# APPENDIX G.22

# Environmental Protection Plan

# Baffinland Iron Mines Corporation

## Environmental Protection Plan

## BAF-PH1-P16-0008

## Rev 2

**Prepared By:** Shawn Stevens
**Department:** HSEST
**Title:** Manager of Health, Safety, Environment, Security and Training
**Date:** April 30, 2021
**Signature:**

**Approved By:** Francois Gaudreau
**Department:** Operations
**Title:** General Manager
**Date:** April 30, 2021
**Signature:**


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# 1 PURPOSE

The purpose of the Environment Protection Plan (EPP) is to ensure that a high level of importance is placed on the protection of the environment by employees of Baffinland Iron Mines (Baffinland), contractors, and visitors (Personnel) throughout the lifecycle of Baffinland's Mary River Project (Project). This document provides Operational Environmental Standards (OESs) to identify and address environmental issues and concerns and to provide guidance and control measures (which may be field fit as required), to avoid potential negative impacts to the environment and/or minimize or mitigate these impacts to the greatest extent practicable. The OESs are not comprehensive and are intended to be used in conjunction with relevant documents such as Management Plans (MPs), Standard Operating Procedures (SOPs), Permits, Licences, and Regulations, etc. The EPP provides a practical way to facilitate field implementation of regulations, practices, and measures required to eliminate or reduce potential adverse environmental effects.

The EPP will be updated as required to reflect current management reviews, incident investigations, regulatory changes, or other Project-related process modifications. It is a working document for ensuring regulatory commitments are implemented and monitored. The EPP is developed in recognition of applicable permits, authorizations, approvals and Inuit Qaujimajatuqangit. As well, the plan provides operational measures that comply with aforementioned permits, approvals, and regulations, and provides reference to other associated and relevant documents such as MPs and SOPs. The EPP is an integral part of the Project's Environmental Management System that allows for the integration of environmental issues and regulations into the design/engineering and operation of the Project through the implementation and evolution of the OESs presented in this document.

The EPP provides documentation of environmental protection measures against which the environmental performance of the Project can be readily measured and corrective actions developed and implemented where required. Personnel are expected to understand and implement the environmental protection measures provided within the EPP. If, at any time, Personnel do not understand or are unclear regarding how or when to implement an environmental protection measure the Environment Department must be contacted to obtain clarification.

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## 1.1 ENVIRONMENTAL APPROVALS

A list of Baffinland's issued Environmental Approvals is summarized in Table 1.

**TABLE 1: ENVIRONMENTAL APPROVALS, PERMITS, AND AUTHORIZATIONS ISSUED TO BAFFINLAND**

| Permit or Licence No. | Licence Name | Status Update for 2020 | Expiry |
|---|---|---|---|
| **Nunavut Impact Review Board** | | | |
| No. 005 | Amended Project Certificate | All works and activities have been screened by the Nunavut Impact Review Board (NIRB) and have been considered in the Project Certificate amendments issued by the NIRB in May 2014 (ERP) and October 2018 (Production Increase). A NIRB Annual Report is submitted each year that summarizes the status of the Project relative to the conditions outlined in the Project Certificate. | N/A |
| **Nunavut Water Board** | | | |
| 2AM-MRY1325 | Type 'A' Water Licence – Amendment No. 1 | In good standing; no amendments were issued by the NWB in 2020. | 10-Jun-25 |
| 2BE-MRY2131 | Type 'B' Water Licence | In good standing; 2BE-MRY2131 replaced 2BE-MRY1421 on April 13, 2021. | 16-Apr-31 |
| **Qikiqtani Inuit Association** | | | |
| Q13C301 | Inuit Owned Land Commercial Lease | Compliance with the lease is outlined in the *2020 QIA and NWB Annual Reports* submitted by March 31st of each year. | 31-Dec-43 |
| - | Inuit Impact and Benefit Agreement (IIBA) | Compliance with the agreement is outlined in the Annual IIBA Implementation Report submitted by March 31st of each year. | N/A |
| QL2-2012 | Land Use Permit - Parcels PI-14 and PI-15 | New land use permit issued in 2020 to allow for a legal survey to be conducted on IOL parcels PI-14 and PI-15. Issued on August 18, 2020. | 31-Dec-20 |
| **Crown Land Use Permits and Quarry Permits** | | | |
| 47H16-1-2 | Foreshore Area for Milne Port Ore Dock Lease | In good standing. Amendment to the lease currently under review. | 30-Jun-35 |
| N2019Q0011 | Tote Road and Borrow Area Land Use Permit | New lease issued in 2019, replaces prior permit N2014Q0016. | 29-Jun-24 |
| N2019C0009 | Steensby Land Use Permit | New lease issued in 2019, replaces prior permit N2014C0013. | 29-Jun-24 |
| N2019J0010 | Bruce Head Land Use Permit | New lease issued in 2019, replaces prior permit N2014J0011. | 29-Jun-24 |

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|---|---|---|---|
| **Authorizations under the Fisheries Act** | | | |
| 06-HCAA-CA7-0084 | Crossings along the Milne Inlet Tote Road Authorization | The authorization remains valid and has been amended over the years. A monitoring report for the water crossings was submitted to DFO on December 31, 2020. | N/A |
| NU-06-0084 | Fisheries Authorization – Tote Road | - | N/A |
| 18-HCAA-00160 | Fisheries Authorization – Freight Dock | - | N/A |
| Various Letter of Advice | Project crossings along Tote Road and at quarries, culvert extensions and replacements. | - | N/A |
| **Approvals under the Navigable Waters Protection Act (Transport Canada)** | | | |
| 8200-07-10273, 10267, 10269, 10268, 10274, 10272, 10266, 10271 | Construction of Watercourse Crossings (Bridges and Culverts) | In good standing, no changes from previous year. | Until complete |
| **Licence under the Explosives Act** | | | |
| F76068/E | Division 1 Factor Licence | Held by explosives contractor for the Project. | N/A |

The terms and conditions of these approvals have been incorporated into the OESs provided in this document. Should discrepancies exist between the OES and approvals provided in Table 1-1, the approvals govern. Official copies of the approvals are maintained on site.

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# 2 RESPONSIBILITIES

## 2.1 CHIEF OPERATIONS OFFICER (COO)/GENERAL MANAGER

- Reports to the Chief Executive Officer
- Responsible for providing oversight for all Project operations and allocating the necessary resources for the operation, maintenance and management of Project infrastructure.
- Responsible for reading and understanding applicable sections of this Plan and directing Project personnel on the appropriate mitigation measures and strategies for managing environmental aspects relevant to the Project.

## 2.2 MINE OPERATIONS MANAGER/SUPERINTENDENT

- Reports to the COO/General Manager
- Provides oversight for all Deposit No. 1 mining operations, including the operation, construction and maintenance of water and waste management infrastructure at Deposit No. 1 mining areas, ROM stockpile, Waste Rock Facility and along the Mine Haul Road, including culverts, ditches, surface water management ponds and associated water treatment systems.
- Responsible for managing water withdrawal and application records for dust suppression water use on the Mine Haul Road.
- Responsible for reading and understanding applicable sections of this Plan and directing Mine Operations personnel on the appropriate mitigation measures and strategies for managing environmental aspects relevant to their Project areas.

## 2.3 CRUSHING MANAGER/SUPERINTENDENT

- Reports to the COO/General Manager
- Provides oversight for all ore crushing operations, including the operation, construction and maintenance of surface water management infrastructure at the Mine Site Crusher Facility, including culverts, ditches, surface water management ponds and any associated water treatment systems.
- Responsible for reading and understanding applicable sections of this Plan and directing Crushing personnel on the appropriate mitigation measures and strategies for managing environmental aspects relevant to their Project areas.

## 2.4 PORT & LOGISTICS MANAGER/SUPERINTENDENT

- Reports to the COO/General Manager
- Provides oversight for all Port & Logistics operations, including the operation and maintenance of port infrastructure.

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- Responsible for reading and understanding applicable sections of this Plan and directing Port & Logistics personnel on the appropriate mitigation measures and strategies for managing environmental aspects relevant to their Project areas.
- Responsible for managing the collection and reporting of fuel tank dips and fuel tank storage volumes.

## 2.5 Site Services Manager/Superintendent

- Reports to the COO/General Manager
- Provides oversight for all Site Services operations, including the operation, construction and maintenance of water and waste management infrastructure and treatment systems at the Mine Site and Milne Port.
- Responsible for managing water retained in containment areas associated with Project bulk fuel facilities and hazardous materials/waste storage areas, including landfarm facilities.
- Responsible for ensuring daily inspections of the fuel farms are completed
- Responsible for managing water withdrawal and application records for dust suppression water use on the Project sites. Responsible for reading and understanding applicable sections of this Plan and directing Site Services personnel on the appropriate mitigation measures and strategies for managing environmental aspects relevant to their Project areas.

## 2.6 Road Maintenance Manager/Superintendent

- Reports to the COO/General Manager
- Provides oversight for all Road Maintenance operations, including the operation, construction and maintenance of surface water management infrastructure for the Tote Road that runs between Milne Port and the Mine Site, including culverts, bridges, ditches and swales.
- Responsible for managing water withdrawal and application records for dust suppression water use on the Tote Road.
- Responsible for reading and understanding applicable sections of this Plan and directing Road Maintenance personnel on the appropriate mitigation measures and strategies for managing environmental aspects relevant to their Project areas.

## 2.7 Environment (Sustainable Development) Department

- Support the management of the Project's environmental compliance programs by advising operational departments and obtaining the appropriate regulatory approvals for necessary changes and modifications.
- Advise operational departments on the implementation of the appropriate environmental controls and mitigation measures detailed in this plan.

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- Report environmental incidents to senior management and the appropriate regulatory agencies and stakeholders.
- Conduct inspections and monitoring to ensure compliance with applicable regulations and commitments.
- Provide training sessions to operational departments on the appropriate environmental mitigation measures and strategies for the Project.
- Conduct a review and revision of the EPP on an as needed basis to determine if updates are required.
- Ensure EPP is properly communicated to departmental Site Managers and ensure adequate training is in place for all site Supervisors.
- Ensure revisions are distributed to superintendents and supervisors.
- Ensure that managers, superintendents, supervisors and their staff are familiar with the EPP and its protection measures.

## 2.8 All Departmental Supervisors

- Reports to their Departmental Manager/Superintendent
- Responsible for reading and understanding applicable sections of this Plan and directing departmental personnel on the appropriate mitigation measures and strategies for managing environmental aspects relevant to their Project areas.
- Implement the EPP in daily operations.
- Provide training and support to ensure successful implementation of the EPP.
- Initiate changes to improve and update the plan as needed.

## 2.9 All Project Personnel

All Project personnel are responsible for familiarizing themselves with relevant sections, having knowledge of reporting procedures, and complying with the requirements of this Plan that apply to their positions.

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# 3 DEFINITIONS

AMBNS – Active Migratory Bird Nest Survey
AN – Ammonium Nitrate
CCME - Canadian Council of Ministers of the Environment
CIRNAC – Crown-Indigenous Relations and Northern Affairs Canada
DFO – Department of Fisheries and Oceans Canada
ERP - Early Revenue Phase
ERP – Emergency Response Plan
FSSWMP –Freshwater Supply, Sewage and Wastewater Management Plan
GN – Government of Nunavut
HTO – Hunter and Trappers Organization
IFC - Issued For Construction
IIBA - Inuit Impact Benefit Agreement
NWB – Nunavut Water Board
OES – Operational Environmental Standard
OHWM – Ordinary High Water Mark
OWTS - Oily Water Treatment System
PDA – Project Development Area
QIA – Qikiqtani Inuit Association
SDS - Safety Data Sheets
STP - Sewage Treatment Plant
SWAEMP – Surface Water and Aquatic Ecosystems Management Plan
TDG – Transportation of Dangerous Goods
TSS - Total Suspended Solids
Type “A” Water License - Type “A” Water Licence (2AM-MRY1325, Amendment No. 1)
Type “B” Water Licence - Type “B” Water Licence (2BE-MRY2131)
WHMIS – Workplace Hazardous Material Information System
ZOI - Zone of Influence

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# 4 OPERATIONAL ENVIRONMENT STANDARDS

## 4.1 CULTURAL HERITAGE AND ARCHAEOLOGICAL RESOURCES

A number of cultural heritage and archaeological sites have been identified across the Project Area. The Environment Department will provide information regarding the location of these sites relative to potential work areas. The potential exists to encounter undiscovered cultural heritage or archaeological resources (Chance Finds) when conducting construction activities such as excavating and site clearing.

### 4.1.1 ENVIRONMENTAL CONCERN

The Project area has been occupied by humans for over 4,000 years. Archaeological sites are very common throughout the region, mostly consisting of stone structures that usually represent tent rings and shelters, caches, traps, hunting blinds, cairns, *inukshuks*, and stone tools. These types of archaeological sites and features are often difficult to recognize. All archaeological sites are valuable, non-renewable sources of information about local people's history and provide crucial data for personnel studying northern ways of life throughout the past. It is against territorial law (*Nunavut Archaeological and Palaeontological Sites Regulations*) to disturb known or suspected archaeological sites. Not all areas of the Project have been surveyed by an archaeologist. Refer to the Cultural Heritage Resource Protection Plan for further details.

### 4.1.2 ENVIRONMENTAL PROTECTION MEASURES

- Personnel shall not deviate from already disturbed areas (existing roads and camp areas), however if necessary they must obtain approval from the Environment Department before traveling off of existing roads or disturbing ground surfaces.
- Do not touch or move any archeological or human remains (structures, artifacts or bones) discovered during project activities (Chance Finds). Stop work immediately and report these to the Environment Department who will develop a course of action in consultation with an archaeologist, the appropriate lands inspector, and the GN, as required by law.
- Upon a discovery, a Cultural Heritage Chance Find Discovery Form (Appendix A - Cultural Heritage Chance Find Discovery Form) must be completed and submitted to the Environment Department.
- Human remains and funerary objects shall be treated with dignity and respect at all times.
- Archaeological site locations shall be kept confidential to prevent unauthorized collection or disturbance of artifacts.
- Known sites near Project activities will be marked by stakes, flagging and/or yellow rope at least 30 meters away from each site. All personnel must avoid and remain 30m away from these sites.
- Existing inukshuks shall not be modified or disturbed. New inukshuks or rock piles shall not be constructed since building new rock piles may clutter the archaeological record and/or result in unknowingly using rocks from existing archaeology sites.

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- Known archaeological sites shall be avoided by re-routing roads and establishing borrow excavations at locations approved for use by an Archaeologist. Sites that can't be avoided will be mitigated by the archaeology team prior to construction activities.
- The archaeologist shall complete an archaeological review of all proposed Project Areas as they are finalized to identify areas with possible conflicts and areas where Project activities may proceed.

### 4.1.3 RELATED DOCUMENTS

- Appendix A - Cultural Heritage Chance Find Discovery Form
- Cultural Heritage Resource Protection Plan (BAP-PH1-830-P16-0006)
- GN - *Nunavut Archaeological and Palaeontological Sites Regulations* SOR/2001-220

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## 4.2 AVOIDING DISTURBANCE TO LOCAL LAND USERS

### 4.2.1 ENVIRONMENTAL CONCERN

Land and resource use in the Project Area includes hunting, fishing, trapping, recreation and tourism. Potential impacts to existing land use may include the interruption of camping, hunting, tourism and marine activities in and around Milne Port, the Tote Road and Mary River. Baffinland is committed to minimize disturbance to land users to the extent possible.

### 4.2.2 ENVIRONMENTAL PROTECTION PROCEDURE

- Advanced notification of shipping schedules to the community of Pond Inlet and to Nunavut Tourism. This will allow other hunter and visitors to re-schedule or modify travel plans, if preferred.
- Limit activities to the PDA.
- Aircraft will fly in accordance with guidelines outlined in the Aircraft Flights OES (Section 4.8).
- Road traffic will operate in accordance with guidelines outlined in the Road Traffic Management OES (Section 4.19).
- Security will record the presence of hunter and visitors in the Hunter and Visitor Log (Appendix B - Hunter and Visitor Access Log), and will notify the Environment Department of any sightings.
- Hunter and visitors are encouraged to check-in with security upon arrival to either site (Appendix B - Hunter and Visitor Access Log).
- Any disruptions to land use will be documented so that this information can be considered in subsequent phases of project development.
- Baffinland has developed a Hunter and Visitor Site Access Procedure (Appendix C), which provides safe access routes to, and instructions upon arrival, for hunters and visitors visiting Project sites.

### 4.2.3 RELATED DOCUMENTS

- Appendix B - Hunter and Visitor Access Log
- Appendix C - Hunter and Visitor Access Procedure
- Hunter and Visitor Site Access Procedure (BAF-PH1-830-PRO-0002)

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## 4.3 LAND DISTURBANCE

### 4.3.1 ENVIRONMENTAL CONCERN

The Arctic is a fragile environment where the recovery of vegetation is slow. Land disturbances during maintenance activities, road construction and operation, camp construction, quarrying, mobile vehicle operation, culvert installation, and excavation of cut and fill areas have the potential to cause erosion and release sediment-laden runoff into nearby water bodies. In addition, the removal of surface material in Arctic regions can cause the underlying permafrost to melt and result in the pooling of water, destabilization of landforms, and sedimentation and erosion issues. Ground disturbance will be mitigated to protect archaeological resources, wildlife habitats, sensitive landforms, such as ice-rich permafrost features, and prevent erosion and the movement of sediment into water bodies.

### 4.3.2 ENVIRONMENTAL PROTECTION MEASURES

- Project activities will be planned and conducted to minimize the Project footprint.
- Construction monitoring is conducted during any construction activities in accordance with the Construction Monitoring Procedure (BAF-PH1-830-PRO-0010). Progress is thoroughly documented to ensure environmental control conditions are being met and to identify any potentially adverse environmental conditions.
- Personnel and equipment shall remain on only existing roads and trails.
- Modifications to any design/engineering drawings must be approved by the Environment Department before any work on the modification may be started.
- Prior to implementation, maintenance and construction activities associated with the Project will be assessed for potential risks associated with erosion, permafrost degradation and sedimentation and effective mitigation and control measures will be implemented prior to the commencement of the planned activities.
- Rutting (furrow creation) shall be minimized on ground surfaces when possible.
- All camps and equipment storage areas shall be located on gravel, sand and/or other durable land.
- No materials or greywater sumps shall be stored/ located on the surface ice of streams or within 31m of the OHWM of any stream or water body.
- No material shall be removed from below the OHWM of any stream or water body.
- Equipment and supplies brought to Project sites shall be inspected to ensure clean and free of soils that could contain exotic non-native seeds. Vehicle tires and treads in particular must be inspected prior to initial use in Project Areas
- Prior to construction activities, the following documents must be submitted to the Environment Department for approval:
    - Land Disturbance Form (Appendix D - Land Disturbance Form)
    - IFC drawings

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- Erosion and Sediment Control plan, including a site drainage drawing

- The limits for all clearing, grubbing and topsoil overburden removal shall be identified on the IFC drawings and staked in the field prior to the commencement of any work.
- Areas to be cleared shall have sediment and erosion control measures implemented prior to the initiation of any clearing activities. The sediment and erosion control measures shall be adapted to suit the field conditions associated with the specific construction activities as construction proceeds.
- No debris or any other construction material shall be allowed to enter any water body.
- Disturbed terrestrial habitat will not be reseeded during construction, operation and closure. Revegetation of the terrestrial habitat will be allowed to occur naturally.
- A Baffinland Incident Investigation Form will be completed for all non- approved land disturbances.

### 4.3.3 RELATED DOCUMENTS

- Appendix D - Land Disturbance Form
- Incident Investigation Form (BAF-PH1-810-FOR-0005)
- Roads Management Plan (BAF-PH1-830-P16-0023)
- Borrow Pit and Quarry Management Plan (BAF-PH1-830-P16-0004)
- Construction Monitoring Procedure (BAF-PH1-830-PRO-0010)

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## 4.4 WATER USE

### 4.4.1 ENVIRONMENTAL CONCERN

Water is an important resource that must be protected. The use of water by Baffinland is currently governed by the Type "A" Water Licence and Type "B" Water Licence issued to Baffinland by the NWB.

This OES highlights the key terms and conditions of Baffinland's water licences and other approvals governing water use.

### 4.4.2 ENVIRONMENTAL PROTECTION MEASURES

- Only approved water sources can be used for Project activities (Appendix E) and submitted to the Environment Department on a weekly basis. Domestic and industrial water use limits for the Operations Phase are shown in Table 2.
- Water supply facilities are to be maintained to the satisfaction of the CIRNAC Inspector.
- Total volumes of water withdrawn by truck from any water body must be recorded on the Water Collection Log (Appendix E) and submitted to the Environment Department on a weekly basis.

**TABLE 2: WATER USE AUTHORIZED FOR DOMESTIC AND INDUSTRIAL PURPOSES DURING PROJECT OPERATIONS PHASE***

| Site | Source | Operation Phase | | |
|---|---|---|---|---|
| | | Domestic | Industrial | Combined |
| | | Volume ($m^3$/day) | | |
| Milne Port (Milne Inlet) | Phillips Creek (summer)<br>Km 32 Lake (Winter) | 300 | 67.5 | 367.5 |
| Mine Site (Mary River) | Camp Lake | 203.8 | 151.6 | 355.4 |
| Steensby Port (Steensby Inlet) | ST 347 Km Lake<br>3 Km Lake | 101 | 142.6 | 243.6 |
| **TOTAL** | | **604.8** | **361.7** | **966.5** |

*Source: Type A Water Licence (2AM-MRY1325 – Amendment No. 1).

- Baffinland is also authorized to withdraw up to 1,500 $m^3$/day to a maximum of 547,500 $m^3$ annually of water specifically for use in dust suppression or control along the Tote Road during the ERP of the Project. The approved water sources and limits for dust suppression are shown in Table 3 .

