and Monitoring Programs
Appendix O, Attachment 5: CRLU Monitoring Program	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions from QIA	Socio-Economics
Appendix O, Attachment 6: Inuit Advisory Panel Work Plan	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions from QIA	Adaptive Management, Management Plans, and Monitoring Programs

Document Title	Date Submitted	Review Phase	Requesting Organization	Topic
Appendix O, Attachment 7: Direct Community Benefits Meeting Report	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions from Hamlet of Pond Inlet	Socio-Economics
Appendix P, Attachment 1: Rail Alignment Summary Report	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions from QIA, GN, Hamlet of Pond Inlet, MHTO	Public Consultation and Inuit Qaujimaningit
Appendix P, Attachment 2: Additional Level Crossing Construction Decision Matrix	16-Oct-19	Final Written Submission Response	Filed in response to Final Written Submissions from QIA, GN, Hamlet of Pond Inlet, MHTO	Adaptive Management, Management Plans, and Monitoring Programs