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- Authorization from the NWB in writing must be obtained prior to using water authorized for use in dust suppression or control along the Tote Road for any other purposes.
- Reclaimed water can be used from Project treatment facilities, surface water ponds and embankment dams and approved discharge locations if the water from these sources meet the appropriate discharge criteria for the facility. Streams or water bodies cannot be used as a water source unless authorized and approved by the NWB.
- If water is required from a source that may be drawn down (small lake or stream), Baffinland shall submit a request for approval to the NWB prior to withdrawing the water.
- Work shall be performed in such a way as to ensure that materials such as sediment, fuel or any other hazardous material do not enter watercourses and water bodies through the implementation of sediment control measures and proper hazardous materials management practices. In the event of a release to the environment, the Spill Contingency Plan shall be implemented.
- All water intake hoses shall be equipped with a screen of an appropriate mesh size, consistent with the requirements of DFO's Interim Code of Practice: End-of-pipe fish protection screens for small water intakes in freshwater (2020) to ensure that fish are not entrained. Additionally, operators will ensure the water intake hoses withdraw water at such a rate that fish do not become impinged on the screen.
- Measures shall be provided to prevent and control erosion on the banks of any water body.
- Equipment shall not be washed in any watercourse or water body.
- No fueling and/or servicing of equipment shall occur within 31 meters of any water body.
- Removal of material below the OHWM of any water body is prohibited unless the work has been approved by the NWB.

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**TABLE 3: WATER USE AUTHORIZED FOR DUST SUPPRESSION***

| Site | Source | Proposed Maximum Volume (m3/day) | Restriction |
|---|---|---|---|
| Tote Road | Phillip's Creek | 212 | None |
| | Km 32 Lake | 364 | |
| | CV128 | 579.5 | |
| | CV099 | 110 | June – July only during low flow (less than mean flow) years |
| | CV087 | 90 | |
| | CV078 | 75 | |
| | Katiktok Lake | 318 | None |
| | BG50 | 150 | |
| | BG32 | 120 | June – July only during low flow (less than mean flow) years |
| | CV217 | 130 | None |
| | Muriel Lake | 212 | |
| | David Lake | 132 | June – July only during low flow (less than mean flow) years |
| | BG17 | 75 | |
| | CV233 (Tom River) | 135 | None |
| | Camp Lake | 86 | |

*Source: Type 'A' Water Licence (2AM-MRY1325 – Amendment No. 1)

For water use associated with drilling programs, see OES Geotechnical Drilling Operations (Section 4.5) and Exploration Drilling Operations (Section 4.21).

### 4.4.3 RELATED DOCUMENTS

- Appendix E – Water Truck Logs
- NWB - Type "A" Water Licence (2AM-MRY1325 Amendment No. 1)
- NWB - Type "B" Water Licence (2BE-MRY2131)
- FSSWMP (BAF-PH1-830-P16- 0026)
- Spill Contingency Plan (BAF-PH1-830-P16-0036)
- DFO - Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html)
- *Freshwater Intake End-of-Pipe Fish Screen Guidelines*

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## 4.5 GEOTECHNICAL DRILLING OPERATIONS

Geotechnical drilling may be required to obtain soil and rock samples necessary for engineering and designing the Project facilities and infrastructure.

### 4.5.1 ENVIRONMENTAL CONCERN

Environmental concerns associated with drilling include surface disturbances, drilling fluid and cutting disposal, impacts on dust, noise, water quality, water use, and habitat encroachment. The use of water for drilling purposes is subject to the conditions outlined in the Type "B" Water Licence.

### 4.5.2 ENVIRONMENTAL PROTECTION MEASURES

- Pre-Drilling Preparation and Acceptable Drill Locations:
  - A Pre-Drilling Inspection Form (Appendix F - Drill Inspection Forms) shall be completed by the acting supervisor before drilling activities commence.
  - Additional geotechnical investigations shall be undertaken to identify sensitive landforms, modify engineering design for Project infrastructure, develop and implement preventative and/or mitigation and monitoring measures to minimize the impacts of the Project's activities and infrastructure on sensitive landforms.
  - Approval in writing from the NWB must be obtained prior to any drilling related work being conducted below the OHMW of any water body. Please confirm all geotechnical drill locations with the Environment Department well in advance of drill mobilization to allow time to prepare and submit an application for approval and for the NWB to issue an approval to conduct work below the OHWM of any water body.
  - Approval in writing from the NWB must be received prior to water withdrawal from any water body that will be drawn down as a result of the amount of water that will be withdrawn. Please confirm the volume of water required, the results of a hydrological overview of the water body, details of impacts, and proposed mitigation measures with the Environment Department well in advance of the proposed start date for the water withdrawal to allow time to prepare and submit a request to the NWB at least thirty (30) days prior to the proposed start date.
  - Geotechnical drilling activities may be carried out within 31 m of the OHWM of water bodies as long as the drilling and related activities are consistent with the environmental protection measures in this EPP and a request for approval has been submitted and received by the NWB at least ten (10) days in advance of the proposed drilling start date. Please confirm all geotechnical drill locations with the Environment Department and provide supporting information needed to prepare a request for approval to the NWB well in advance of drill mobilization to allow time needed to prepare and submit the request. Supporting information needed for the request includes an appropriate scaled map, complete with GPS coordinates of planned drilling locations and the associated water bodies, locations of waste deposition, and mitigation measures that are

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planned to be in place, prior to, during, and following if required to protect the water body, and proposed start and end dates for the drilling project.

- Archaeology clearance shall be obtained from the Environment Department for all geotechnical drill locations (see Section 4.1).
- Conduct a wildlife inspection immediately prior to movement of the drill, involving aerial and ground survey of the new site. For details on drilling restrictions associated with wildlife interactions, see OES: Polar Bear Encounters (Section 4.10), Fox and Wolf Encounters (Section 4.11), Caribou Protection Measures (Section 4.12) and Bird Protection Measures (Section 4.13).
- Implement sediment and erosion control measures prior to drilling operations and maintain these during the operation to minimize transport of sediment into adjacent water bodies. Prior to the commencement of drilling for each hole, establish a dedicated sump location where collected "dirty" drill water and cuttings are to be disposed. The location shall be a minimum of 31 m from surface water bodies and located such that any flow toward a surface water body is minimized (sump shall be in a bowl, depression or be on a flat surface).

- Drill Operation and Movements:
  - Material shall not be stored on the surface of frozen streams or lakes, including immediate banks, except materials that are for immediate use.
  - All drill waste, including water, chips, muds and salts (calcium chloride) from land based drilling shall be disposed in a properly constructed sump or natural depression located at least 31 m above the OHWM of any water body.
  - All activities, including the overland transport of workers, shall be conducted in such a way to minimize ground disturbance.
  - All waste, such as food and packaging, shall be collected for disposal at the camp.
  - Feeding of all wildlife is prohibited.
  - Equipment or vehicles shall not be moved unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging.
  - Daily inspections for fuel/hydraulic leaks, equipment condition, sediment and erosion control, and water intakes shall be conducted prior to commencing Work activities at the start and end of each work shift/day. All leaks shall be immediately repaired.
  - All drill rigs shall be equipped with spill kits in the event of leaks and spills. All operators should be trained in spill response and be familiar the use of spill kits.
  - Record the depth of the active layer and depth of the top and bottom of permafrost at the drill hole locations and report this info along with the dates of drilling to the Environment Department who shall in turn report it to the NWB.
  - Equipment shall not obstruct any stream.
  - Equipment storage holding areas will be located on gravel, sand or other durable land 31 m above the OHWM of any water body in order to minimize impacts on surface drainage and water quality.

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- Establish water quality conditions prior to and upon completion of any on-ice drilling program See OES: Water Sampling for On-Ice Drilling (Section 4.22) for more details.
- All water intake hoses shall be equipped with a screen of an appropriate mesh size, consistent with the requirements DFO's Interim Code of Practice: End-of-pipe fish protection screens for small water intakes in freshwater (2020) to ensure that fish are not entrained. Additionally, operators will ensure the water intake hoses withdraw water at such a rate that fish do not become impinged on the screen.
- Measures shall be provided to prevent and control erosion on the bed and banks of any water body.
- When withdrawing water from a stream for which approval from the NWB has not been received in writing, do not use more than 10% of the low flow of the stream.
- Do not withdraw water from any water body that will be drawn down without having approval in writing from the NWB. Refer to the requirements for requesting an approval to withdraw water from a water body that will be drawn down as specified in the Pre-Drilling Preparation and Acceptable Drill Locations.
- Drill water shall be obtained from water sources proximal to the drilling targets and shall not exceed a total of 250 $m^3$ per day for all drilling activities on the Project.
- Water use will be tracked using inline flow meters on intake lines and recorded on the Daily Drilling Inspection Reports (Appendix F - Drill Inspection Forms).
- Contain and re-circulate drill water to the fullest extent possible in order to reduce water usage. Utilize silt fences and natural depressions to prevent water from running into nearby watercourses and water bodies.
- Separate clean water from "dirty" water streams whenever possible, (by means of hose extensions and snow berms or other means that direct and keep discharge away from the immediate area of the drill hole) to prevent migration and expansion of a "dirty" water plume.
- Work shall be performed in such a way as to ensure that materials such as sediment, fuel and/or any other hazardous material does not enter watercourses and water bodies through the implementation of sediment control measures and proper hazardous materials management practices. In the event of a release to the environment, the approved Spills Contingency Plan shall be implemented. To maximize drill return water recirculation, casing is to be frozen into the ground to a depth of 3 - 6 m below grade. The specific depth of casing to be frozen into each hole and length of time to allow for freezing will be specified by the acting Supervisor.
- The drill water and cuttings spillage footprint shall be minimized through the use of berms, silt fences and/or other means of containment.
- Dispose of drill water into a properly constructed sump, or a naturally occurring contained depression. Drill water shall not be released directly to a nearby water course or to the ground.

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- Use portable containment sumps (bins), for drill water and cuttings where containment in the ground is impractical. The bins shall not overflow and shall be dumped by means of helicopter or pump, to the location identified for disposal of dirty drill water and cuttings.
- Drilling waste must not be allowed to spread to the surrounding land or water bodies; the footprint of any spillage must be minimized to the greatest degree practicable.
- In case of an artesian flow occurrence, drill holes shall be immediately plugged and permanently sealed to prevent induced contamination of groundwater or salinization of surface waters. Report the artesian flow occurrence as soon as possible to the Environment Department who in turn will report the occurrence to the NWB.
- For on-ice drilling, returned water released must be nontoxic, and not result in an increase in TSS in the immediate receiving water above the CCME guidelines for the protection of Fresh Water Aquatic Life (i.e., 10 mg/L for lakes with background levels under 100 mg/L or a 10% increase above background levels for those above 100 mg/L).
- For on ice drilling, collect water quality samples to be analyzed for metals parameters by an accredited analytical laboratory. Contact the Environment Department to request assistance to obtain sampling supplies, collect the water samples, and deliver the samples to an accredited laboratory.

- Drill Hole Abandonment:
  - Materials such as debris and drill cuttings shall not be left on the ice when there is potential for that material to enter a water body.
  - Restore, contour and stabilize constructed drill sumps, and other disturbed areas, to the pre-disturbed state immediately upon completion of drilling.
  - Return all combustible waste and petroleum products to camp for proper management and disposal.
  - Plug all drill holes upon completion, and where possible return drills cuttings at the surface to the drill hole at all land-based drilling locations.
  - Contour and stabilize all other disturbed areas upon completion of work and restore these areas to a pre-disturbed state.
  - Upon completion of a hole in rock, the casing will be removed. If the casing cannot be removed it will be cut off to be flush with surface and backfilled.
  - Remove all non-combustible garbage and debris from the land use area to an approved disposal site.
  - A Post-Drilling Inspection Report (Appendix F - Drill Inspection Forms) will be filled out at the completion of each drill hole.
  - Ensure a copy of all Pre-Drilling, Post-Drilling and Daily Drill Inspection Reports for all drill holes are submitted to the Environment Department at the completion of each drilling program.

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### 4.5.3 RELATED DOCUMENTS

- Appendix F - Drill Inspection Forms
- FSSWMP (BAF-PH1-830-P16- 0010)
- SWAEMP (BAF-PH1-830-P16-0026)
- DFO Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html)
- Exploration Spill Contingency Plan (BAF-PH1-830-P16-0037)
- Emergency Response Plan (ERP) (BAF-PH1-840-P16-0002)
- NWB - Type “B” Water Licence – 2BE-MRY2131

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## 4.6 EQUIPMENT OPERATION AND MOBILIZATION

### 4.6.1 ENVIRONMENTAL CONCERNS

Mobile equipment emits noise and air emissions, are potential sources of leaks and spills and can cause rutting and land disturbances, as well as disturbance of archaeological sites if necessary clearances have not been obtained. Noise associated with equipment use and mobilization may negatively affect neighbors. Air emissions may have air quality implications. Accidental leaks or spills of fuel or other hazardous materials may affect soils, water quality, fish and fish habitat, and wildlife.

### 4.6.2 ENVIRONMENTAL PROTECTION MEASURES

- Damage to archaeological sites will be avoided by following the protection measures outlined in the OES: Cultural Heritage and Archaeology Resources (Section 4.1).
- Rutting and land disturbance will be minimized by following the protection measures outlined in the OES: Land Disturbance (Section 4.3).
- The primary mitigation for noise is to ensure that all mobile equipment is equipped with properly functioning mufflers and that all mobile equipment and machinery is well-maintained.
- All spills involving equipment shall be reported to the Environment Department immediately and documented by submitting the necessary documentation within four (4) hours of the spill using the Baffinland Incident Investigation Form. If the release meets the limits for external reporting, the Environment Department will complete and submit a NT-NU Spill Report Form (Appendix G - NT-NU Spill Report Form) to the appropriate regulatory agencies. See OES: Spill Control Measures and Reporting (Section 4.33) for more details on spill reporting. Pre-operational inspections will be performed on all equipment and recorded in the equipment's Pre-Operational Inspection Logbook. If deficiencies are found during the inspection that affect the safe operation of the equipment, units must be placed out of service until repairs are complete.
- Equipment operators will be trained and licensed to operate their particular equipment; training will be provided for operators before operating any new equipment.
- Spill trays must be placed underneath equipment and vehicles that are in mid-term and long-term storage (i.e. equipment that is not being used for more than five (5) days) to provide secondary containment to prevent spills due to product leaks. The positioning of spill trays under vehicles must be based on an analysis of the potential points of leakage for the subject equipment or vehicle including engine oil pans, hydraulic oil pumps, fittings, and hoses, radiators, coolant reservoirs, fittings, and hoses, and fuel pumps, filters, tanks and hoses. This is not required if the equipment has been confirmed and labelled as having been drained of all fluids.
- Spill trays must be used under stationary equipment that contains fuel such as portable generators, frost fighters, and light plants to capture any overflow during refueling.

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### 4.6.3 RELATED DOCUMENTS

- Appendix G - NT-NU Spill Report Form
- Incident Investigation Form (BAF-PH1-810-FOR-0005)
- Air Quality and Noise Abatement Management Plan (BAF-PH1-830-P16-0002)

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## 4.7 FUEL STORAGE AND HANDLING

Permanent and temporary fuel storage facilities have been constructed at Project Sites. At Milne Port and the Mary River Mine Site, fuel is stored in bulk storage facilities consisting of steel fuel tanks and bladders located within lined containment berms. Small quantities of fuel are stored in barrels and double walled ISO tanks within constructed containment berms at the Steensby and Mid-Rail Exploration Camps.

### 4.7.1 ENVIRONMENTAL CONCERNS

Accidental and uncontrolled leaks, releases and spills of fuel may occur due to improper storage, poor handling procedures or equipment malfunction. Fuel releases to the environment have the potential to negatively affect worker health and safety as well as soil quality, aquatic life and wildlife. The potential for fuel spills is addressed through Baffinland's ERP and Spill Contingency Plan.

#### 4.7.1.1 ENVIRONMENTAL PROTECTION MEASURES

- Personnel refueling equipment or vehicles will supervise re-fueling at all times and will not leave fuel transfer operations unattended.
- Avoiding ship-to-shore transfer of fuel during freeze-up or break-up periods.
- Undertake fuel transfer from vessels to shore under good weather conditions.
- Transfer of fuel to storage tanks or to vehicles shall be conducted by a fully-trained and qualified person.
- Exposed pipelines shall be protected from damage by vehicular collision through the installation of guard rails or barriers.
- Hoses and pipes used for fuel transfer shall be equipped with properly functioning and approved check valves that are spaced to prevent backflow of fuel in the case of failures.
- All spills shall be reported to the Environment Department immediately and documented by submitting the necessary documentation within 4 hours of the spill to using the Baffinland Incident Investigation Form and NT-NU Spill Report Form (Appendix G - NT-NU Spill Report Form). See OES: Spill Control Measures and Reporting (Section 4.33) for more details on spill reporting.
- All fuel storage tanks will be inspected on a regular basis and will be in accordance with the requirements outlined in the Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products, issued by the CCME.
- Daily inspections of the permanent fuel storage and dispensing facilities, located at Milne Port and the Mary River, will be conducted by the Site Services Department using the Daily Tank Farm Inspection Checklist found in the tank farm inspection SOP.
- Fuel tanks at the permanent fuel storage and dispensing facilities, located at Milne Port and the Mary River Mine Site, will be dipped monthly by the Port & Logistics Department to confirm fuel levels and total fuel inventory using the Fuel Tank Dipping Form (Appendix I - Fuel Tank Dipping Form).

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- Fuel storage containers will be stored in secondary containment and shall not be placed within 31 m of the OHWM of any water body.
- All mobile equipment will be serviced and fueled on land at least 31 m above the OHWM of any water body. No petroleum or chemical product will be allowed to spread to surrounding lands or into water bodies.
- All fuel containers shall be sealed and labelled with the name Baffinland Iron Mines Corporation.
- Waste oils, lubricants, and other used hydrocarbon products shall be placed in drums, labeled as waste materials, and stored in a contained area until removed from site for disposal at an approved, licensed waste management facility (Section 4.16 - Hazardous Material & Hazardous Waste Management).
- All fuel storage areas shall be inspected on a regular basis. See OES: Compliance Inspections (Section 4.32). Examine all fuel storage containers in your work area for leaks at least once per day.
- Repair all leaks immediately.

### 4.7.2 RELATED DOCUMENTS

- Appendix G - NT-NU Spill Report Form
- Appendix H - Daily Tank Farm Inspection Form
- Appendix I - Fuel Tank Dipping Form
- Incident Investigation Form (BAF-PH1-810-FOR-0005)
- SWAEMP (BAF-PH1-830-P16-0026)
- ERP (BAF-PH1-840-P16-0002)
- Spill Contingency Plan (BAF-PH1-830-P16-0036)
- Exploration Spill Contingency Plan (BAF-PH1-830-P16-0037)
- Milne Port Oil Pollution Emergency Plan (BAF-PH1-830-P16-0013)
- Bulk and Equipment Re-Fueling Procedure (BAF-PH1-350-PRO-0010)
- NWB – Type “A” Water Licence (2AM-MRY1325 Amendment No. 1)

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## 4.8 AIRCRAFT FLIGHTS

The construction and operation phases of the Project involve air traffic consisting of flights made by helicopters, smaller twin-engine fixed wing aircraft and chartered flights by commercial jets. The high level of aircraft use requires pilots and personnel directing pilots to be aware of the potential disturbances to wildlife and the requirements of the various permits and licenses issued to Baffinland. Additionally, Inuit hunters may be moving through the Project Area at any time of the year, and Baffinland has committed to minimizing the disturbance of local users to the extent possible. All personnel are responsible for operating in accordance with the legal requirements and commitments outlined in this OES, however, safety is the most critical aspect of aircraft operations and safety considerations supersede other concerns.

### 4.8.1 CONCERNS REGARDING WILDLIFE

Aircraft can cause disturbance to wildlife by interrupting their activities (i.e. feeding, calving, migration, etc.) and potentially causing the animals to migrate away from important habitat areas. Caribou, important to Inuit culture and diet, can be sensitive to aircraft noise. Disturbance of caribou has the greatest effect prior to, during and following calving (approximately mid-May to mid-July). Migratory birds are also disturbed by low-level overflights.

### 4.8.2 CONCERNS REGARDING INUIT LAND USE

Aircraft can disturb hunters or other land users during low level flights by disturbing the people and/or the wildlife they may be pursuing. Land users travel over land and ice from roughly November through late June to early July. August is particularly important for use of boats due to the short duration of open water. Land users may travel by boat and camp in Milne Inlet, and may travel inland hunting caribou by walking or using all-terrain vehicles. Remember that local land users were here prior to the Project.

### 4.8.3 ENVIRONMENTAL PROTECTION MEASURES

- Minimize the number of flights to the extent possible.
- Subject to safety requirements, all Project-related aircraft will maintain a minimum cruising altitude of:
    - 650 m above ground level during point-to-point travel when in areas likely to have migratory birds;
    - 1,100 m above ground level and 1,500 m horizontal distance from observed concentrations of migratory birds; and
    - 1,100 m above ground level over the Snow Goose Area identified in Map 2 during the moulting period from July to August if travel over this area cannot be avoided. If maintaining this altitude is not possible, maintain a lateral distance of at least 1,500 m from the boundary of the site.

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- Employees are responsible for reporting any improper flight practices to the appropriate supervisor.
- Avoid caribou calving sites between May 15 and July 15, as identified by Project biologists or observed by aircraft pilots.
- Pilots shall report caribou movements and locations during calving and post-calving periods to the Environment Department, so that these areas can be avoided.
- All large concentrations of wildlife are identified, pilots will be informed and aircraft will avoid these areas to the extent possible.
- Plan routes that are likely to have the least occurrences of wildlife.
- Hovering or circling over wildlife may greatly increase disturbances and will be avoided.
- Flights between Pond Inlet and Mary River will be routed so as to minimize interruption with community activities within the fiords between the site and the community.
- The Environment Department will inform pilots of sensitive areas for wildlife and aircraft will avoid these areas to the extent possible.
- All wildlife sightings are to be recorded in the Wildlife Log.
- For details on reporting wildlife sightings, refer to OES: Wildlife Log (Section 4.23)

### 4.8.4 EXCEPTIONS

- Low-level flights are required during slinging operations in the vicinity of the Mine Site, Milne Port, Steensby Camp, and on occasion at other locations, or where short distances are involved.
- Low-level flights are permitted during wildlife surveys, as directed by the Project biologists in accordance with wildlife research permits.

### 4.8.5 RELATED DOCUMENTS

- NIRB Project Certificate No. 005
- Air Quality and Noise Abatement Management Plan (BAF-PH1-830-P16-0002)
- Terrestrial Environment Mitigation and Monitoring Plan (BAF-PH1-830-P16-0027)
- Helicopter Use Procedure (BAF-PH1-400-PRO-0014)

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## 4.9 SEDIMENT AND EROSION CONTROL

### 4.9.1 ENVIRONMENTAL CONCERN

Land disturbances during Project activities Including road construction and operation, culvert installation, and excavation of borrow locations and quarries have the potential to cause erosion and release sediment-laden runoff into nearby watercourses and water bodies. The movement of soil can also result from natural conditions such as changes in landscape form associated with changes in the permafrost profile. Seasonal conditions, particularly during freshet and heavy precipitation events, also have the potential to release sediment-laden runoff into watercourses as high volume runoff travel over Project impacted areas. Baffinland is required to incorporate best management practices where necessary to minimize or prevent surface water runoff from entering nearby water bodies. Sediment and erosion control measures may include, but are not limited to, silt fencing, erosion control mats (fascines), sedimentation ponds, erosion blankets/geotextile lining, sand bags, terraces, benching, use of flocculants and riprap structures. Personnel are responsible for the implementing erosion and sedimentation control measures prior to the initiation of construction activities and during ongoing Mining Operations (i.e., clearing, grubbing, development of facilities, etc.) in each specific work area.

### 4.9.2 ENVIRONMENTAL PROTECTION MEASURES

- The SWAEMP will be referenced to prevent and/or mitigate sediment loading into surface water within the Project area.
- The size of the disturbed area and duration of soil exposure shall be limited as specified in the construction schedule and IFC drawings.
- Road embankments, watercourse crossing installations and borrow areas shall be constructed in accordance with approved plans and procedures.
- Temporary and permanent drainage installations shall be designed, constructed, and maintained to an appropriate standard.
- Topsoil and overburden stockpiles shall be contoured, where practicable, with established drainage routes around the stockpiles, as specified by the Environment Department.
- The deposition of debris or sediment into or onto any water body during the construction of access roads, site laydown pads and areas of other earthworks is prohibited.
- To prevent sedimentation into adjacent water bodies, stockpiling of debris must take place at a distance greater than 31 m from the OHWM of nearby water bodies. Fill material placed below 31 m of the OWHM, where specifically authorized, will be either erosion resistant or protected from erosion and only clean fill will be used.
- Stream bank sections and slopes that contain loose or erodible materials shall be stabilized through the application of filter fabrics or geotextile in conjunction with riprap. Sediment control measures

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will be installed prior to watercourse crossing installations (Section 4.18- Tote Road Watercourse Crossing Installation).

- Appropriate sediment and erosion control measures will include a combination of silt fences, silt (turbidity) curtains, sediment traps, settling ponds and gravel berms.
- Access and haul roads shall be constructed with gradients or surface treatment and drainage systems to limit the potential for sediment-laden run-off and erosion (Section 4.17– Road Construction and Borrow Development).
- Borrow activities will be concentrated to the maximum extent possible to limit the area of disturbance.
- At borrow areas, drainage patterns will be re-established to near natural conditions.
- Turbidity monitoring will be conducted at watercourses by Environmental Technicians during and after construction activities when necessary.
- Personnel shall maintain, as required, all sediment and erosion control measures following rain or storm events to minimize further environmental damage. All repairs shall be undertaken under the direction and to the satisfaction of the Environment Department.

To mitigate possible permafrost degradation from surface material removal, the following measures will be implemented throughout the Project:

- Removal of surface material should be avoided where possible to reduce permafrost degradation and will occur only at approved locations.
- Areas will be graded by filling in low areas rather than cutting into high areas; where feasible.
- Pooling water will be diverted from low-lying areas through constructed drainages or pumping.
- The grade of low-lying areas with pooling water resulting from the removal of surface material will be restored with material from other construction projects when possible.
- Use of insulating material or erosion control material, such as concrete fabric or riprap, will be utilized to reduce erosion and potential permafrost degradation, as required.

Culverts that are installed along water crossings shall meet the following criteria:

- Install culverts at the same slope as the existing stream, where feasible.
- Minimize culvert lengths.
- Culvert design velocities should aim to achieve similar velocities within the typical natural channel.
- An increase in the velocity of flow due to channelization of flow and conveyance in culverts should be mitigated by stream replication techniques such as the placement of rocks and boulders or manufactured culvert baffles inside the culverts to provide greater friction; thereby reducing velocities and increasing the flow depth to provide resting locations for fish.

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Additional guidance for managing surface material and mitigating permafrost degradation during construction and operations at the Project are provided in the Borrow Pit and Quarry Management Plan.

Personnel may be instructed to implement additional sediment and erosion control measures by the Environment Department to ensure adequate protection and mitigation measures.

### 4.9.3 RELATED DOCUMENTS

- SWAEMP (BAF-PH1-830-P16-0026)
- Borrow Pit and Quarry Management Plan (BAF-PH1-830-P16-0004)

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# 4.10 POLAR BEAR ENCOUNTERS

## 4.10.1 ENVIRONMENTAL CONCERN

Polar Bear encounters at the Project pose an immediate threat to life, health, safety, environment and property. Therefore, the Polar Bear Safety Plan is to be used in conjunction with the ERP.

Polar bears are protected in Canada where they are legally hunted. Seasons, protected categories and quotas apply. The *Nunavut Wildlife Act* (2005) establishes a comprehensive regime for the management of wildlife and habitat. The Act provides that it is legal for anyone to attempt to deter, and if necessary destroy, a bear in defense of life or property. Any bear killed must be reported to the nearest Conservation Officer. It is an offense to allow the hide of a polar bear to spoil. Site personnel are required to comply with the requirements provided in the Polar Bear Safety Plan, which provides detailed information on mitigation and safety measures pertaining to polar bear encounters.

## 4.10.2 ENVIRONMENTAL PROTECTION MEASURES

- Site and working areas will be kept clean of food scraps and garbage at all times. Effective waste management is the most effective measure to reducing the likelihood of encounters. All waste will be disposed of in accordance with the Waste Management Plan.
- Prior to commencing work activities at any location (at Project sites and off-site work areas), workers shall scan the surrounding area for evidence of polar bears. Use vehicle headlights or spotlights to scan the area if it is dark.
- In the event a polar bear is sighted, retreat to a secure location such as a building, vehicle or predetermined area. Do not remain in an unsafe situation to view or photograph a polar bear.
- Work crews at locations removed from the main work crew will maintain communications with the Polar Bear Monitor and maintain a safe retreat area at each work site.
- Do not attempt to chase, catch or follow polar bears under any circumstance.
- All polar bear sightings must be reported immediately to the Environmental Superintendent or their designate, regardless of the time of day.
- Bear monitors will be posted at coastal locations and will accompany remote field crews that do not have full-time air support.
- Polar bears that attempt to approach work sites or personnel must be actively deterred by shouting or use of noise makers such as bear bangers whenever possible by ERT. The Environmental Superintendent will authorize and coordinate the use of deterrent measures. A defence kill is to be used as an absolute last resort only when there is an imminent risk to human safety.
- Helicopters may be used to haze and deter polar bears away from camps only under the authorization and direction of the Environmental Superintendent or their designate.
- Any defensive kills must be reported immediately to the Environmental Superintendent or their designate, who will notify the QIA, the HTO of the community or communities affected (Mittimatalik

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HTO as primary community, Igloolik HTO as secondary), and the responsible government authority. The IIBA and the Reporting Procedure for Wildlife Incidents outline the protocols to be followed in the event of a defensive kill or polar bear mortality. The meat must not be allowed to spoil and the animal will need to be dressed immediately and the meat and pelt appropriately stored until transportation is available to the designated affected community.

- Routine completion of Polar Bear Readiness Audit to ensure that all requirements for response to polar bear mortalities are in place.

### 4.10.3 RELATED DOCUMENTS

- Appendix J - Polar Bear Readiness Audit Form
- Inuit Impact Benefit Agreement
- QIA Directive 2013-1-17-2
- ERP (BAF-PH1-840-P16-0002)
- Polar Bear Safety Plan (BAF-PH1-830-P16-0041)
- Reporting Procedure for Wildlife Incidents (BAF-PH1-830-PRO-0007)
- Waste Management Plan (BAF-PH1-830-P16-0028)
- GN - Nunavut Wildlife Act (2005)

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## 4.11 FOX AND WOLF ENCOUNTERS

### 4.11.1 ENVIRONMENTAL CONCERN

Foxes and wolves can become habituated to sites where they can access food and food waste. This situation can arise from intentional feeding by personnel or improper waste management practices. Once such food conditioning has occurred, wild animals may lose their fear of humans and may approach personnel in an aggressive manner. Rabies is usually endemic in fox populations. Habituated foxes that act aggressively need to be dealt with immediately.

### 4.11.2 ENVIRONMENTAL PROTECTION MEASURES

- Site and working areas will be kept clean of food scraps and garbage at all times. Effective waste management is the most effective measure to reducing the likelihood of encounters. All waste will be disposed of in accordance with the Waste Management Plan.
- Wildlife will not be intentionally fed under any circumstances. The consequences of such actions will lead to major disciplinary action.
- Solid carnivore proof skirting shall be installed along all kitchen and accommodation buildings to prevent access for animals under buildings.
- Fox and wolf sightings will be recorded in the Wildlife Log (Appendix K - Wildlife Log) at site accommodations or work areas. Wolf sightings are to be reported to the Environment Department immediately.
- Wildlife attempting to approach personnel will be deterred by shouting, chasing and using noise makers, such as bear bangers. Should those deterrents not work, the site Environment Superintendent and Health, Safety and Security Superintendent will be notified immediately for their assessment. Typically, wolves can be readily deterred by the above methods. Based on site experience, foxes are less responsive to deterrence. Due to the high incidence of rabies in foxes on Baffin Island, foxes that exhibit aggressive behavior to humans, regardless of deterrence measures, are presumed to be rabid. The Environmental Superintendent and Health, Safety and Security Superintendent will assess the situation and determine whether a likely rabid fox will be dispatched by lethal shot.
- In the rare situation where a lethal shot is necessary, approval to proceed will be provided by the Environment Superintendent. Only personnel authorized to use firearms will take a lethal shot. This task will be conducted so that personnel, equipment and infrastructure are not endangered. If rabies is suspected, a body shot will be taken, and the carcass will be handled to avoid direct physical contact. The carcass will be incinerated immediately, and the Environment Department will notify responsible government authorities and stakeholders in accordance with the Reporting Procedure for Wildlife Incidents.

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- Fox and wolf interactions with Project activities will be documented and included in the Wildlife Logs (see Section 4.23) and annual reports.
- No drilling activity should take place within 2 km of an active wolf den between mid-May and mid-August if direct line of sight and disturbance is noted. Contact the Environment Department to determine if a den is in the vicinity of operations.
- Qualified biologists may survey for carnivore (wolf and fox) dens, and an avoidance zone will be established around den locations in consultation with the Project Biologist. All Personnel will adhere to wildlife and den avoidance guidelines during the denning season.

### 4.11.3 RELATED DOCUMENTS

- Appendix K - Wildlife Log
- Terrestrial Environment Mitigation and Monitoring (BAF-PH1-830-P16-0027)
- Waste Management Plan (BAF-PH1-830-P16-0028)
- Reporting Procedure for Wildlife Incidents (BAF-PH1-830-PRO-0007)

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## 4.12 CARIBOU PROTECTION MEASURES

### 4.12.1 ENVIRONMENTAL CONCERN

Caribou are currently present in relatively low numbers in the Project area, but their numbers and encounter rates are expected to increase through the life of the Project. Caribou harvesting is important to local communities, so there is added importance to ensuring the Project operates with minimal potential effects on caribou. The potential effects on caribou include those from disturbance, primarily due to noise and other sensory disturbances from project activities. The primary mitigation for caribou is avoidance followed by monitoring.

A zone of influence (ZOI) of 3 km from project activities has been defined for stationary activities such as camps, mining and drilling during the pre- to post-calving time period between May 15 and July 15. At other times of the year, the caribou are less sensitive and a ZOI of less than 3 km is likely.

### 4.12.2 ENVIRONMENTAL PROTECTION MEASURES

The following measures will be implemented to minimize disturbance to caribou:

- Employees are not permitted to hunt or fish (harvest) on lands leased to Baffinland. All personnel shall return home between shift rotations and shall not be permitted to stay in the area to hunt or fish as part of their shift rotations.
- Mobile equipment and vehicles shall yield the right-of-way to wildlife.
- Snow management activities will maintain a snow bank height less than 1 m along the Tote Road with smooth top edges to permit caribou to cross the transportation corridor without being blocked by steep snow banks.
- Along the Tote Road, traffic is to slow down and maintain distance from caribou and other wildlife as much as possible. If necessary, traffic will stop to enable crossings of groups of caribou or to allow groups of caribou paralleling the road to move into adjacent habitat. Caribou occurrence in the vicinity of the road and their responses to traffic will be monitored by on the ground behavioral observations, to determine if it is apparent that caribou are being disturbed or displaced by construction or traffic. Specific guidance is provided in the Caribou Encounter Decision Tree located in (Appendix L - Caribou Encounter Decision Tree).

All caribou sightings will be immediately reported to the Environment Department, who will record and track geo-referenced records of caribou sightings to enable Project biologists to monitor caribou activity in relation to the Project. Active caribou calving sites (as identified by Project biologists or observed by aircraft pilots) will be avoided between May 15 and July 15 and, where possible, there will be no increase in mine construction or operational activity within 3 km of the calving sites during this time period.

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- If any females (one or more) are observed within 3 km of a planned project activity such as drilling or road construction between May 15 and July 15,the activity location will either be moved or the activity deferred, as appropriate and if possible, until a later date when caribou are not present.
- Should a female caribou or a female with calves approach within 3 km of Project activities (between May 15 and July 15), the caribou will be observed on the ground. If it is obvious they are being disturbed, the activity will cease until they have moved at least 3 km away.
- If caribou approach a project activity site before work commences, the Environment Department shall be notified immediately and will determine the necessary measures that need to be taken to protect caribou activity.
- If caribou approach a project site while work is in progress, caribou will be observed for signs of disturbance.
- If the caribou are disturbed, the activity will be modified or cease until the caribou have moved away or they are guided away from the worksite.
- If caribou are observed within 3 km of a proposed new drill site and disturbance is noted, the drill should be moved to an alternate location and activity at the site deferred until after the caribou leave the area. If the drill is already in place and operating, and caribou move into the area, the caribou should be monitored by the Project Biologist or Environmental personnel. If the caribou show no obvious signs of disturbance, drilling activities can continue. If the animals appear agitated, then activities must cease until the caribou leave.
- When necessary, a wildlife monitor will be periodically present on site during the calving season to detect calving activities near the Tote Road, monitor cow/calf behavior in relation to traffic, designate a temporary no-stopping zone, guide traffic and document measures taken to reduce sensory disturbance to calving caribou.
- Where necessary, monitoring and mitigation measures will be implemented at points where the railway, roads, trails, and flight paths pass through caribou calving areas, particularly during caribou calving times.
- Protocols will be implemented for documentation and reporting of all caribou collisions and mortalities as well as mechanisms for adaptive management responses designed to prevent further interactions.

### 4.12.3 RELATED DOCUMENTS

- Appendix K - Wildlife Log
- Appendix L - Caribou Encounter Decision Tree
- Terrestrial Environment Mitigation and Monitoring Plan (BAF-PH1-830-P16-0027)
- Hunting and Fishing (Harvesting) Policy – On or Near Baffinland Leased Lands (BAF- PH1-820-POL-0001)

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## 4.13 BIRD PROTECTION MEASURES

### 4.13.1 ENVIRONMENTAL CONCERN

Birds are generally widespread and often encountered in the North Baffin Region. Virtually all of these birds are migratory. The main concern with birds is the potential for some aspects of the Project to disrupt nesting and migratory patterns. Birds are an important part of the food chain in the Arctic ecosystem and changes in their numbers and distribution will directly affect predators like raptors and foxes that rely on them as a readily available source of food. It is against the law to disturb or destroy an active migratory bird's nest (Migratory Bird Convention Act and regulations).

### 4.13.2 ENVIRONMENTAL PROTECTION MEASURES

The following measures will be implemented to minimize disturbance to birds and bird nests:

- Personnel are not permitted to hunt birds.
- During the Active Migratory Bird Nesting Season from May 31 to August 5, an AMBNS must be completed prior to commencement of any land clearing or new disturbance. This AMBNS requirement is included on the required Land Disturbance Form for land disturbance activities, and the completed form must be submitted to the Environment Department well in advance of the required start date for the construction project to allow the Environment Department to properly plan and execute the AMBNS.
    - Once the survey is complete, the land disturbance must begin and disturb the entire area within five (5) days of the survey, or the survey will expire and another one must be completed.
    - The survey will be conducted using the field form in Appendix C.
    - The AMBNS involves on the ground inspections using a systematic grid sweep for bird nests and eggs. Active nest sites will be identified through observation of high densities of birds, nests, or birds exhibiting territorial behavior indicating a nearby nest. Active nests must not be destroyed or disturbed.
    - Precaution will be taken to avoid disrupting nest sites, if these are discovered.
    - Any nests found (or indicated nests) will be protected with a buffer zone determined by Environment Department in accordance with the setback distances outlined in the Terrestrial Environment Mitigation and Monitoring Plan until the young have fledged. If it is determined that observance of these setbacks is not feasible, nest-specific guidelines and procedures shall be developed to ensure the nests and their young are protected.
    - All equipment placement, drills, pumps and waterlines must be placed outside of the designated protective buffer zone set back distance.
    - All personnel must avoid active nest sites. Active nests cannot be destroyed.

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- Shoreline and waterline routes will be inspected for breeding birds, nests, and post-hatch young before any waterlines for drills are placed. Personnel should remain more than 100 m from these nest sites at all times and time spent on hose alignment should be minimized to reduce disturbances in areas between water source and drilling activities.
- Active raptor (falcons, hawks and owls) nests will be avoided by relocation of Project activities, if possible. Where possible or practical, Project activities will be relocated at least 500 m from known active raptor nests during the breeding season, or the activity will be rescheduled outside of the breeding season (mid-April to mid-August). An individual nest protection plan will be produced by an avian biologist to direct activities within 500 m, or other appropriate distance, of the nest if it is not possible to relocate the nest or delay the Project activities.
- Bird sightings, particularly raptors or large concentrations of birds, should be reported to the Environment Department and recorded in the Wildlife Log (Appendix K - Wildlife Log) posted at site accommodations and work areas and reported to Project Biologists.
- If Species at Risk, or their nests and eggs, are encountered during Project activities, the primary mitigation will be avoidance. Personnel shall establish clear zones of avoidance on the basis of the species-specific nest setback distances outlined in the Terrestrial Environment Mitigation and Monitoring Plan.
- Guy-wire deterrents will be used on communication towers established at the Project. Consideration will be given to reducing lighting when possible in areas where it may serve as an attractant to birds or other wildlife.
- Whenever practical and not causing a human safety issue, a stop work policy shall be implemented when wildlife in the area may be endangered (at risk of immediate injury or death) by work being conducted.

### 4.13.3 RELATED DOCUMENTS

- Appendix D - Land Disturbance Form
- Appendix K - Wildlife Log
- Appendix M – Active Migratory Bird Nest Survey Field Sheet
- Terrestrial Environment Mitigation and Monitoring Plan (BAF-PH1-830-P16-0027)
- Migratory Bird Convention Act (1994)

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# 4.14 SOLID WASTE MANAGEMENT

## 4.14.1 ENVIRONMENTAL CONCERN

Solid wastes are non-liquid, non-soluble materials including domestic garbage, food wastes, construction debris, commercial refuse, non-combustible and non-hazardous materials. Solid waste materials at site will be re-used and recycled wherever possible and feasible. Where it is not possible or feasible, the two main methods of solid waste treatment and/or disposal are incineration and landfilling. Solid waste, if not properly disposed of, may cause health and safety concerns to personnel, attract wildlife, and impair the aesthetics of Project areas. If unapproved wastes (i.e. hazardous or organic wastes) are placed in the landfill, poor quality landfill leachate may be generated and potentially affect nearby watercourses and water bodies. This could also lead to attracting wildlife and increase wildlife interactions.

## 4.14.2 INCINERATION

Domestic wastes that cannot feasibly be re-used or recycled, are incinerated on-site. Combustible non-hazardous wastes (i.e., food scraps, oily rags, paper and small plastics, etc.) generated at the Project are incinerated to minimize the negative impacts of attraction vectors to wildlife. The composition of the incinerator ash generated depends on the types of waste that were incinerated. Routine incinerator ash sampling and testing is performed to classify incinerator ash generated by the Project, based on GN criteria[1]. Incinerator ash that is confirmed to be non-hazardous may be landfilled on-site while incinerator ash that is found to be hazardous is shipped off-site for final disposal. Incineration of hazardous wastes, non-combustible materials, or treated wood products is prohibited. Used oil may be burned in waste oil burners if it complies with the GN's Environmental Guideline for Used Oil and Waste Fuel (GN, 2012).

## 4.14.3 OPEN BURNING

Untreated, clean wood waste products including lumber, timber, and pallets as well as paper products and cardboard packaging that cannot feasibly be re-used or recycled will be burned onsite at approved open-burn locations at the Project. Any treated and/or painted waste wood products, including plywood or particle board, is not permitted for open burning. Open burning shall strictly be operated in an open top sea container at an approved Open Burning facility as per the requirements provided in the Open Burning of Untreated Wood, Cardboard and Paper Products Procedure. Open burning of hazardous wastes, non-combustible materials, food waste, plastics, Styrofoam or treated wood products (plywood) is prohibited. Bottom ash from the open burning of paper products and untreated waste wood is suitable for disposal at Project Landfill facilities. Ash is removed from Project Open Burn facilities as required.

[1] Outlined in the Environmental Guidelines for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities provided by the Department of Environment of the Government of Nunavut (2011).

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### 4.14.4 INERT WASTE LANDFILL

Inert, non-combustible and non-hazardous waste generated by Project activities will be disposed of at Project Landfill facilities, as per the requirements provided in the Landfill Maintenance and Operation Manual. This includes plastics, cement, used construction material, treated wood (including manufactured wood such as particle board and plywood), rubber, scrap metal, pipes, glass, non-hazardous ash, etc.) . Disposal of all domestic (food) waste, hazardous, and biomedical materials at Landfill Facilities is prohibited.

### 4.14.5 ENVIRONMENTAL PROTECTION MEASURES

- Waste generated at the Project will be segregated following the Waste Management Plan. Collection of wastes at Project sites will be completed by trained personnel from the Site Services Department and transported to the appropriate waste management facilities including incineration facilities, approved Open Burn facilities, Landfill Facility, or backhauled off-site for proper disposal at a licensed waste facility (Section 4.16– Hazardous Material and Waste Management).
- To ensure removal of prohibited wastes, secondary waste segregation will be completed during the loading process at Open Burn facilities.
- Project waste will be managed to ensure that it is prevented from entering nearby water bodies. Areas designated as waste disposal or storage locations will be located at a minimum distance of thirty-one (31) meters from the OHWMs of nearby water bodies.
- Un-treated, clean wood waste products including lumber, timber, and pallets as well as paper and cardboard packaging that cannot feasibly be re-used or recycled will be burned onsite at an approved Open Burn facility.
- Project domestic waste will be collected in secure containers, removed daily, and incinerated as soon as practicable. All containers containing food waste or items potentially contaminated by food (i.e. food packaging) shall be secured in animal-proof storage waste bins or sea cans to prevent access by wildlife.
- Sewage sludge generated at STPs will be dewatered and incinerated on-site or backhauled for off-site disposal at a licensed waste facility, or landfilled in the mine site landfill facility, if it is confirmed that the sludge is non-hazardous. Prior to disposing sludge in the mine site landfill facility, analytical testing results that verify the sludge to be non-hazardous must be provided to the NWB for review or the NWB must otherwise approve disposal of the sludge in the landfill in writing. Sludge will be stored in an animal proof secure area until picked up for disposal.
- Waste accumulated on site prior to disposal will be confined so that it does not pose health or environmental hazards.
- Time lapse between collection and disposal shall be minimized to the extent practical.
- All combustible waste and debris will be stored and covered until disposal.

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- Additional training will be provided to the kitchen and accommodations staff on sorting camp domestic wastes.
- All personnel are responsible for daily clean-up of the area in which their work activities are being conducted.
- All waste backhauled for off-site disposal will be manifested using the Off-Site Waste Disposal Log (Appendix N - Off-Site Waste Disposal Log) for tracking purposes (Section 4.16– Hazardous Material and Waste Management).
- Groundwater monitoring is conducted around the Landfill Facility to monitor, prevent, and/or mitigate any potential effects on groundwater from the operation of the facility.
- A perimeter fence surrounds the Landfill Facility to capture any windblown debris and deter wildlife.

### 4.14.6 RELATED DOCUMENTS

- Appendix N – Off-Site Waste Disposal Log

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## 4.15 WASTEWATER TREATMENT

### 4.15.1 ENVIRONMENTAL CONCERN

Wastewater, including sewage, grey water, and oily (contaminated) water (i.e. wash-water generated at vehicle maintenance facilities, surface water that collects within storage berms) will be generated throughout the lifecycle of the Project. The quantity of treated effluent discharged from the STPs and OWTSs will be monitored and recorded using inline flow meters. To fulfill the requirements of Baffinland's Type "A" Water Licence, routine water quality sampling of treatment effluent is completed at STPs by an accredited laboratory to confirm that effluent quality meets applicable discharge criteria and is acceptable for release into the receiving environment. Similarly, treated effluent from the OWTSs is monitored during operation using an accredited laboratory and by Baffinland's internal environmental laboratory.

Uncontrolled or untreated releases of wastewater to the environment may impact drinking water, aquatic resources, wildlife and human health and must be reported immediately to the Environment Department (see Section 4.33- Spill Control Measures and Reporting).

### 4.15.2 ENVIRONMENTAL PROTECTION MEASURES

- The operation of STPs and OWTSs is conducted in accordance with Baffinland's Type "A" Water Licence, in conjunction with the FSSWMP.
- Raw wastewater and final effluent quality will be sampled and tested according to the requirements of Baffinland's Type "A" Water Licence. The quality of the STP effluent discharging to freshwater or to the ocean shall meet the applicable site discharge limits shown in Table 4 and Table 5 below. All effluent discharges of treated oily water/wastewater to the receiving environment will be discharged to meet the effluent discharge criteria shown in Table 6 below.

**TABLE 4: EFFLUENT QUALITY DISCHARGE LIMITS FOR SEWAGE TREATMENT FACILITIES TO FRESHWATER RECEIVING ENVIRONMENT (MS-01, MS-01B)**

| Parameter | Maximum Concentration of Any Grab Sample (mg/L) |
|---|---|
| BOD | 30 |
| Total Suspended Solids | 35 |
| Faecal Coliform | 1000 CFU/100 mL |
| Oil and Grease | No visible sheen |
| pH Between | 6.0 and 9.5 |
| Ammonia (NH3-N) | 4.0 |
| Total Phosphorous | 4.0 |
| Toxicity | Not acutely toxic |

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**TABLE 5: EFFLUENT QUALITY DISCHARGE LIMITS FOR SEWAGE TREATMENT FACILITIES TO THE OCEAN (MP-01, MP-01B)**

| Parameter | Maximum Concentration of Any Grab Sample (mg/L) |
|---|---|
| BOD | 100 |
| Total Suspended Solids | 120 |
| Faecal Coliform | 10, 000 CFU/100 mL |
| Oil and Grease | No visible sheen |
| pH | Between 6.0 and 9.5 |
| Toxicity | Not acutely toxic |

**TABLE 6: EFFLUENT QUALITY DISCHARGE LIMITS FOR OILY WATER TREATMENT FACILITIES**

| Parameter | Maximum Concentration of Any Grab Sample (mg/L) |
|---|---|
| pH | Between 6.0 and 9.5 |
| TSS | 35 |
| Ammonia | 4.0 |
| Phosphorous | 4.0 |
| Benzene | 0.370 |
| Ethylbenzene | 0.090 |
| Toluene | 0.002 |
| Oil and Grease | 15 and no visible sheen |
| Arsenic | 0.50 |
| Copper | 0.30 |
| Lead | 0.20 |
| Nickel | 0.50 |
| Zinc | 0.50 |

- All issues or concerns with STPs or OWTSs (i.e., improper operation, pipeline rupture, system breakdown, etc.), must be reported immediately to Site Services and the Environment Department.
- In the event of a release of wastewater into the environment (i.e., pipeline rupture, etc.), immediate action is required to ensure that the release is contained and prevented from reaching any water body. Refer to Baffinland's ERP and Spill Contingency Plan for additional guidance. All wastewater spills must be reported immediately to the Environment Department. For more information on spill reporting, see OES: Spill Control Measures and Reporting (Section 4.33).

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- In the event of a release of wastewater in exceedance of applicable discharge criteria, discharge will be ceased immediately until the cause is identified and corrected. Resampling will occur to ensure effluent water quality meets the applicable discharge criteria prior to resuming discharge. All exceedances of wastewater discharge criteria must be reported immediately to the Environment Department.
- The quantity of sewage treated will be documented continuously using in-line flow meters or vacuum truck counts tracked using the Wastewater Log (Appendix O - Wastewater Log).
- The quantity of sludge generated by the STPs will be recorded daily by the STP Operators.
- The sludge generated from STPs is dewatered using a filter press and either incinerated on site, backhauled for disposal offsite, or landfilled in the mine site landfill facility, if it is confirmed that the sludge is non-hazardous. Prior to disposing sludge in the mine site landfill facility, analytical testing results that verify the sludge to be non-hazardous must be provided to the NWB for review or the NWB must otherwise approve disposal of the sludge in the landfill in writing. Sludge will be stored in an animal proof secure area until picked up for disposal.
- Treated wastewater will only be released into the receiving environment at approved locations at both the Milne Port and Mine Site. All wastewater discharges are monitored to ensure all discharged effluent meets the regulatory requirements outlined in Baffinland's Type "A" Water Licence.
- Treated wastewater effluent will be discharged at a distance of at least 31 m above the OHWM of any water body of watercourse, or where direct flow into the adjacent water body of watercourse is possible, so that surface erosion is minimized and additional impacts are avoided.
- Effluent will be discharged such that surface erosion is minimized and no additional impacts are created. Effluent discharge locations will be monitored regularly for erosion and control measures shall be implemented as required.

### 4.15.3 RELATED DOCUMENTS

- Appendix O - Wastewater Log
- FWSSWMP (BAF-PH1-830-P16- 0010)
- ERP (BAF-PH1-840-P16-0002)
- Spill Contingency Plan (BAF-PH1-830-P16-0036)
- NWB – Type "A" Water Licence (2AM-MRY1325 Amendment No. 1)

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# 4.16 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

## 4.16.1 ENVIRONMENTAL CONCERN

Hazardous materials used at the Project includes fuels and lubricants (oils and greases), antifreeze, calcium chloride salt, lime, sewage sludge, contaminated soils, explosives (i.e. AN), lead acid batteries, biomedical waste, compressed gas cylinders, cleaners and other chemicals. Where the generation of the hazardous waste cannot be prevented, mitigation measures will be implemented to prevent waste from resulting in potential negative impacts to the health and safety of personnel and the environment. Exposure to hazardous materials resulting from spills, leaks or releases has potential to causes human safety and health concerns. For more information refer to the Hazardous Materials and Waste Management Plan.

## 4.16.2 ENVIRONMENTAL PROTECTION MEASURES

- Hazardous materials and waste will be handled in accordance with the Hazardous Materials and Waste Management Plan.
- Used oil will be collected and transported to secondary containment where it will be stored in 1,000 L totes and containment drums of various capacities. Used oil used for fuel burner feedstock will comply with GN's Environmental Guideline for Used Oil and Waste Fuel (GN, 2012). Used oil that cannot be reused on-site will be shipped off-site.
- Project waste must be managed to prevent releases to nearby water bodies. Project hazardous waste storage areas are located a minimum of thirty-one (31) meters from the OHWM of any water body.
- Hazardous materials arriving by sea lift will be temporarily stored in their original sea can containers at laydown locations until transported to their final destination.
- Lubricating oils and antifreeze will be dispensed from drums or cubes using either fitted taps or pumps. Spill trays will be placed in locations where there is potential for drips and leaks to occur during the transfer of substances.
- Hazardous waste storage and handling areas will be routinely inspected for leaks, spills or, indications of loss, the implementation of appropriate containment measures, and to verify that wastes are properly labelled and stored.
- Water that collects in waste storage sites will be monitored and sampled in accordance with the Type "A" Water Licence.
- All hazardous wastes are to be stored in secondary containment. Spill trays can be used for storing small volumes of hazardous wastes. Larger quantities of hazardous wastes must be stored in the designated lined hazardous waste storage locations in Hazardous Waste Berms (HWB)) or within shipping containers located at the laydown area.
- Hazardous wastes should be returned to the original container where possible or placed in containers manufactured to store hazardous waste. Storage containers must be clearly labelled to indicate the

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type of waste. To prevent spills, ensure storage containers are sound, sealable and are not cracked, punctured, or in any way damaged. At no time shall hazardous waste be combined with other solid non-hazardous waste.

- A SDSs must be accessible to all personnel who may come in contact with a chemical as per WHMIS.
- Unidentified chemicals and/or materials generated at Project sites are considered to be hazardous waste (unless otherwise identified) and are disposed of accordingly.
- Smoking is prohibited within 10 meters of any hazardous waste storage location.
- Quarterly hazardous waste inventories for hazardous wastes stored in HWBs are required.
- Spill kits are located inside the hazardous waste storage areas for controlling, containing, and cleaning up small spills (refer to the Spill Contingency Plan).
- Baffinland shall itemize and maintain a tracking manifest for all hazardous materials to be used on-site. Environmental personnel shall conduct periodic inspections and audits to confirm the tracking manifest is up to date and accurate. Baffinland departments and contractors are responsible for maintaining the current SDSs on-site for all hazardous materials pertaining to their activities.
- All hazardous material spills shall be immediately reported to the Environment Department and documented by submitting the necessary documentation within four (4) hours of the spill using the Baffinland Incident Investigation Form. If the release meets the limits for external reporting, the Environment Department will complete and submit a NT-NU Spill Report Form (Appendix G - NT-NU Spill Report Form) to the appropriate regulatory agencies. The ERP and Spill Contingency Plan may be implemented, depending on the nature of the spill.
- All biological hazardous wastes generated at the Medical Clinic and First Aid Stations will be packaged, labelled and transported off-site for disposal at an appropriate licensed facility, or incinerated onsite.
- Transportation and packaging of hazardous waste off-site will be undertaken TDG trained persons.
- Records of all wastes backhauled from Project sites off-site for disposal must be maintained on-site, documented using the Off-site Waste Disposal Log (Appendix N - Off-Site Waste Disposal Log). Confirmation of proper disposal must be documented through the use of waste manifest records obtained from licensed waste disposal facilities.

### 4.16.3 RELATED DOCUMENTS

- Appendix G - NT-NU Spill Report Form
- Incident Investigation Form (BAF-PH1-810-FOR-0005)
- Waste Management Plan (BAF-PH1-830-P16-0028)
- Hazardous Materials and Waste Management Plan (BAF-PH1-830-P16- 0011)
- Waste Sorting Guidelines (BAF-PH1-300-P25-0002)
- Spill Contingency Plan (BAF-PH1-830-P16-0036)
- Exploration Spill Contingency Plan (BAF-PH1-830-P16-0037)
- ERP (BAF-PH1-840-P16-0002)

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# 4.17 ROAD CONSTRUCTION AND BORROW DEVELOPMENT

## 4.17.1 ENVIRONMENTAL CONCERN

Excavations disturb the ground surface and any vegetative cover that stabilizes the ground and reduces the potential for erosion. The excavation of sand and gravel from borrow areas, as well as the cut and fill technique that will occur during road construction throughout the lifecycle of the Project exposes soil, making it vulnerable to erosion and sediment-laden runoff. Road construction and borrow development activities result in changes to the thermal regime of the ground (active layer and permafrost), as a new active layer is created. Modification to the thermal regime may induce melting of any ground ice present, resulting in thaw settlement and depressions caused by these settlements leading to erosion and potential for water ponding.

## 4.17.2 ENVIRONMENTAL PROTECTION MEASURES

The ground surface will re-establish thermal equilibrium and will be suitable for re-colonization by natural vegetation over time. The following measures will be implemented to enhance this re-establishment of thermal equilibrium and minimize the effects of erosion, sedimentation and water ponding:

- Prior to implementation, maintenance and construction activities associated with the Project road network will be assessed for potential risks associated with erosion, permafrost degradation and sedimentation. Based on the risk assessment, effective mitigation and control measures will be implemented prior to the commencement of the planned activities.
- Removal of surface material (e.g. cut-and-fill technique) shall be avoided where possible to reduce permafrost degradation and will only occur at approved locations.
- Areas will be graded by filling in low areas rather than cutting into high areas, where feasible.
- Insulating material and/or erosion and sedimentation control materials, such as fabric or riprap, will be used to reduce erosion and potential permafrost degradation, as required.
- Where possible, excavations will be minimized by utilizing above grade sources for material (hills and swales), to minimize water collection and drainage disruption.
- No excavations and/or removal of material from any quarry or borrow source beyond a depth of one (1) meter above the OHWM or above the groundwater table to prevent the potential contamination of groundwater.
- Cut and fill areas will be stabilized by constructing gentle slopes with low potential for erosion.
- Cut and fill areas are expected to be relatively small in horizontal and vertical extent. The side slopes of the borrow pits will be between 1H:1V to 2H:1V, slightly gentler than natural slopes to reduce erosion.
- At low lying areas where the roadbed fill is in the order of 1 m and the permafrost can be expected to rise to a meaningful degree, swales or culverts will be installed as part of road maintenance to prevent water ponding.

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- At closure, swales will be left in place, or alternatively, the road bed will be breached to allow drainage.
- Borrow activities will occur only at approved locations and will be concentrated to limit the area of disturbance. Borrow pits will be located 31 meters away from the OHWM of the nearest waterbody or stream.
- Thawed layers will be removed sequentially.
- Areas of unexpected settlement will be filled to re-establish natural contours and eliminate water ponding.
- Regular inspection of borrow locations will be completed and unstable slopes re-graded to eliminate depressions and re-establish natural drainage patterns.

### 4.17.3 RELATED DOCUMENTS

- SWAEMP (BAF-PH1-830-P16-0026)
- Roads Management Plan (BAF-PH1-830-P16-0023)
- Borrow Pit and Quarry Management Plan (BAF-PH1-830-P16-0004)

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# 4.18 TOTE ROAD WATERCOURSE CROSSINGS INSTALLATION

## 4.18.1 ENVIRONMENTAL CONCERN

The construction of watercourse crossings can negatively affect fisheries resources through the alteration of fish habitat or blockage of fish passage, and/or through the accidental release of deleterious substances (i.e. fuel spills, sediment). The construction of watercourse crossings (culverts and bridges) can affect fish and fish habitat during the construction of the crossing structures or as a result of post-construction influence of the completed structures on fish habitat. Elevated levels of suspended sediment are the primary water quality effects that could result from work on or around water. Construction activities typically result in short-term effects, while long term effects can arise through erosion of ditches and slopes, if adequate mitigation measures are not implemented. Construction activities and conditions with potential for sedimentation include crossing with heavy equipment, excavating, blasting, installing bank protection measures (riprap), erosion from ditches and steep slopes, erosion from exposed areas on the right-of-way, and increased bed scour or bank erosion due to changes in downstream flow patterns. Basic environmental protection measures apply to all types of crossings, and additional measures apply to crossings that are subject to fisheries authorization.

Crossings with fish habitat are subject to fisheries authorization as follows:

- Small crossings with fish habitat that are subject to the conditions of a DFO Letter of Advice (listed in Table 7).
- Crossings with fish habitat that are subject to an authorization under Section 35(2) of the Fisheries Act (listed in Table 8).
- Fish habitat compensation sites are crossings where remedial work has been carried out to improve conditions for fish and expand potential fish habitat, as agreed upon as a condition of the above fisheries authorization.

## 4.18.2 ENVIRONMENTAL PROTECTION MEASURES

- Culverts will be installed in accordance with approved plans. Changes to Project water crossings and new crossing installations require regulatory approval.
- Limit any in-stream activity, as much as possible, to low flow or frozen conditions and avoid conducting work proceeding or during large precipitation or runoff events.
- Limit the duration of in-water works, undertakings and activities so that it does not diminish the ability of fish to carry out one or more of their life processes (e.g. spawning, rearing, feeding, migrating). Baffin Island has a restricted activity timing window for Arctic Char from September 1 to June 30, during which in-stream work should be avoided. The restricted activity timing window does not apply to zero flow conditions when a water body is frozen to the bed.

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- Sediment and erosion control measures shall be implemented prior to work and shall be left in place and maintained until all disturbed areas have been stabilized. For more information on sediment and erosion control measures see OES: Sediment and Erosion Control (Section 4.9).
- Any stockpiled materials shall be stored and stabilized 31 metres away from the OHWM of any waterbody, unless for immediate use.
- Stream banks shall not be cut and material from below the OHWM of a water body shall not be removed, unless specifically authorized.
- All materials and equipment shall be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, debris, etc.) from entering the water. This includes checking that equipment is free of fluid leaks, and that grease and other debris is wiped or washed clean from the equipment, before entering the water.
- Re-fueling and equipment maintenance is to be conducted 31 meters away from the OHWM of any waterbody.
- Install crossings to minimize approach grades and at right angles to the watercourse to prevent significant alteration to the original direction of stream flow.
- Stabilize crossing approaches during construction to control runoff of sediment-laden water and erosion.
- Winter lake and stream crossings, including ice bridges, must be constructed entirely of water, ice or snow and disturbance must be minimized by locating ice bridges in an area that requires the minimum approach grading and the shortest crossing route. Stream crossings shall be removed or the ice notched prior to spring break-up.
- Minimize in-water work to the shortest amount of time practicable.
- Machinery is not permitted to travel up the stream bed and fording of any water body is to be kept to a minimum and limited to one area.
- Backfill water crossings with substrate (fill) material that is clean, competent, and consistent with the existing substrate size and texture found within the watercourse and will remain in/under the crossing.
- The placement of abutments, footings or armoring must not encroach on the natural channel width and must remain above the OHWM.

### 4.18.3 ENVIRONMENTAL PROTECTION MEASURES - CROSSINGS SUBJECT TO LETTER OF ADVICE

- Water depth within the water crossing should be not be less than 20 cm or the same depth as the natural channel, especially during low flows.
- All disturbed areas shall be stabilized immediately upon completion of work and restored to a pre-disturbed state or better.

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### 4.18.4 ENVIRONMENTAL PROTECTION MEASURES - CROSSINGS SUBJECT TO FISHERIES AUTHORIZATION AND FISH HABITAT COMPENSATION SITES

- An environmental inspector shall be on on-site to assess the crossings prior to the onset of construction to confirm the absence or presence of spawning sites at least 20 meters upstream or downstream of the crossing location, and whether spawning Arctic char are present in the vicinity (only applies to Table 8 crossings).
- For all crossings where fish may be present (Table 7, Table 8 and compensation sites), an environmental technician shall be present to monitor construction activities and document turbidity levels upstream and downstream of the crossing under construction, in accordance with the Roads Management Plan, using the Water Crossing Construction Monitoring Form (Appendix P - Watercourse Crossing Monitoring Data Sheet). A qualified biologist or environmental technician shall be on-site during all in-water construction, compensation and restoration works to ensure implementation of the designs, as intended in the Plan, and conditions of the fisheries authorization are being met.
- Construct new crossings at the existing crossing sites whenever practicable.
- If machinery is required to bring material or equipment to the opposite side of the watercourse, then it shall be restricted to a onetime event (over and back) and only if no other existing crossing can be used. If the stream bed and banks are highly erodible (e.g., dominated by organic materials and silts) and erosion and degradation is likely to occur as a result of equipment crossing, then a temporary crossing structure or other practices shall be used to protect these areas.
- Machinery fording shall occur at least 20 meters upstream or downstream of locations where fish and/or spawning sites are noted.

**TABLE 7: CROSSINGS SUBJECT TO DFO LETTER OF ADVICE**

| Location Code | Road Location (km) | Easting (NAD 83–17W) | Northing (NAD 83-17W) | Catchment Area Size Reference |
|---|---|---|---|---|
| BG27 | 86.606 | 547,876 | 7,919,342 | Small |
| BG29 | 84.805 | 546,229 | 7,919,877 | Small |
| CV001 | 94.728 | 553,782 | 7,914,922 | Small |
| CV030 | 77.503 | 540,123 | 7,921,310 | Small |
| CV046 | 66.489 | 531,686 | 7,924,265 | Small |
| CV057 | 60.714 | 528,379 | 7,928,657 | Small |
| CV058 | 60.523 | 528,322 | 7,928,839 | Small |
| CV059 | 59.960 | 528,102 | 7,929,356 | Small |
| CV076 | 53.028 | 526,617 | 7,935,335 | Small |

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| | | | | |
|---|---|---|---|---|
| CV082 | 49.656 | 525,254 | 7,938,131 | Small |
| CV086 | 46.300 | 523,746 | 7,940,983 | Small |
| CV102 | 36.029 | 521,934 | 7,950,591 | Small |
| CV106 | 33.170 | 521,663 | 7,953,392 | Small |
| CV112 | 31.446 | 521,033 | 7,954,935 | Small |
| CV113 | 30.656 | 520,747 | 7,955,659 | Small |
| CV115 | 27.686 | 519,222 | 7,958,135 | Small |
| CV119 | 24.264 | 517,762 | 7,961,153 | Small |
| CV120 | 23.510 | 517,294 | 7,961,707 | Small |
| CV125 | 20.448 | 515,296 | 7,963,841 | Small |
| CV151 | 10.460 | 508,341 | 7,969,584 | Small |
| CV152 | 10.282 | 508,201 | 7,969,684 | Small |
| CV153 | 10.219 | 508,152 | 7,969,718 | Small |
| CV154 | 9.570 | 507,620 | 7,970,076 | Small |
| CV157 | 8.960 | 507,374 | 7,970,538 | Small |
| CV166 | 6.055 | 505,538 | 7,972,370 | Small |
| CV170 | 5.268 | 505,015 | 7,972,923 | Small |
| CV176 | 2.637 | 503,834 | 7,975,057 | Small |
| CV186 | 102.812 | 560,705 | 7,913,498 | Small |
| CV187 | 103.078 | 560,957 | 7,913,414 | Small |
| CV202 | 32.825 | 521,603 | 7,953,731 | Small |
| CV203 | 34.150 | 521,782 | 7,952,435 | Small |
| CV159 | 8.407 | 506,909 | 7,970,830 | Extra Small |

## TABLE 8: CROSSING SUBJECT TO DFO FISHERIES AUTHORIZATION

| Location Code | Road Location (km) | Easting (NAD 83-17W) | Northing (NAD 83-17W) |
|---|---|---|---|
| BG50 | 62.836 | 529,334 | 7,926,846 |
| CV128 | 17.683 | 513,545 | 7,965,895 |
| CV217 | 79.824 | 542,219 | 7,922,158 |
| CV223 | 97.230 | 555,818 | 7,914,691 |
| BG17 | 90.168 | 550,703 | 7,917,643 |
| BG32 | 78.163 | 540,706 | 7,921,622 |
| CV040 | 72.263 | 535,175 | 7,920,305 |
| CV048 | 64.312 | 530,415 | 7,925,875 |

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| | | | |
|---|---|---|---|
| CV049 | 63.303 | 529,677 | 7,926,542 |
| CV072 | 53.878 | 526,897 | 7,934,576 |
| CV078 | 51.172 | 525,852 | 7,936,787 |
| CV079 | 50.599 | 525,562 | 7,937,276 |
| CV094 | 41.613 | 522,805 | 7,945,397 |
| CV099 | 37.840 | 521,811 | 7,948,820 |
| CV129 | 15.651 | 512,381 | 7,966,783 |
| CV216 | 80.647 | 542,774 | 7,921,700 |
| CV225 | 99.033 | 557,407 | 7,915,138 |
| BG01 | 99.676 | 557,991 | 7,914,919 |
| BG04 | 94.148 | 553,250 | 7,915,113 |
| BG24 | 87.710 | 548,766 | 7,918,878 |
| CV060 | 58.853 | 527,622 | 7,930,342 |
| CV104 | 33.794 | 521,732 | 7,952,788 |
| CV111 | 31.991 | 521,355 | 7,954,524 |
| CV114 | 29.648 | 520,278 | 7,956,528 |
| CV224 | 97.758 | 556,238 | 7,915,044 |

### 4.18.5 ENVIRONMENTAL PROTECTION MEASURES - DFO INTERIM CODES OF PRACTICE: CULVERT MAINTENANCE, TEMPORARY COFFERDAMS AND DIVERSION CHANNELS, AND TEMPORARY STREAM CROSSINGS

- Measures to Protect Fish:
  - Plan in water works, undertakings or activities to respect timing windows to protect fish and fish habitat.
  - Conduct in-water works, undertakings and activities during periods of low flow.
  - Limit the duration of in-water works, undertakings and activities so that it does not diminish the ability of fish to carry out one or more of their life processes (e.g. spawning, rearing, feeding, migrating).
  - Employ fish exclusion netting (up and downstream) to isolate the work site if fish are observed in the vicinity of the works, undertakings and activities.
  - Maintain an appropriate depth and flow (i.e. base flow and seasonal flow of water) for the protection of fish.
- Measures to Protect Fish Passage:
  - Maintain fish passage during the works, undertakings and activities.
  - Avoid changing flow or water level.
  - Avoid obstructing and interfering with the movement and migration of fish.

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- Measures to Protect the Riparian Zone:
  - Limit access to shorelines and banks or areas adjacent to water bodies.
  - Prune or top the vegetation instead of grubbing and uprooting.
  - Limit grubbing on watercourse banks to the area required for the footprint of works, undertakings and activities.
  - Construct roads, access points and approaches perpendicular to the watercourse or water body.
  - Remove vegetation or species selectively and in phases.
  - Re-vegetate the disturbed areas with native species suitable for the site.
  - Restore the stream banks and riparian vegetation affected by the works, undertakings and activities to their natural state (substrate granularity, profile, vegetation, etc.).
- Measures to Protect Fish Habitat from Sedimentation:
  - Use only clean materials (e.g., rock, coarse gravel, wood, steel, snow) for works, undertakings and activities.
  - Install effective erosion and sediment control measures prior to beginning works, undertakings and activities in order to stabilize all erodible and exposed areas.
  - Develop and implement an erosion and sediment control plan to avoid the introduction of sediment into any water body during all phases of the works, undertakings and activities.
  - Schedule work to avoid wet, windy and rainy periods and heed weather advisories.
  - Regularly inspect and maintain the erosion and sediment control measures and structures during all phases of the works, undertakings and activities.
  - Regularly monitor the watercourse for signs of sedimentation during all phases of the works, undertakings and activities and take corrective action if required.
  - Use biodegradable erosion and sediment control materials whenever possible.
  - Keep the erosion and sediment control measures in place until all disturbed ground has been permanently stabilized.
  - Remove all sediment control materials once site has been stabilized.
  - Dispose of, and stabilize, all excavated material above the OHWM or top of bank of nearby waterbodies and ensure sediment re-entry to the watercourse is prevented.
- Measures to Protect Fish and Fish Habitat from Deleterious Substances (including suspended sediment):
  - Develop and immediately implement a response plan to prevent deleterious substances from entering a water body.
  - Stop works, undertakings and activities in the event of a spill of a deleterious substance.
  - Immediately report any spills (e.g., sewage, oil, fuel or other deleterious material), whether near or directly into a water body.
  - Keep an emergency spill kit on site during all phases of the works, undertakings and activities.

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- Contain any water with deleterious substances.
- Ensure clean-up measures are suitably applied so as not to result in further alteration of the bed and/or banks of the watercourse.
- Clean-up and appropriately dispose of water contaminated with deleterious substances.
- Maintain all machinery on site in a clean condition and free of fluid leaks.
- Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
- Dispose of all waste materials (e.g., construction, demolition, commercial logging) above the OHWM to prevent entry into the water body.

- Additional Protective Measures for Culvert Maintenance:
  - Limit the removal of accumulated material and debris (e.g., branches, stumps, other woody materials, garbage, etc.) to the area within the culvert and immediately upstream and downstream of the culvert.
  - Remove accumulated materials and debris slowly to allow clean water to pass, to prevent downstream flooding and to reduce the amount of sediment-laden water going downstream.
  - If maintenance activities reduce the water level within the culvert, take appropriate measures to restore previous streambed elevation and conditions.
  - If replacement rock reinforcement and armoring is required to stabilize eroding inlets and outlets, the following measures should be implemented:
    - Place appropriately-sized, clean rocks into the eroding area.
    - Do not obtain rocks from below the OHWM of any water body.
    - Ensure that acid generating rock is not used.
    - Avoid the use of rock that fractures and breaks down quickly when exposed to the elements.
    - Install rock at a similar slope to maintain a uniform stream bank and natural stream alignment.
- Additional Protective Measures for Cofferdams:
  - Construct the cofferdam using non-earthen material (e.g. water-inflated portable dams, pea gravel bags, concrete blocks, steel or wood wall, clean rock, sheet pile or other appropriate designs).
  - Take the necessary measures to seal the cofferdams and thus minimize the amount of water to be managed.
  - Use clean rock void of erodible material.
  - Use adequately sized material (i.e. moderately sized rock and not sand or gravel) to withstand anticipated flows during construction.
  - Construct cofferdams sufficiently high to prevent overtopping in the event of sudden increases in water levels.

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  - Regularly inspect and maintain cofferdam during all phases of the project.
  - Do not excavate inside the cofferdam or sediment filtering curtain until the cofferdam/curtain/work area is completely isolated from flow.
  - Only install and operate dewatering pumps once the cofferdam is complete and isolation has been achieved.
  - Pumps should be monitored at all times, and back-up pumps should be readily available on-site in case of pump failure or high flow events.
- Additional Protective Measures for Diversion Channels:
  - Design the diversion channel to accommodate the peak seasonal flows for the time period the diversion will be in place.
  - Ensure that the diversion channel is no longer than necessary.
  - Stabilize and line temporary diversion channel with appropriate watertight material before any water flow is diverted from a natural channel into a diversion channel.
  - Ensure slope of the diversion channel is similar to or lower in gradient than the natural watercourse.
  - Use natural material to simulate natural stream conditions whenever possible.
  - Install energy dissipation structures (i.e. rocks, sandbags) within the diversion channel.
  - Align the downstream connection of the temporary diversion with the natural watercourse in a manner that avoids erosion on the opposite bank.
  - Regularly inspect and maintain the diversion channel during all phases of the project.
  - When connecting the diversion channel to the watercourse:
    - Excavate the downstream end of the diversion channel towards the upstream point, where a 'plug' of earth should be left to prevent the entry of streamflow into the diversion before channelization.
    - Place a cofferdam immediately below the upstream point of the diversion to reroute the flow of water into the diversion.
    - Remove 'plug' once the channel is lined and lining secured.
    - Place another cofferdam immediately above the downstream point of the diversion channel to isolate the work area.
    - Proceed with the works, undertakings and activities once the area is effectively isolated from the stream.
  - When the diversion is no longer in use remove impermeable material, fill in, stabilize and revegetate the area of the temporary diversion channel to prevent erosion.
- Protective measures for Rewatering/Reflooding the Isolation Area (Partial or Complete):
  - Ensure that the watercourse is void of un-natural deposits of sediment within the footprint of the dewatered area.

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- Maintain sediment control measures during re-watering of the work site and removal of the cofferdam to ensure sediment is not released into the water body.
- Remove the remainder of the cofferdam structure to allow the full return of flow to the permanent channel.
- When returning flow (rewatering/reflooding):
  - Ensure all components of the watercourse bed and banks within the footprint of the disturbed area and between the upstream and downstream water control structure(s) have been stabilized including any reinstated habitat features.
  - Ensure a maintenance flow is provided downstream to fish and fish habitat until the natural flow meets the water discharge location.
  - Gradually remove the downstream cofferdam first to ensure equalization of water levels inside and outside of the isolated area to allow suspended sediments to settle and to reshape the watercourse prior to the return of flow from the upstream reach.
  - Remove the upstream water control structure slowly as to allow for a partial return of water to the dewatered channel.
- Once the banks are stabilized and the diversion channel is filled in, the diversion channel cofferdams can be removed.

- Additional Protective Measures for Temporary Stream Crossings:
  - Locate temporary crossing site where streambanks are stable and where approaches have low slopes.
  - Locate temporary crossing site where the stream is straight, unobstructed and well defined.
  - Locate temporary crossing at a right angle to the stream.
  - Ensure approach grades are kept to a minimum for at least 15m on each side of the crossing.
- Additional Protective Measures for Stream Fording:
  - Locate fording site where stream substrate is stable or is a bedrock outcrop.
  - Limit machinery fording of the watercourse to a one-time event (over and back).
  - Conduct fording during periods of low flow.
  - Stabilize approaches with non-erodible materials such as brush mats, corduroy or clean stone.
  - Restore approaches and banks of the watercourse to its natural state.
  - Do not skid or drag anything across ford.
  - Do not use ford if the water depth is greater than the axle height of the vehicle.
  - Do not manipulate material in the wetted portion of the watercourse while fording the watercourse.
- Additional Protective Measures for Winter Crossings (Ice Bridges and Snow Fills):
  - Construct snow bridges on large watercourses that have sufficient stream flow and water depth to prevent the ice bridge from coming into contact with the stream bed or restricting the water movement beneath the ice.

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- Use only clean water, ice or snow to construct winter crossing.
- Construct approaches using clean compacted snow and ice to a sufficient depth to protect the banks of the watercourse.
- Do not exceed 10% of the instantaneous flow if withdrawing any water, in order to maintain existing fish habitat and flow under the ice.
- Screen intake pipes to prevent entrainment or impingement of fish.
  - Use the interim code of practice for end-of-pipe fish protection screens for small water intakes in freshwater.
- Where logs are used to stabilize the approaches of an ice bridge or snow fill:
  - Do not leave logs or woody debris within the water body or on the banks or shoreline where they can wash back into the water body.
  - Ensure that the logs are clean and securely bound together so they can be easily removed either before or immediately following spring freshet.
- Maintain natural, under ice water flow where it occurs.
- Place notch in center of the ice bridge to encourage proper melting and reduce flooding, to ensure that fish passage is maintained.
- Remove compacted snow from the snow fills prior to the spring freshet.

- Additional Protective Measures for Temporary Clear Span Bridges:
  - Ensure the single-span bridge structure, including approaches, abutments, footings, and armoring is built entirely above the OHWM.
  - Design the bridge so that storm water runoff from the bridge deck, side slopes and approaches directly run off into a retention pond or vegetated area to prevent sediment and other deleterious substances from entering the watercourse.
  - Design temporary bridges to accommodate any expected high flows of the watercourse during the construction period.
  - Remove bridge crossing prior to the spring freshet, unless the crossing has been constructed above the annual spring high water level.

### 4.18.6 RELATED DOCUMENTS

- Appendix P - Watercourse Crossing Monitoring Data Sheet
- SWAEMP (BAF-PH1-830-P16-0026)
- Roads Management Plan (BAF-PH1-830-P16-0023)
- Fisheries and Oceans (DFO) Canada Authorizations
- DFO Interim Code of Practice: Culvert Maintenance (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/culvert-maintenance-entretien-ponceaux-eng.html)
- DFO Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html)

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- DFO Interim Code of Practice: Temporary Cofferdams and Diversion Channels (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/cofferdams-batardeaux-eng.html)
- DFO Interim Code of Practice: Temporary Stream Crossings (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/temporary-crossings-traversees-temporaires-eng.html)
- Transport Canada Navigable Waters Authorizations (various)
- NWB - Type “A” Water Licence (2AM-MRY1325 Amendment No. 1)

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# 4.19 ROAD TRAFFIC MANAGEMENT

## 4.19.1 ENVIRONMENTAL CONCERN

Traffic during construction and operation of the Project, if not properly managed, may cause disruption, accidents and interference with local community lifestyles and traditional land based activities (i.e. hunting). Improper traffic management may also cause increased dust levels and higher potential for hydrocarbon releases. Project-related traffic will be managed to:

- Ensure the smooth flow of road traffic during the Project's construction and operation;
- Ensure that adequate information is communicated to drivers and pedestrians in a timely manner to avoid accidents and holdups; and
- Ensure assessment, monitoring and improvement of the existing road traffic site plans.

## 4.19.2 ENVIRONMENTAL PROTECTION MEASURES

- For safety reasons, use of service roads at Milne Port and the Mine Site will be restricted to Baffinland's employees and contractors. The Tote Road is considered a public road. The management of public access to the Tote Road and Project sites is described further in Baffinland's Hunter and Visitor Site Access Procedure.
- Sighting of non-Project personnel shall be reported to the Ore Handling Dispatch and Security and recorded on Security's Hunter and Visitor Access Logs. Extreme care shall be taken at all times whenever non-Project personnel are sighted along Project roads, as they might not be aware of the hazards associated with Project activities and traffic. Refer to the OES 4.2– Avoiding Disturbance to Local Land Users for more information on reporting sightings of local land users and non-Project personnel.
- All Baffinland employees and contractors who operate vehicles on-site are required to undergo vehicle specific training sessions, which will include training on all traffic management procedures and restrictions. All drivers will adhere to the Tote Road Travel Procedure, which details the controls to be followed by all workers travelling on the Tote Road.
- Vehicles are encouraged to carry spill kits.
- Approved dust suppression measures shall be utilized on roads during snow free months to reduce dust generation and deposition on the adjacent tundra. Refer to Baffinland's Air Quality and Noise Abatement Management Plan for additional details.
- Snow clearing measures will be employed, as required, to reduce snowbank drifting and facilitate proper road drainage during freshet. To permit caribou to cross the transportation corridor without being blocked by steep snowbanks, a snowbank height less than 1 m with smooth top edges will be maintained along the Tote Road. For more information refer to Baffinland's Snow Management Plan. Snow fence installations will be considered in areas of unavoidable accumulation.

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- Signposts will be established at every kilometer marker along road corridors and every vehicle is responsible to call out their location and direction and type of vehicle at posted must-call signs for all other road users to hear along the Project's roadways (i.e. ore haul truck, loaded, kilometer 34, northbound).
- Radio towers will be established as required and with approval of the landowner.
- Community members will be encouraged to avoid discharging firearms within 1 mile (1.6 km) of Project roads, for the duration of the Project.
- Mobile equipment and vehicles shall yield the right-of-way to wildlife. Wildlife sightings along the Project road network shall be reported and recorded as on the Wildlife Logs. Refer to OES 4.23– Wildlife Log for more information on reporting wildlife observations. See Section 4.12– Caribou Protection Methods for the procedure to follow when caribou are encountered within sight of the road.

### 4.19.3 RELATED DOCUMENTS

- Appendix B - Hunter and Visitor Access Log
- Appendix K - Wildlife Log
- Roads Management Plan (BAF-PH1-830-P16-0023)
- Air Quality and Noise Abatement Management Plan (BAF-PH1-830-P16-0002)
- Tote Road Travel Procedure (BAF-PH1-810-PRO-0002)_
- Hunter and Visitor Site Access Procedure (BAF-PH1-830-PRO-0002)
- Snow Management Plan (BAF-PH1-300-P16-0002)
- QIA Commercial Lease
- CIRNAC Quarry and Land Use Permits

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## 4.20 DRILLING, BLASTING AND CRUSHING

Drilling and blasting will be conducted at all stages of the Project's lifecycle. Drilling and blasting activities will occur primarily at Deposit 1 at the Mary River Mine Site and rock quarries located throughout the Project Area. Throughout the life of the Project, various blasting methods will be utilized. This will include the use of high explosives, pre-packaged emulsions, AN fuel oil (ANFO), and emulsion produced on site. Although all of these explosives contain AN, the potential for a release of AN to the environment is extremely low when using emulsions or high explosives. Ammonia is toxic to aquatic life at certain concentrations; therefore, the proper handling and storage of explosives is crucial for preventing spills from affecting nearby watercourses.

Crushing will occur at both the Mary River Mine Site and Milne Port and will generate air and noise emissions (Section 4.28– Air Quality, Noise and Vibration). Air quality and noise levels will be monitored by the Health, Safety and Environment Departments.

### 4.20.1 ENVIRONMENTAL PROTECTION MEASURES

- Explosives use in Project areas, and worker safety around mining and crushing activities, is governed by Natural Resources Canada, and is detailed in Baffinland's Explosives Management Plan. Personnel using explosives shall have all required certifications including the blasters' certificates.
- All necessary precautions shall be taken to safely handle and store explosives to minimize potential for releases during blasting operations.
- All spills shall be reported to the Environment Department immediately and documented by submitting a report within 4 hours of the spill to the Environment Department using the Baffinland Incident Investigation Form. The Environment Department will report the spill to regulatory agencies using the NT-NU Spill Report Form (Appendix G - NT-NU Spill Report Form).
- All drilling and blasting activities will be in accordance with the Baffinland's site specific Quarry Management Plans (Section 4.25– Quarry and Borrow Pit Management) and the Explosives Management Plan.
- Environmental personnel will monitor water bodies and watercourses adjacent to blasting activities to ensure Project activities do not cause deleterious effects on aquatic resources, as stipulated in Baffinland's Type "A" Water Licence.

### 4.20.2 RELATED DOCUMENTS

- Appendix G - NT-NU Spill Report Form
- QIA Commercial Lease
- CIRNAC Quarry and Land Use Permits
- Incident Investigation Form (BAF-PH1-810-FOR-0005)
- SWAEMP (BAF-PH1-830-P16-0026)

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- Borrow Pit and Quarry Management Plan (BAF-PH1-830-P16-0004)
- Baffinland – Site Specific Quarry Management Plans (various)
- Roads Management Plan (BAF-PH1-830-P16-0023)
- Explosives Management Plan (E337697-PM407-50-126-0001)
- NWB – Type “A” Water Licence (2AM-MRY1325 Amended No. 1)

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## 4.21 EXPLORATION DRILLING OPERATIONS

Exploration drilling will be required to confirm, characterize and quantify new and already known mineral deposits during the life of the Project.

### 4.21.1 ENVIRONMENTAL CONCERN

Environmental concerns with drilling include surface disturbances, drilling fluid and cutting disposal, impacts on dust, noise, water quality, water use, and habitat encroachment.

All drilling muds and other additives must be approved by the Environment Department prior to being transported and used on site for any exploration drilling program. Data on drilling muds and other additives must be included as part of the ERP and Spill Contingency Plan.

Use of water for drilling for the Project is subject to the conditions outlined in Baffinland's Type "B" Water Licence.

### 4.21.2 ENVIRONMENTAL PROTECTION MEASURES

- Pre-drilling Preparation and Acceptable Drill Locations
    - Prior to drill placement, investigate site drainage to determine the proper downstream placement of collection and settling sump(s), if warranted. Note that in most situations, sumps will be required; however, in some circumstances sumps may not be practical. In these cases, approval must be obtained by the Environmental Department.
    - Ensure sumps are of sufficient capacity based on a combination of proposed drill-hole length, water usage, and the potential residence time of the sumps.
    - Do not construct drill sites or drill sumps within 31 meters of the OHWM of a water body unless specific approval is obtained by Baffinland from the NWB.
    - Ensure that the Pre-drilling Inspection Report (Appendix F - Drill Inspection Forms) is completed prior to finalizing the drill site, sump locations, and silt fence locations.
    - Silt fences shall be placed immediately down-gradient of drill set-ups/sumps and up- gradient of any water body or stream. Silt fence locations will be selected to minimize the transport distance of drill cuttings/mud and installed in optimal locations that will be functionally effective.
    - Archaeological clearance shall be obtained from the Environment Department for all exploration drill locations (Section 4.1– Cultural Heritage and Archaeological Resources).
    - Conduct a wildlife inspection immediately prior to movement of the drill, involving aerial and ground survey of the new drill site. For details on drilling restrictions associated with wildlife interactions, see OES: Polar Bear Encounters (Section 4.10), Fox and Wolf Encounters (Section 4.11), Caribou Protection Measures (Section 4.12) and Bird Protection Measures (Section 4.13).

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- Drill Operations and Movements
    - Material shall not be stored on the surface of frozen streams or lakes, including immediate banks, except materials that are for immediate use.
    - Ensure that the drilling area is kept clean and tidy at all times. No littering is permitted - collect and package all waste for disposal at camp.
    - Feeding of all wildlife is prohibited.
    - All activities shall be conducted to minimize surface disturbances.
    - Minimize overland transportation for transport of workers off of approved roads and trails to reduce the potential for ground disturbances.
    - Do not use surface vehicles to move drill rigs or other equipment, without prior authorization by the Environment Department. The use of any vehicles off approved routes is prohibited.
    - Do not move equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging.
    - Daily checks of active sumps will be conducted to ensure that any sump water spill-over occurs in a controlled manner. Sumps are to be constructed so that there is an overflow notch cut into the sump embankment to allow the sump water to decant from the sump as a controlled flow.
    - Silt fences will be installed downstream of the sumps, as described in the Pre-drilling Preparation and Acceptable Drill Locations items, and inspected daily to identify and repair any deficiencies.
    - Daily inspections for fuel and hydraulic leaks, equipment condition, sediment and erosion control, and water intakes shall be conducted prior to commencing work activities at the start and end of each work shift/day. All leaks shall be immediately repaired.
    - A Daily Drill Inspection Report (Appendix F - Drill Inspection Forms) will be filled out by the Supervisor for every day of drill operation.
    - All drill rigs shall be equipped with spill kits in the event of leaks and spill. All operators should be trained in spill response and be familiar with the use of spill kits.
    - If the bottom of the permafrost is broken through by the drill, the depth of the bottom of the permafrost and location shall be reported immediately to the Environment Department who will follow up by providing notification to the NWB.
    - Equipment or material shall not obstruct flow or fish passage in any watercourse.
    - Equipment storage holding areas will be located on gravel, sand or other durable land at least 31 meters above the OHWM of any water body in order to minimize potential impacts on surface drainage and water quality.
- Water Use, Brine and Drill Water Runoff

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- Brine (calcium chloride salt mixed with water) used in exploration drilling is to be controlled to the maximum extent practicable. Drilling muds contained in drilling fluids must be settled out in sumps or by silt fences prior to entering any water bodies or streams.
- Salt and water use for each drill is to be controlled by the use of brine mixing stations. The brine station operator will inspect their station daily and will be in continuous communication with each exploration drill. Brine conservation measures will be adopted which will include: shutting off the flow of brine to drills when brine is not required (i.e., when drills are temporarily shut down), eliminating all spillage in the vicinity of the brine stations, and minimizing salt concentrations in the brine to the lowest level practicable.
- All water intake hoses shall be equipped with a screen of an appropriate mesh size, consistent with the requirements of DFO's Interim Code of Practice: *End-of-pipe fish protection screens for small water intakes in freshwater* (2020) to ensure that fish are not entrained. Additionally, operators will ensure the water intake hoses withdraw water at such a rate that fish do not become impinged on the screen.
- Measures shall be provided to prevent and control erosion on the bed and banks of any water body.
- Streams cannot be used as a water source unless approved by the NWB.
- If water is required from a source that may be drawn down (small lake or stream), Baffinland shall submit a request for approval to the NWB at least 15 days prior to withdrawing water.
- Drill water shall be obtained from water sources proximal to the drilling targets and shall not exceed a total of 250 $m^3$ per day for all drilling activities on the Project.
- Water use will be tracked using inline flow meters on intake lines and recorded on the Daily Drilling Inspection Reports (Appendix F - Drill Inspection Forms).
- No material shall be removed from below the OHWM of any water body unless authorized.
- Contain and re-circulate drill water to the fullest extent possible in order to reduce water usage. Utilize silt fences and natural depressions to divert water from running into nearby watercourses and water bodies.
- Separate clean water from "dirty" water streams whenever possible, using hose extensions, snow berms or other means that direct and remove discharge from the immediate area of the drill hole to prevent migration and expansion of a "dirty" water plume.
- Work shall be performed in such a way as to ensure that materials such as sediment, fuel and/or any other hazardous material does not enter watercourses or water bodies by installing sediment control measures and implementing hazardous materials management practices.
- In the event of a release to the environment, steps in the Exploration Spill Contingency Plan shall be followed to respond to the spill and report it to the Environment Department.

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- The drill water supply temperature should be monitored during drilling and maintained as low as practicable without freezing water lines, flow meters and pumping equipment.
- To maximize drill return water recirculation, casing is to be frozen into the ground to a depth of 3 to 6 m below grade. The specific depth of casing to be frozen into each hole and length of time to allow for freezing will be specified by the acting Supervisor.
- The drill water and cuttings footprint shall be minimized through the use of berms, silt fences, and other means of containment.
- Dispose of drill water into a properly constructed sump, or a naturally occurring contained depression. Drill water shall not be released directly to a nearby water body or to the ground.
- Use portable containment sumps (bins) for drill water and cuttings where containment in a naturally occurring depressions is impractical. The sumps shall not overflow and shall be dumped by means of helicopter or pump, to and approved location for disposal of dirty drill water and cuttings.
- Drilling waste must not be allowed to spread to the surrounding land or water bodies; the footprint of drill cuttings and water must be minimized to the smallest area practicable.
- In case of an artesian flow occurrence, drill holes shall be immediately plugged and permanently sealed to prevent induced contamination of groundwater or salinization of surface waters. Report the artesian flow occurrence within 48 hours to the Environment Department who in turn will report the occurrence to the NWB.
- For on-ice drilling, returned water released must be nontoxic, and not result in an increase in TSS in the immediate receiving water body above the CCME guidelines for the protection of Fresh Water Aquatic Life (i.e. 10 mg/L for water bodies with background levels under 100 mg/L or 10% above background levels for water bodies with background levels above 100 mg/L).

- Drill Hole Abandonment
  - Materials such as debris and drill cuttings shall not be left on the ice when there is potential for the materials to enter a water body.
  - Restore, contour and stabilize all constructed drill sumps, and other disturbed areas, to the pre-disturbed state immediately upon completion of drilling.
  - Return all combustible waste and petroleum products to camp for proper management and disposal.
  - Plug all drill holes upon completion, and where practicable return drill cuttings at surface to the drill hole at all land-based drilling locations.
  - Contour and stabilize all disturbed areas upon completion of work and restore them to a pre-disturbed state.
  - Upon completion of a drill hole in rock, the casing will be removed. If the casing cannot be removed it will be cut off to be flush with the surface of the ground and backfilled.

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- Collect all non-combustible garbage and debris from the land use area and transport it to an approved disposal site.
- Ensure that a Post-Drilling Inspection Report (Appendix F - Drill Inspection Forms) is filled out at the completion of each drill hole.
- Copies of all Pre-Drilling, Post-Drilling and Daily Drill Inspection Reports for all drill holes will be submitted to the Environment Department at the completion of each drilling program.

### 4.21.3 RELATED DOCUMENTS

- Appendix F - Drill Inspection Forms
- FSSWMP (BAF-PH1-830-P16- 0010)
- SWAEMP (BAF-PH1-830-P16-0026)
- Fisheries and Oceans (DFO) Canada - Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html)
- Exploration Spill Contingency Plan (BAF-PH1-830-P16-0037)
- NWB - Type “B” Water Licence (2BE-MRY2131)

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## 4.22 WATER SAMPLING FOR ON ICE DRILLING

### 4.22.1 ENVIRONMENTAL CONCERNS

On-ice drilling is critical for geotechnical investigations so that information for ports, bridges and other Project infrastructure may be collected for use in the infrastructure design and engineering. Marine and lake environments are sensitive to disturbances, such as on-ice drilling. As such, overall water quality, including occurrence and concentrations of suspended solids and trace metals, must be monitored and mitigated. Water samples should be taken prior to on-ice drilling and after on-ice drilling to ensure appropriate water quality standards are maintained. Water sampling, for the purposes of water monitoring and detection of exceedances will ensure that the water quality is not compromised in the water bodies where on-ice drilling occurs.

### 4.22.2 ENVIRONMENTAL PROTECTION MEASURES

The following mitigation measures will be followed to ensure that on-ice drilling (for both inland and marine environments) will not compromise the water quality of the underlying water body:

- A sampling location not more than 31 m downstream from the proposed drill hole location in the affected watercourse, will be selected for pre-drilling and post-drilling water samples.
- The pre-drilling water sample will be taken no more than four hours prior to drilling commencing at the location.
- The post-drilling water sample will be taken within four hours of the rods and casing being removed from the hole and the drill being decommissioned.
- The following methodology will be used to collect water samples:
    - A hole will be augured through the ice and ice cuttings will be cleared from the hole.
    - A bailer will be used to obtain a representative water sample from the water column below the bottom of the ice.
    - The water sample will be transferred to sample bottles.
    - The same hole will be used to collect the pre-drilling and post-drilling water samples.
- Water samples will be tested to ensure that the TSS concentration does not increase by more than 10 mg/L for water bodies with background levels under 100 mg/L, or by more than 10% of the background level for water bodies with background levels above 100 mg/L.
- Pre-drilling and post-drilling water samples will be tested in the field for TSS, pH and electrical conductivity.
- Pre-drilling and post-drilling water samples will be submitted for laboratory testing to monitor total trace metals as determined by a standard ICP scan (to include at a minimum, the following elements: Al, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn), and low level total arsenic and mercury.

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- Drill water and cuttings reporting to surface from on-ice drilling will be discharged into a portable containment sump and removed from the ice for disposal. Water and cuttings will be stored in a pit at least 31 m above the OHWM of any water body, as specified by Baffinland.
- OES protection measures outlined in the OES: Geotechnical Drilling Operation (Section 4.5) will also be followed in conjunction with the protection measures listed above.

### 4.22.3 RELATED DOCUMENTS

- Type “B” Water Licence – 2BE-MRY2131

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## 4.23 WILDLIFE LOG

Baffinland is required to keep a log of all wildlife sightings at Project Sites. Wildlife logs will be posted at all of the Project's operating camps, in various work areas and accommodations. The information from these sheets will be regularly collected, and completed log forms are to be returned to the Environment Department for tracking.

Wildlife species potentially in the Project Area include caribou, wolf, fox, arctic hare, lemmings, polar bear, walrus, seals, whales, raptors, loons, ducks, geese, songbirds and shorebirds. All personnel are required to record wildlife sightings on the posted Wildlife Log (Appendix K - Wildlife Log). Personnel should identify the animal to the best of their knowledge. If you do not know the species, record a general group name, such as 'duck' or 'small bird'. If you are unsure, indicate this, such as 'fox or wolf?' Record tracks only if they are fresh.

All caribou, polar bear and wolf sightings are required to be reported to the Environment Department immediately. Refer to OESs: Polar Bear Encounters (Section 4.10) and Fox and Wolf Encounters (Section 4.11) for additional information on polar bear and wolf sightings. Refer to Caribou Protection Measures (Section 4.12) for additional information on caribou sightings.

### 4.23.1 WILDLIFE LOG COMPONENTS

- Record date of the observation.
- Briefly describe the location, noting any significant landmarks, road kilometer marks, water bodies or other features. This is particularly important if not equipped with a GPS.
- Record the GPS coordinates if possible, in latitude/longitude or UTM NAD83.
- Record the type of animal. Identify the species, if possible, or the general type or group.
- Record the number of animals observed and the life stage (juvenile or adult), if known.
- Record observations on the behavior of the animal. What was it doing at the time you observed it? Was it making any sound? How did it react to your presence? How far away was it? Were you walking/driving/flying?

### 4.23.2 RELATED DOCUMENTS

- Appendix K - Wildlife Log
- Terrestrial Environment Mitigation and Monitoring Plan (BAF-PH1-830-P16-0027)

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## 4.24 BLASTING IN WATER

### 4.24.1 ENVIRONMENTAL CONCERN

Various blasting methods will be utilized throughout the lifecycle of the Project, including the use of high explosives and pre-packaged emulsions. Although these explosives contain AN, the potential for a release of AN to a water body is low. Ammonia is toxic to aquatic life at certain concentrations, therefore the proper handling and use of explosives during blasting operations is important to minimize potential environmental impacts.

Blasting in or near water produces shock waves and vibrations that may have a potential impact on fish and marine mammals. These effects make it important to implement acceptable vibration limits to minimize potential impacts to the surrounding environment.

Potential silt and sediment production resulting from blasting activities may also have negative effects on fish and fish habitat. Silt and sediment can be transported in the water which may cause turbidity and a variety of other harmful effects on fish. Some of these negative effects include; clogging and abrasion of the gills of fish and other aquatic organisms, behavioral changes such as movement and migration, decreased resistance to disease, impairment of feeding, and poor egg and fry development. Impairment of feeding can occur due to turbidity interfering with food collection by visual feeders.

### 4.24.2 ENVIRONMENTAL PROTECTION MEASURES

- Explosives use at the site, and worker safety is governed by the NWT/Nunavut Occupational Health and Safety Act and Regulations.
- Personnel using explosives shall have all the required certifications including the blasters' certificates.
- Modern explosive materials and blasting will reduce the risk of ammonia contaminating the water.
- Best Management Practices will be used to ensure that blasting operations in water stay within 100 kPa IPC threshold set forth by the DFO Guidelines for Use of Explosives In or Near Canadian Fisheries Waters.
- The production of silt in the water from the use of explosives will be minimized using Best Management Practices, including the installation of silt fences and turbidity curtains.
- All necessary precautions shall be taken to safely handle the explosives and to minimize spillage during blasting operations.
- Adaptive Management will be implemented in all phases of the Project in order to ensure that all the precautionary measures are in place to reduce the environmental impact of the associated activities.
- DFO has produced Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters to protect marine wildlife, including fish and marine mammals from underwater vibrations (DFO, 1998). Highlights of the guideline include the following:

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- No explosive is to be knowingly detonated within 500 m of any marine mammal (or no visual contact from an observer using 7 x 35 power binocular).
- No explosive is to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change (i.e. overpressure) greater than 100 kPa in the swim bladder of a fish.
- No explosive is to be detonated that produces, or is likely to produce, a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation.
- The guideline also presents tables of weight of explosive charge versus distance and other estimation methods to determine the potential impacts.
- This guideline is relevant mostly for the Construction Phase of the Project with regards to port and river crossing construction.

### 4.24.3 RELATED DOCUMENTS

- Explosives Management Plan (E337697-PM407-50-126-0001)
- DFO – Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters
- DFO Fisheries Authorizations (various)

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## 4.25 QUARRY AND BORROW PIT MANAGEMENT

A number of rock quarries and borrow pits will be required throughout the Project's life cycle. The excavated aggregate and rock from borrow pits and quarries will be stockpiled until required for further processing or construction activities. During quarry development, overburden and soil will be removed and stockpiled to expose the bedrock. Waste rock from the Mine Area will also need to be handled and stockpiled separately in accordance with Baffinland's Waste Rock Management Plan.

### 4.25.1 ENVIRONMENTAL CONCERN

Quarrying and borrow pit operation may be responsible for a number of environmental impacts throughout the life of the Project. Potential impacts include: soil erosion, habitat loss, dust generation, permafrost degradation and water ponding. The water quality of water bodies adjacent to these activities may also be impacted by means of sedimentation, fuel contamination and ammonia contamination from explosives residue.

### 4.25.2 ENVIRONMENTAL PROTECTION MEASURES

The following environmental protections measures for rock and aggregate excavation and management shall be implemented when developing all borrow pits and quarries:

- All personnel involved in quarry and/or borrow pit development will be familiar with the conditions and environmental protection measures outlined in Baffinland's Borrow Pit and Quarry Management Plan as well as site specific Quarry Management Plans.
- The limits of the area to be excavated and the aggregate stockpile areas shall be clearly flagged/staked in the field prior to conducting any construction activities in the field.
- The borrow pits shall be designed to drain away from the face of the borrow pit to prevent water from ponding in borrow pits.
- A site specific Quarry Management Plan shall be developed for each of the Project's quarries.
- All quarry materials used shall be non-acid generating and non-metal leaching in chemical characteristics.
- When explosives are utilized Environmental personnel shall monitor the effects of explosives residue and related by-products from project-related blasting activities. In the event water licence criteria or other criteria established in the quarry or waste rock management plans are exceeded or close to being exceeded, Mine Operations personnel will work with the Environment Department to develop and implement effective preventative and/or mitigation measures, including treatment, if necessary, to ensure that the effects associated with the manufacturing, storage, transportation and use of explosives do not negatively impact the Project and surrounding areas.

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- Retain as much vegetation as practicable to maintain slope stability.
- The side slopes of the borrow pits will be 1H:1V to 2H:1V, slightly gentler than natural slopes to reduce erosion.
- Maintain natural drainage patterns to the extent practicable.
- Maintain vegetation buffer zones to protect water bodies.
- Sources of in-pit water will be diverted away from the development area by constructing ditches and berms using rip-rap, geotextile and other sedimentation control measures. Ditching will be minimized to reduce land disturbance and will be approved by the Environment Department prior to construction.
- Organics and topsoil will be salvaged and stored for use in reclamation. Overburden material may be stored for reclamation or if the material is of acceptable quality, be used for construction.
- All material stockpiles, including aggregate, rock, waste rock and overburden, will be located at least 31 meters above the OHWM of any water body, unless for immediate use.
- Use riprap to reinforce drainage channel corners and water discharge points.
- Promote natural revegetation where required to stabilize slopes.
- Adequate sediment and erosion control measures, including silt fences, turbidity curtains, settling ponds and gravel berms, will be installed around the development area to protect adjacent watercourses and water bodies from potential adverse impacts such as sedimentation and elevated turbidity levels (Section 4.9– Sediment and Erosion Control).
- Use proper fuel containment and handling techniques, and have spill kits accessible.
- Use proper explosives handling techniques to minimize waste.
- Ice-rich material will be stockpiled 31 m above the OHWM of any water body and in a location where melt water will not re-enter the pit or have adverse impacts on adjacent aquatic resources.
- Dust shall be controlled as per the Air Quality and Noise Abatement Management Plan

### 4.25.3 RELATED DOCUMENTS

- QIA Commercial Lease
- CIRNAC Quarry and Land Use Permits (various)
- Life of Mine Waste Rock Management Plan (BAF-PH1-830-P16-0029)
- Borrow Pit and Quarry Management Plan (BAF-PH1-830-P16-0004)
- Baffinland – Site Specific Quarry Management Plans (various)

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# 4.26 CONCRETE PRODUCTION

## 4.26.1 ENVIRONMENTAL CONCERN

As required, during construction, concrete will be mixed at batch. Cement will be mixed with water and aggregate to make the concrete. Waste concrete will arise from off-spec mixes, residual concrete at the end of pours, and from wash down of the equipment. It is important to ensure that there are no spills of waste cement or cement wash water runoff onsite as concrete is corrosive and waste runoff can impact the surrounding environment.

Another major concern is dust formation from the production of concrete. Dust will have a significant impact on the air quality on site so it is important that all precautionary measures, as outlined in the Air Quality and Noise Abatement Management Plan, are taken to contain and reduce the potential impact of dust generation.

## 4.26.2 ENVIRONMENTAL PROTECTION MEASURES

- To the greatest extent practicable, concrete production shall occur within a batch plant in order to ensure the dust is contained and Best Management Practices will be implemented to minimize potential onsite dust generation effects.
- Sealift shipping of cement to site will be done using tote bags stored in sealed sea can containers which will reduce the likelihood of any spills occurring onsite.
- A purpose built concrete wash water pond shall be used to receive all wash water from concrete related activities in order to allow for the settling of solids, decant analysis and pH adjustment as required. Wash water will be recycled back into concrete production to the fullest extent possible in order to reduce water use and the quantity of wastewater generated by concrete production. All concrete product waste shall be disposed in a concrete wash pond or at other Environment Department approved locations that have low potential for negative effects to the receiving environment.
- Lined containment areas will be used to wash concrete delivery trucks' drums and chutes on-site in order to minimize runoff of waste wash water.
- Waste hardened concrete will be used as either fill, or disposed of at the Landfill.

## 4.26.3 RELATED DOCUMENTS

- Air Quality and Noise Abatement Management Plan (BAF-PH1-830-P16-0002)
- SWAEMP (BAF-PH1-830-P16-0026)
- FWSSWMP (BAF-PH1-830-P16- 0010)

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# 4.27 EXCAVATIONS AND FOUNDATIONS

## 4.27.1 ENVIRONMENTAL CONCERN

Various activities requiring excavations and foundations will be undertaken throughout the life of the Project. Such activities include driving pile foundations for buildings, excavating foundations for buildings and excavating abutments for bridges.

Excavations and foundations on site may have several environmental impacts that could potentially occur throughout the life of the Project, including loss of vegetation and wildlife habitat, effects on the stability and profile of permafrost, erosion, sedimentation, and water ponding.

## 4.27.2 ENVIRONMENTAL PROTECTION MEASURES

- Minimize vegetation disturbance as much as possible to enhance soil stability (see Section 4.3– Land Disturbance).
- Ensure adequate drainage and maintain natural drainage patterns.
- Locate the development in a well-drained area whenever feasible.
- Ensure excavations are properly drained and that surface water drainage is diverted away from development areas whenever feasible.
- Adequate sediment and erosion control measures, including silt fences, silt curtains, settling ponds and gravel berms, will be installed around the development area to protect adjacent watercourses and water bodies from adverse impacts such as sedimentation and elevated turbidity levels (see Section 4.9– Sediment and Erosion Control).
- For more details on work activities related to water crossings (culverts, bridges), see OES: Tote Road Watercourse Crossing Installation (Section 4.18).

## 4.27.3 RELATED DOCUMENTS

- Borrow Pit and Quarry Management Plan (BAF-PH1-830-P16-0004)

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# 4.28 AIR QUALITY, NOISE AND VIBRATIONS

## 4.28.1 ENVIRONMENTAL CONCERN

Potential sources of project-related effects on air quality include exhaust emissions from vehicles, mining and construction activities, aircraft, generators and other equipment, emissions from incinerators, and fugitive dust emissions from road traffic during snow-free periods. Construction activities have the potential to generate emissions of airborne particulates that may result in short-lived periods of elevated particulate matter ($PM_{10}$ and $PM_{2.5}$) concentrations. Significant quantities of particulate matter during these periods may be transported by weather conditions to accommodation areas of the Project, resulting in potential health and safety issues for personnel. Dust generated from vehicles and construction activities may potentially affect the health of vegetation, wildlife, personnel and local communities as well as the safety of personnel and local residents around the site.

Noise and vibration is generated from construction activities such as the use of machinery, diesel generators, vehicles, drilling, excavation, crushing of aggregate, and blasting. When no control measures have been put in place, personnel working with or near noisy equipment or processes may be affected by high direct or ambient noise which could potentially result in noise induced hearing loss. High noise and vibration levels can also affect wildlife, causing changes in behavior or avoidance of affected areas, for at least temporary periods.

## 4.28.2 ENVIRONMENTAL PROTECTION MEASURES

- Exhaust stacks for power generators will be clustered within one to two stack diameters of each other to enhance plume rise, thereby reducing ground-level concentration of contaminants.
- Ongoing installation of hoods and shrouds on Crusher Facility equipment (stackers and conveyors) to minimize dust generation during crushing operations.
- Installation of rubber bellows on Crusher Facility and Ore Stacking equipment to control the fall of ore to the pad, and reduce dispersion of dust as ore is being discharged to the pad.
- Evaluating and adjusting conveyor heights to minimize drop distances to ore stockpiles, which serves to minimize dust creation.
- Installation of shrouding at the discharge end of the ore stackers to reduce the effect of windblown dust during stacking activities.
- Potential installation of chutes on the ship loader to prevent windblown dust during loading operations.
- Systematic watering in combination with the application of calcium chloride or other approved dust suppressant products in accordance with GN's guideline for dust suppressants.
- Reducing vehicle speed limits to minimize wheel-entrained dust generation.
- The primary mitigation for noise is to ensure that all mobile equipment is equipped with properly functioning mufflers and that all mobile equipment and machinery is well-maintained.

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### 4.28.3 RELATED DOCUMENTS

- Air Quality and Noise Abatement Management Plan (BAF-PH1-830-P16-0002)
- GN – Environmental Guideline for Dust Suppression on Unpaved Roads (2014)

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# 4.29 POST-CONSTRUCTION ACTIVITIES

## 4.29.1 ENVIRONMENTAL CONCERN

Post-construction activities may include the re-contouring stockpiled soil and overburden, natural re-vegetation, restoring natural drainage patterns, equipment and waste removal etc., as required within the Project footprint in order to prepare for the Reclamation Phase of the Project and minimize environmental impacts.

The loss of terrestrial and aquatic habitat, erosion and slope failure, and the disturbance and/or destruction of historic resources are environmental concerns associated with the potential activities related to construction. With the proper post-construction activities in place, the physical environment shall be more readily restored and remediated to mitigate the potential impacts listed above.

Refer to the Preliminary Mine Closure and Reclamation Plan (FEIS, Appendix 10G) for more information on Post-Construction Activities and progressive reclamation.

## 4.29.2 RELATED DOCUMENTS

- Baffinland – Final Environmental Impact Statement (FEIS) – Appendix 10G
- Interim Abandonment and Reclamation Plan (BAF-PH1-830-P16-0012)

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# 4.30 PROTECTION OF THE MARINE ENVIRONMENT AND WILDLIFE

## 4.30.1 ENVIRONMENTAL CONCERN

Potential environmental impacts have been identified such as underwater and airborne noise, release of sediment into the water, and accidental introduction of hydrocarbons or other deleterious substances/materials into the marine environment. Should these potential impacts affect the marine habitat and wildlife, the appropriate protection and mitigation measures need to be implemented.

The Marine Environmental Effects Monitoring Plan (Appendix H of the Shipping and Marine Wildlife Management Plan) is reviewed by the Marine Environment Working Group and submitted annually to the Nunavut Impact Review Board.

The objectives of the MEEMP are to:

- Address regulatory requirements, especially those listed in NIRB Project Certificate No. 005.
- Develop a comprehensive and integrated environmental monitoring program that includes follow-up as required.
- Incorporate an ecosystem-based approach for monitoring and management of Project-related environmental effects.
- Coordinate all aspects of project-related marine environment effects monitoring.

## 4.30.2 RELATED DOCUMENTS

- Shipping and Marine Wildlife Management Plan (BAF-PH1-830-P16-0024)
- Marine Environmental Effects Monitoring Plan (BAF-PH1-830-P16-0046)

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# 4.31 FRESHET MANAGEMENT

## 4.31.1 ENVIRONMENTAL CONCERN

The significant surface water flows that occur during freshet can result in significant erosion and damage to road embankments and water crossing infrastructure. Improper management and/or lack of preparation for freshet can lead to significant washouts (i.e. sediment releases), production losses, schedule delays and regulatory enforcement. Baffinland developed a number of protocols and plans to mitigate the potential impacts associated with freshet.

## 4.31.2 ENVIRONMENTAL PROTECTION MEASURES

- Fish-bearing water crossings are to be physically marked so that they can be easily identified in the spring prior to snow/ice melt.
- Snowpack upstream and downstream of water crossings (i.e. culverts) and around check dams and other water management structures is to removed prior to freshet to reduce the volume of snow melt. The excess snow must be transported to an approved snow stockpile for disposal as per the Snow Management Plan.
- Snow stockpiles are inspected weekly during freshet as outlined in the Snow Management Plan for sediment and debris releases and to assess whether stockpiles are blocking or hindering meltwater flow.
- Repairs and modifications to surface water management infrastructure should be completed prior to freshet. Routine maintenance of these structures should be conducted throughout freshet, as required, to ensure their effective performance.
- Culverts and bridges should be monitored for snow and ice blockage. Preventative snow excavation and steaming is to occur at priority culverts, including fish-bearing crossings, prior to Freshet. During Freshet, any snow and ice blockages must be removed through excavation and steaming to re-establish flows. Caution is to be taken not to damage culvert ends when clearing out culverts with an excavator.
- Sedimentation control measures such as silt fences, sumps and check dams, settling ponds, berms, rip rap and armoring, silt curtains, and pumping strategies are to be implemented, as required, to slow runoff water flow and settle sediments prior to the water entering watercourses. All reasonable efforts need to be made to prevent siltation from entering water bodies. Under certain circumstances, a controlled breach of the road may also be necessary to allow upstream flows to subside and to minimize overall damage to the road.
- In the event of significant erosion or siltation, refer to the SWAEMP.

## 4.31.3 RELATED DOCUMENTS

- SWAEMP (BAF-PH1-830-P16-0026)
- Snow Management Plan (BAF-PH1-300-P16-0002)

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- Roads Management Plan (BAF-PH1-830-P16-0023)
- Sedimentation Mitigation Action Plan (Golder, 2016)
- Freshet Preparations - Culvert Excavation Procedure (BAF-PH1-370-PRO-0005)

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## 4.32 COMPLIANCE INSPECTIONS

Individual departments are responsible for maintaining a clean, safe and environmentally acceptable work area. Departments are expected to conduct and document regular inspections of their work areas and facilities to ensure the commitments and expectations regarding health, safety and environment are being met or exceeded. Inspection documentation shall be made available to Environment personnel conducting periodic inspections or to external inspectors, regulators, and agencies conducting inspections under the terms and conditions of Baffinland's licences, permits, authorizations, and leases.

In addition to departmental inspections, the Environment Department will conduct routine compliance inspections throughout the Project to confirm personnel are operating in accordance with Baffinland's Water Licences, permits and other regulatory requirements put in place by stakeholders, land owners and government regulators. The schedule for conducting environmental inspections will vary from month to month and will be established by the Environmental Coordinators and approved by the Environmental Superintendent. The schedule will be developed based on a Project activity risk based approach. Personnel conducting these compliance inspections will adhere to the Compliance Inspections Procedure.

While conducting inspections, departments should pay close attention to the following:

- All hazardous materials and waste is to be contained in secondary containment and not located within 31 m of the OHWM of any water body.
- Adequate secondary containment for hazardous waste should be evaluated. Secondary containment must be of sufficient size to contain a minimum of 110% of the volume capacity of the container. Type of secondary containment are seacans, drums contained within over-pack drums, spill trays, hazardous waste berms and sealed surfaces i.e. concrete pads.
- All waste and debris must be segregated and disposed of in accordance with the Waste Sorting Guidelines in the different storage containers (drums, Quatrex bags, bins etc.) and all waste containers must be labelled with a description of the waste type (open burn, landfill, incinerator, oily rags, aerosols etc.). Confirm that the waste within each container corresponds with the posted signage.
- Non-routine hazardous waste items, such as electronics, can be dropped off and sorted at the incinerator building with the approval of the Site Services Supervisor.
- Waste sorting areas should have signage in English and Inuktitut indicating the allowable waste types.
- All food waste and wildlife attractants will be disposed indoors or outdoors in a latching, appropriate container to prevent the attraction and food conditioning of wildlife. Work areas must be kept free of food waste to prevent wildlife from becoming food conditioned.
- All refueling and equipment maintenance activities must employ the use of spill trays to prevent hazardous materials such as fuel, oils and greases from spilling onto the ground when transferring these products.

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- Spill trays must be placed underneath equipment and vehicles that are in mid-term and long-term storage (i.e. equipment that is not being used for more than five (5) days) to provide secondary containment to prevent spills due to product leaks. The positioning of spill trays under vehicles must be based on an analysis of the potential points of leakage for the subject equipment or vehicle including engine oil pans, hydraulic oil pumps, fittings, and hoses, radiators, coolant reservoirs, fittings, and hoses, and fuel pumps, filters, tanks and hoses. Equipment that have had all fluids drained and are labelled as such do not require spill trays.
- All spills should be documented and reported to the Environment Department as soon as possible, and within four (4) hours of the spill. Spills should be cleaned up immediately after being reported, unless instructed otherwise by the Environment Department. For more details on spill reporting see OES: Spill Control Measures and Reporting (Section 4.33).
- For a complete list of project areas and items to monitor, refer to the Compliance Inspections Procedure.

### 4.32.1 RELATED DOCUMENTS

- Waste Sorting Guidelines (BAF-PH1-300-P25-0002)
- Hazardous Materials and Waste Management Plan (BAF-PH1-830-P16-0011)
- Waste Management Plan (BAF-PH1-830-P16-0028)
- Compliance Inspections Procedure (BAF-PH1-830-PRO-0009)

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## 4.33 SPILL CONTROL MEASURES AND REPORTING

A wide range of hazardous materials will be used during the life of the Project including Jet-A, diesel, oils, greases, antifreeze, calcium chloride salt, AN, lead acid batteries, cleaners etc.. The management of hazardous materials onsite will focus on preventing the materials from causing harm to the health and safety of personnel and the surrounding environment. All spills, leaks and releases of hazardous materials will be reported to the Environment Department immediately and documented by submitting the necessary documentation according to the Incident Reporting Procedure within four (4) hours of the spill using the Baffinland Incident Investigation Form. Should the quantity of the spill, or receiving environment for the spill meet the reporting requirements outlined in Table 9 below, the Environmental Superintendent will report the spill to the 24-hour Northwest Territories-Nunavut (NT-NU) Spill Report Line, or other applicable reporting process, using the NT-NU Spill Report Form (Appendix G - NT-NU Spill Report Form). The department responsible for the spill will complete an in depth investigation for all spills that are reported to the 24-hour NT-NU Spill Report Line, or other applicable reporting process.

Refer to the Spill Contingency Plan and ERP for various emergency response action levels based on type of hazardous product spilled, volume spilled and type of receiving environment. A brief summary of the three spill response action levels are as follows. Each level of emergency, based on the significance of the event, requires varying degrees of response, effort and support. With emphasis on spills and releases, the three response levels are as follows:

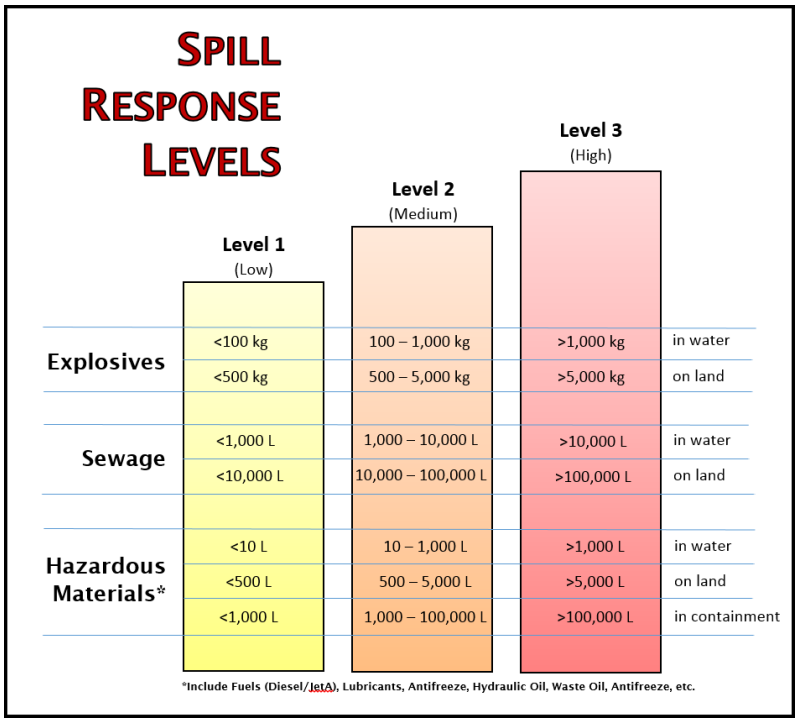
1. Level 1 (Low) – Minor accidental release of a deleterious substance with:
    - No threat to public safety; and/or
    - Negligible environmental impact to receiving environment.
2. Level 2 (Medium) – Major accidental release of a deleterious substance with:
    - Some threat to public safety; and/or
    - Moderate environmental impact to receiving environment
3. Level 3 (High) – Uncontrolled hazard which:
    - Jeopardizes personnel safety: and/or
    - Significant environmental impacts to receiving environment

For spills, the level of emergency response to a spill incident is based on the substance released, quantity spilled, receiving environment that is potentially impacted, and human health risk. The level of response is also based on whether the location of the spill release is within engineered containment. The following matrix provides a working guideline for personnel.

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Emergency spill response training shall be completed in conjunction with the ERP. Baffinland's Emergency Response Team Commander, with support from the Environmental Superintendent, will identify training needs and the resources required to provide the necessary skills to personnel tasked with duties in emergency and spill response. Emergency spill response often occur in parallel with emergency responses. To facilitate efficient emergency response to all different types of emergency scenarios, personnel on the Emergency Response Team (ERT) are trained to respond to Health and Safety emergencies and shall also receive sufficient training to effectively respond to accidental releases of hazardous materials.




Internal spill reports are to be provided by the responsible department to the Environment Department as per the Incident Reporting Procedure. All external reporting to outside agencies will be completed by the Environment Department.

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**TABLE 9: GENERAL SPILL REPORTING AND CLEAN UP STANDARDS**

| **Spill on Land** | | |
|---|---|---|
| **Volume (L)** | **Required Documentation** | **Spill Clean up** |
| Less than 1 liter | - Verbal or email report by responsible department | - Environment Department will advise if needed |
| Greater than 1 liter and less than 100 liters | - Photos of Spill and Clean-up and Incident Investigation Report submitted by responsible department<br>- NT-NU Spill Report submitted by Environment Department | - Environment Department will inspect and advise clean-up efforts for spills greater than 50 liters |
| Greater than 100 liters | - Photos of Spill and Clean-up and Incident Investigation Report submitted by responsible department<br>- In depth investigation completed by responsible department (i.e. 5 WHYs analysis)<br>- NT-NU Spill Report submitted by Environment Department | - Environment Department will inspect and advise clean-up efforts |
| **Spill on Water Body** | | |
| **Volume (L)** | **Required Documentation** | **Spill Clean up** |
| Any volume | - Photos of Spill and Clean-up and Incident Investigation Report submitted by responsible department<br>- In depth investigation completed by responsible department (i.e. 5 WHYs analysis)<br>- NT-NU Spill Report submitted by Environment Department | - Environment Department will inspect and advise clean-up efforts |

### 4.33.1 RELATED DOCUMENTS

- Appendix G - NT-NU Spill Report Form
- Incident Investigation Form (BAF-PH1-810-FOR-0005)
- Incident Reporting Procedure (BAF-PH1-810-PRO-0034)
- Spill Contingency Plan (BAF-PH1-830-P16-0036)
- ERP (BAF-PH1-840-P16-0002)
- Spill Contingency Plan (BAF-PH1-830-P16-0036)
- Exploration Spill Contingency Plan (BAF-PH1-830-P16-0037)
- Milne Port Oil Pollution Emergency Plan (BAF-PH1-830-P16-0013)

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# 5 REFERENCES AND RECORDS

BAF- PH1-300-PRO-0001 - Open Burning of Untreated Wood, Cardboard and Paper Products Procedure

BAF- PH1-820-POL-0001 - Hunting and Fishing (Harvesting) Policy – On or Near Baffinland Leased Lands

Baffinland – Final Environmental Impact Statement – Appendix 10G

Baffinland – Site Specific Quarry Management Plans (various)

BAF-PH1-300-P16-0002 - Snow Management Plan

BAF-PH1-300-P25-0002 - Waste Sorting Guidelines

BAF-PH1-350-PRO-0010 - Bulk and Equipment Re-Fueling Procedure

BAF-PH1-370-PRO-0005 - Freshet Preparations - Culvert Excavation Procedure

BAF-PH1-400-PRO-0014 - Helicopter Use Procedure

BAF-PH1-810-FOR-0005 - Incident Investigation Form

BAF-PH1-810-PRO-0002 - Tote Road Travel Procedure

BAF-PH1-810-PRO-0034 - Incident Reporting Procedure

BAF-PH1-830-P16- 0010 - Freshwater Supply, Sewage and Wastewater Management Plan (FSSWMP)

BAF-PH1-830-P16-0002 - Air Quality and Noise Abatement Management Plan (AQNAMP)

BAF-PH1-830-P16-0004 - Borrow Pit and Quarry Management Plan

BAF-PH1-830-P16-0011 - Hazardous Materials and Waste Management Plan

BAF-PH1-830-P16-0012 - Interim Abandonment and Reclamation Plan

BAF-PH1-830-P16-0013 - Milne Port Oil Pollution Emergency Plan

BAF-PH1-830-P16-0023 - Roads Management Plan

BAF-PH1-830-P16-0024 - Shipping and Marine Wildlife Management Plan

BAF-PH1-830-P16-0026 - Surface Water and Aquatic Ecosystems Management Plan (SWAEMP)

BAF-PH1-830-P16-0027 - Terrestrial Environment Mitigation and Monitoring Plan (TEMMP)

BAF-PH1-830-P16-0028 - Waste Management Plan

BAF-PH1-830-P16-0029 - Life of Mine Waste Rock Management Plan

BAF-PH1-830-P16-0036 - Spill Contingency Plan

BAF-PH1-830-P16-0037 - Exploration Spill Contingency Plan

BAF-PH1-830-P16-0041 - Polar Bear Safety Plan

BAF-PH1-830-P16-0046 - Marine Environmental Effects Monitoring Plan

BAF-PH1-830-PRO-0002 - Hunter and Visitor Site Access Procedure

BAF-PH1-830-PRO-0007 - Reporting Procedure for Wildlife Incidents

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BAF-PH1-830-PRO-0009 - Compliance Inspections Procedure

BAF-PH1-840-P16-0002 - Emergency Response Plan (ERP)

BAP-PH1-830-P16-0006 - Cultural Heritage Resource Protection Plan

Crown-Indigenous Relations and Northern Affairs Canada [CIRNAC] - Quarry and Land Use Permits

E337697-PM407-50-126-0001 - Explosives Management Plan

Fisheries and Ocean [DFO] Canada – Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters

DFO - Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html)

DFO - Fisheries Authorizations (various)

DFO - Interim Code of Practice: Culvert Maintenance (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/culvert-maintenance-entretien-ponceaux-eng.html)

DFO - Interim Code of Practice: Temporary Cofferdams and Diversion Channels (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/cofferdams-batardeaux-eng.html)

DFO - Interim Code of Practice: Temporary Stream Crossings (Online at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/temporary-crossings-traversees-temporaires-eng.html)

Golder Associates Ltd. - Sedimentation Mitigation Action Plan (2016)

Government of Nunavut [GN] - *Nunavut Archaeological and Palaeontological Sites Regulations* SOR/2001-220

GN - Environmental Guideline for Dust Suppression on Unpaved Roads (2014)

GN - Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities (2011)

GN - Environmental Guideline for Used Oil and Waste Fuel (2012)

GN - Nunavut Wildlife Act (2005)

Inuit Impact Benefit Agreement

Environment and Climate Change Canada [ECCC] Migratory Bird Convention Act (1994)

Nunavut Impact Review Board [NIRB] - Project Certificate No. 005

Nunavut Water Board [NWB] - Type “A” Water Licence (2AM-MRY1325 Amended No. 1)

NWB - Type “B” Water Licence (2BE-MRY2131)

Qikiqtani Inuit Association [QIA] - Commercial Lease No. Q13C301

QIA - Directive 2013-1-17-2

Transport Canada - Navigable Waters Authorizations (various)

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# APPENDIX A - CULTURAL HERITAGE CHANCE FIND DISCOVERY FORM

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| Cultural Heritage Chance Find Discovery Form | Reference No. : (Environment Department assigns) |
|---|---|

Please complete this form in the event of a chance find of a suspected burial, archaeological finds scatter, or an isolated find of a single artifact (e.g. stone tools/arrowheads, eggshell, pottery, concave milling/grinding stones, spherical hammerstones)

| | |
|---|---|
| **Date of discovery:** | **Time:** |
| **Name of discoverer/team:**<br>**Department/ Company:** | **Tel:**<br>**Email:** |

| | |
|---|---|
| **Location of the discovery:** | Project area & activities:<br>GPS coordinates: |

**Description of archaeological discovery:**

| | | |
|---|---|---|
| **Estimated weight (kg):** | kg | |
| **Dimensions (cm):** | Length x width x thickness (cm) | x x cm |

| | |
|---|---|
| **Sketch of discovery area:** | **Drawing of chance find(s):** |

**Temporary protection implemented:**

| | | |
|---|---|---|
| **Name:** | **Signature:** | **Date:** |
| **Environment Receiver:** | **Signature:** | **Date:** |

Notes:

If you need more room to draw or describe the discovery area/finds, please use back of the page.
**Please return this form to the Environment Department as soon as possible (within 24 hours of discovery at the most).**

# APPENDIX B - HUNTER AND VISITOR ACCESS LOG

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# Visitor / Hunter Sign-in Sheet

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| Date<br>ᐅᖅᓗᒥ | Check-in<br>ᐃᓱᖅᑐᐃᑦ | Check-out<br>ᐊᓂᔨᐃᑦ | Name<br>ᑭᓇᐅᕆᑦ? | Community<br>ᓇᑭᖏᓐᓄᖅᐱᓱ? | Total gas (L) given from the Mine Site<br>ᖃᓄᐊᐅᓕᖏᓐᑐᖅᑐᓱᓕᑦ<br>(ᓀᓕᑎᒍᑦ)<br>ᑐᓂᔨᐅᓱᒪᓕᖅᑐᑦ<br>ᐅᔨᕋᓱᐊᕐᕕᖏᓐᒥᑦ | Was any equipment repaired? Define.<br>ᐱᕐᑯᑎᑦ ᓱᕋᖅᓱᒪᔨᓕᑦ<br>ᕿᕐᕈᑕᐅᔨᕆᓚᐊᖃᓕᐅᖅᑕᕐᓂᑦ? | Number of caribou in possession.<br>ᖃᓄᐊᓱᓂᑦ<br>ᑐᓴᑐᓂᑦ<br>ᐱᓱᒪᓐᓂᑦ | Purpose of visit ?<br>ᐱᔭᐊᑎᒋᔨᖏᓐᓄ<br>ᐳᓀᕐᓂᐅᔪᑦ | Drugs or Alcohol? Signature Required.<br>ᐊᓯᖏᓚᕐᓇᖅᑐᖃᖅᖃᐱᐅ?<br>ᐊᑎᓕᐅᓚᐊᓂᒃ | Comments<br>ᐅᖃᐅᓱᓴᑦ |
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Baffinland

| Date | Time | Name of Contact | Other Names of People in the Party | Total # of People in Hunting Party | Everyone in the Party is Safe/OK? (if answer is no, contact HSS Superintendent) | Community they are from | Description of Activities (hunting, fishing, just visiting the area etc.) | Destination (Hunting locally, Mary River, Milne Port, back to community etc.) | # Caribou | Amount of Gas Requested | Other Supplies Requested (food, oil, batteries etc.) | Equipment repair requested | Transportation Requested | Was the request completed? (provide any details available & what was provided) | Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
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# APPENDIX C - HUNTER AND VISITOR ACCESS PROCEDURE

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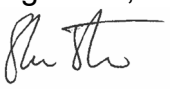
# Baffinland Iron Mines Corporation

## HUNTER AND VISITOR SITE ACCESS PROCEDURE

## BAF-PH1-830-PRO-0002

## Rev 2

**Prepared By:** Shawn Stevens
**Department:** Health and Safety
**Title:** Manager of Health, Safety, Environment and Security
**Date:** August 12, 2020
**Signature:**



**Approved By:** Timothy Sewell
**Department:** Health and Safety
**Title:** Senior Director of Health, Safety, Environment, Security and Training
**Date:** August 12, 2020
**Signature:**



# DOCUMENT REVISION RECORD

| Issue Date MM/DD/YY | Revision | Prepared By | Approved By | Issue Purpose |
|---|---|---|---|---|
| 02/13/15 | 0 | J. S.P.B | J.M. & B.P | Issued for Use |
| 02/17/15 | 1 | J.S.P.B. | J.M. & B.P. | Use |
| 08/12/20 | 2 | SS | TS | Added COVID-19 Visitor Protocols |
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# 1 PURPOSE

Baffinland Iron Mine Corporation's (Baffinland) Mary River Project Area has traditionally been, and continues to be utilized by hunters and visitors of the North Baffin Region. In accordance with Article 13 of the Mary River Project Inuit Impact and Benefit Agreement (IIBA), Baffinland welcomes the safe arrival and visitation of Inuit enrolled in the Nunavut Agreement who are travelling through the Project area; however, it is critical to maintain the safety and well-being of all site personnel and those visiting Project sites during their stay and travels. This document outlines the procedure for all non-employees (hunters and visitors) entering the Project area, and identifies safe access routes to Milne Port and Mine Site.

Baffinland recognizes that Inuit enrolled in the Nunavut Agreement have a right of access under the Nunavut Land Claims Agreement for the purpose of harvesting. However, while passing through Baffinland's Project area, *everyone* is required to comply with the Baffinland's Safety procedures, and camp rules.

# 2 SCOPE

This Hunter and Visitor Site Access Procedure applies to all Project employees (Baffinland and Contractor) as well as site visitors and hunters entering the Project area in order to access Milne Port and/or Mine Site accommodation complexes. This procedure identifies safe access routes to, and within, Project areas, shipping routes and provides specific rules that must be followed when hunters and visitors arrive at these sites.

**Note: During the COVID-19 Pandemic the Visitor requirements within this document will be superseded by Appendix F-Baffinland COVID-19 Visitor Protocols**

# 3 DEFINITIONS

**Inuit enrolled in the Nunavut Agreement:** Refers to Inuit as defined by the Nunavut Land Claims Agreement (NLCA).

**Baffinland:** Baffinland Iron Mines Corporation

**Employees:** Anyone in receipt of salary or wages from Baffinland. This includes Officers of Baffinland.

**Hunter:** A person who hunts game or other wild animals for food or in sport.

**Inuit:** Means Inuit as defined in Article 1 of the NLCA.

**Inuit Impact and Benefits Agreement (IIBA):** The agreement signed in September 2013 between Baffinland and the Qikiqtani Inuit Association.

**Mittimatalik Hunters and Trappers Organization:** The Hunters and Trappers Organization ("the HTO") representing Pond Inlet, NU.

**Nunavut Land Claims Agreement (NLCA):** means the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada made the 25th day of May, 1993, as ratified pursuant to a vote of the Inuit of the Nunavut Settlement Area and enacted by Canada pursuant to the *Nunavut Land Claims Agreement* Act (Canada).

**Project Area:** Includes all land, property, buildings, offices, facilities, accommodations, grounds, sites, equipment, vehicles, aircraft whether owned, leased, managed, or used by Baffinland, wherever it may be located.

**Sites:** Mine Site, Milne Port, Steensby Inlet and the Tote Road are Baffinland workplaces.

**Weapon:** Tools used for wildlife harvesting and or in self-defense. This includes spears, gaff hooks, harpoons as well as non-restricted and restricted firearms.

**Visitors:** Any non-employee or employees who are off-rotation and accessing the Project area from land and/or water.

# 4 RESPONSIBILITES

## 4.1 SECURITY DEPARTMENT

Baffinland's Security Department is responsible for welcoming and checking-in all hunters and visitors arriving at the Project Sites. Security will assist the Environment Department by documenting the arrival and departure of site hunters and visitors in the at Milne Port and Mine Site. This documentation involves:

- Ensuring hunters and visitors write in the hard copy *Hunter and Visitors Access Log* every time they arrive or leave the accommodations complexes (Appendix A).
- Updating the Sharepoint *Hunter and Visitors Access Log* excel file with every entry from the hard copy log, and any further information regarding requests and interactions.
- Scanning the hard copy logs and sending a copy of the scan to the Environment Department.
- Drafting and sending an email notification to the BIM-Onsite Hunters distribution group when hunter and visitors arrive and depart each respective site (Appendix B).
- Any tools or equipment borrowed from Baffinland signed in and out from Security by hunter and visitors is to be documented diligently. Any tools or equipment not returned to Security is to be reported to the Environment Department.

The Security Department will also provide appropriate information to hunter and visitors pertaining to Baffinland's health, safety, and security procedures in addition to the camp rules that must be followed while visiting Project Sites. Security is to review and provide hard copies of the site access guidelines and maps for both sites with hunter and visitors upon their arrival (Appendix C). Security will provide an orientation of the camps and provide a hand-out summarizing this information (Appendix D).

Security will ensure that any written information provided to site visitors is in English and Inuktitut, as required. Security will coordinate any translation services for verbal communication through assistance of the Cultural Advisors, as required.

Security is also responsible for enforcing these rules for all project personnel and visitors, which may include drug, alcohol and weapon searches. Security may request the Cultural Advisors to be present, assist in relaying information, and/or translating while enforcing these rules.

Upon any requests from Hunter and Visitors, Security is to relay requests in a timely manner to the appropriate departmental supervisor and the Environment Department. If hunter and visitors require firearms trigger locks or cases, these will be signed out and provided by Security.

## 4.2 SITE SERVICES DEPARTMENT

Baffinland's Site Services Department is responsible for the transportation and escorting of any hunter and visitors while on site, in addition to fulfilling various supply requests i.e. fuel. This includes inter-site Tote Road Access and site access at both Milne Port and Mary River. All personnel in the Site Services

Department are responsible for reviewing and understanding the site access guidelines to ensure drivers and operators are aware of equipment pick up and drop off locations.

Site Services is required to gain the authorization of the hunter and visitors requesting transportation with the Baffinland Provided Transportation Sign-Off Release Form (Appendix E) prior to moving any equipment.

The Site Services Department will ensure that adequate translated signage is posted to identify safe access routes in Project areas, and barriers are placed to delineate hazardous or restricted areas.

## 4.3 Human Resources

When requested and available, the Cultural Advisors on-site will assist Security in greeting visiting parties and further inform them of the camp rules, safe parking and access locations, and Baffinland's health and safety procedures and protocols. Translation services may be requested by Security as required.

## 4.4 Environment Department

Baffinland's Environment Department is responsible for advising on any questions or concerns raised by hunter and visitors will accessing the Project sites.

The Environment Department and the Qikiqtani Inuit Association (QIA) Environmental Monitors on site will assist in relaying information between hunter and visitors, and Baffinland's various departments while Baffinland fulfills any requests or addresses any questions or concerns, as required.

## 4.5 Sustainable Development Department

Baffinland's Sustainable Development Department, through the Head of Northern Affairs and Community Liaison Officers, is responsible for communicating this procedure to Hunter and Trapper Organizations (HTO) throughout the North Baffin Communities, particularly the Mittimatalik HTO in Pond Inlet, as it is the closest HTO to the Project area. HTOs are to be provided with regular reminders of this overall procedure, safe access route maps, and the specific procedures and protocols that must be followed when visiting the Project area.

The Baffinland Community Liaison Officers (BCLOs) are responsible for providing hunter and visitors with the site access guidelines (Appendix C) in English and Inuktitut. The BCLOs are to review Baffinland's site access guidelines, camp rules and safety procedures with hunter and visitors. This includes expectations for where hunter and visitors are to park, sleep and store their weapons. In addition to providing notification to site as per Section 5.1 to BIMSiteEnvironment@baffinland.com.

## 4.6 Hunters and Trappers Organization

Ensure members have read and understand this procedure for the safe access to Project sites.

Adhere to all site rules and policies as communicated by site security.

Ensure members do not bring any drugs or alcohol to Project sites.

# 5 PROTOCOL

## 5.1 COMMUNICATION

Communication between departments, employees, contractors, and site visitors is key to the safety and security of all individuals at the Project. Contact information for all parties involved is listed in Table 1.

BCLOs are to notify Baffinland's email distribution group BIMSiteEnvironment@baffinland.com with advanced notice when and where to expect hunter and visitors. This notification is to also include notice if the hunters are going to be requesting anything, such as transportation. If transportation is requested, the BCLO must gather and send Baffinland's on site departments information on number of passengers and quantity and size of equipment as well as estimated time of arrival at Milne Port or Mine Site.

Site Security will be responsible for ensuring that information about site visitors and hunters accessing the Project area is shared with all applicable departments through the required email distribution to the BIM-Onsite Hunters email group. This includes, but is not limited to, Environment, Site Services, Dispatch, Road Maintenance, and Stockpiling and Ship loading.

**TABLE 1 HUNTER AND VISITOR SITE ACCESS NOTIFICATION - CONTACT INFORMATION**

| | NAME | COMMUNITY | CONTACT INFORMATION |
|---|---|---|---|
| Visitor's Notification of Intent to Visit Site to BCLO | George Iqalukjuak | Clyde River | George.Iqalukjuak@baffinland.com<br>1.867.924.6444 |
| | Meena Oyukuluk | Arctic Bay | Meena.Oyukuluk@baffinland.com<br>1.867.439.8847 |
| | Terry Killiktee | Pond Inlet | Terry.Killiktee@baffinland.com<br>1.867.899.1844 |
| | Deborah Qanatsiaq | Hall Beach | Deborah.Qanatsiaq@baffinland.com<br>1.867.928.8497 |
| | Vacant | Igloolik | TBD<br>1.867.934.8464 |
| BCLO's Notification of Hunter's Intent to Visit Site to Environment Department | Environment Department | Site | BIMSiteEnvironment@baffinland.com |
| Security's Notification of Visitors On Site to All Departments | BIM-Onsite Hunters | Site | onsitehunters@baffinland.com |

## 5.2 ACCESS TO PROJECT FACILITIES

Safe access routes for non-employees (hunters and visitors) travelling via land and/or water to visit the accommodations complexes at Milne Port or the Mine Site are identified in the appended Site Access Guidelines (Appendix C) and Figures 1 to 6. Adequate signage at both Milne Port and Mine Site shall be posted in English and Inuktitut for hunters and visitors to follow when entering Project areas. All hunters

and visitors must follow the identified safe access routes in and around the Project area. Outlined restricted areas at either camp or along the Tote Road cannot be accessed without a Baffinland escort at any time.

Access route guidelines and maps shall be made available in both English and Inuktitut at each Baffinland Community Liaison Office, HTO cabin, and Baffinland Security Office.

### 5.2.1 Access to Project Facilities at Milne Port

Access routes to Milne Port Project facilities have been designated from the north-east of Milne Inlet (from the HTO Cabin). A designated safe landing zone for boats and snowmobiles arriving at Milne Port is located on the north-east shoreline from existing project infrastructure, at the HTO cabin.

The Port Site Complex (PSC) accommodations building and security office can be accessed following the route southwest from the HTO cabin to the PSC. A designated snowmobile and ATV parking zone is located north east of the PSC, as outlined in Figures 1 to 3. From the parking location, the PSC is accessed via foot or escorted driving only. At no time are hunter and visitors allowed to sleep in the accommodations buildings.

### 5.2.2 Access to Project Facilities at the Mine Site

An access route to Mary River Project facilities has been designated from the southwest of the Sailiivik Camp (from the HTO cabin). A designated safe landing zone for snowmobiles arriving at Mary River is located to the west of the Sailiivik camp. A designated safe landing zone for ATVs arriving at Mary River is located.

The Sailiivik camp accommodations building and security office can be accessed following the route east from the HTO cabin. From the snowmobile parking location, the Sailiivik camp is accessed via foot or escorted driving only, as outlined in Figures 4 to 6. At no time are hunter and visitors allowed to sleep in the accommodations buildings.

### 5.2.3 Access to the Tote Road

As it is Baffinland's corporate and social responsibility to ensure the safety and security of its employees and non-employees visiting Project areas and to prevent accidents and injuries due to potential collisions with heavy equipment, **unescorted travel along the Tote Road is prohibited at all times**. Escorted or facilitated travel is permitted, with the following conditions during summer and winter.

Summer Travel

During the summer months, all hunters and visitors must notify the Security Department if they intend to travel between Milne Port and Mary River. At this time Baffinland will provide arrangements for a safe method of travel which shall be determined based on the resources available and size of the party and their equipment requiring travel. **Unescorted travel along the Tote Road is prohibited at all times**.

Winter Travel

Hunters and Visitors must advise the Security Department when Tote Road crossings are necessary during travel between the Milne Port and Mary River Project sites prior to their departure. It is asked that times and crossing locations are provided at this time. The Security Department will provide notification to Tote Road users (heavy equipment and light vehicles) and Ore Handling Dispatch to allow for safe crossings. Regardless of this notification, Hunters and visitors must always proceed with extreme caution when crossing the Tote Road. **Unescorted travel along the Tote Road is prohibited at all times.**

## 5.3 Checking-In with Security

Upon arriving at the Project accommodation complexes, all hunters and visitors (non-employees or employees who are off-rotation and accessing site from land and/or water) must report to Security before proceeding to other complex facilities (i.e. cafeteria/recreation rooms/ country kitchen). The *Hunter and Visitor Access Log* (Appendix A) must be filled out in a legible manner by all hunter and visitors.

Security will ensure the arrival and departure of hunters and visitors is logged legibly in Baffinland's *Hunters and Visitors Access Log*.

Hunter and visitors must remove all outdoor clothing and footwear prior to proceeding to other facilities within the accommodations complexes. Boot covers must be worn over top of sock feet, which are provided at the Security entrance.

Security will present a site visitor orientation for every visitor to explain camp and emergency procedures, when a handout containing a summary of this information will be provided in English and Inuktitut (Appendix D).

## 5.4 Travelling with Weapons

Baffinland strongly encourages all hunters visiting Project accommodation complexes to safely store their weapons at the HTO cabin at which they are staying and refrain from bringing their weapons with them during their visit. All weapons are prohibited within project accommodation complexes. Should hunters have any weapon(s) in their possession, the weapon(s) must be checked-in with Security **immediately** upon their arrival for safe-keeping. Prior to handing over weapons to Security, hunter and visitors must demonstrate to security that any firearms are not loaded. Upon departure from the accommodations complexes, weapon(s) will be released to the hunter and visitors. Upon weapon release, hunters must immediately leave the accommodation complex.

For additional information pertaining to weapons at Project areas, please refer to Baffinland's *Weapons on Site Policy*. For additional information pertaining to recreational hunting and fishing, please refer to Baffinland's *Hunting and Fishing Policy*.

For details on firearms storage during transportation, see section 5.5.1.

## 5.5 Baffinland Transportation Provisions

To accommodate hunter and visitor travel within restricted areas, Baffinland is to coordinate and provide transportation of hunter and visitors and their equipment to their required destination. Hunter and visitors must adhere to Baffinland's health and safety procedures and protocols during this transportation, which include but are not limited to the following sections.

Hunter and visitors are to notify the BCLO three (3) days in advance of departure from their home community if they will require transportation upon arrival at the Project site. This notification is to include estimated time of arrival, number of passengers and quantity and size of equipment. Baffinland will endeavor to provide transportation within three (3) days of the transportation request to Baffinland's on site departments.

### 5.5.1 Transportation of Equipment

When Baffinland provides transportation of equipment for hunter and visitors, a sign-off release form (Appendix E)is required to be signed by hunter and visitors, authorizing Baffinland to handle snowmobiles, ATVs and qamutiiks and accepting the risk involved in this, in order to load them onto the method of transportation i.e. trailer. Baffinland strongly encourages hunter and visitors' presence during the loading and offloading of equipment.

This sign-off release form is to include an inventory of any and all parts, tools, small equipment and caribou on the snowmobiles, ATVs, qamutiiks etc.

If qamutiiks or ATVs contain wildlife carcasses, the carcasses are to be confined and handled only by the hunter and visitors. Baffinland may request the hunter and visitors to adjust the carcass positioning to ensure the safe handling of the equipment by Baffinland employees during the transportation process. Baffinland strongly encourages wildlife carcasses to be stored at the HTO cabins for as long as possible when hunter and visitors are accessing site accommodation complexes. This is to prevent any wildlife attractants close to project infrastructure and equipment.

### 5.5.2 Transportation of Hunter and Visitors

Hunter and visitors transported in Baffinland vehicles are to adhere to Baffinland's safety procedures at all times. This includes respecting Baffinland employees and equipment. As passengers, hunter and visitors are to ensure the driver has their full attention and focus on the task at head, transporting them safely. Any distractions to the driver will result in the vehicle being pulled over, and transportation of the hunter and visitors revoked.

If hunter and visitors in possession of firearms are to be transported by Baffinland, the firearms must be locked out and ammunition removed by hunter and visitors for transportation. This can be in the form of a trigger lock, locked case, or locked cabinet. If the hunter and visitors do not have these locks, Security will provide them.

## 5.6 Hunter and Visitor Supply Requests

Hunter and visitors may request certain supplies from Baffinland, which will be accommodated based upon supplies available on site. Food is available at the accommodation complexes, and is to be taken in day use quantities.

Fuel (gasoline and diesel) and oil can be provided by Site Services in quantities reasonable for a per-day usage i.e. 5 gallons/person/day. Propane is not stocked as a consumable on site, and won't be provided for hunter and visitor use.

If hunter and visitors require repairs to their snowmobiles, Baffinland can provide the tools for hunter and visitors to complete the repairs, or Baffinland can complete minor repairs in the way of welding or cleaning. No spare parts are available. Tools can be signed out from security and are required to be signed back in prior to departure from site. If tools or anything else borrowed from Baffinland are not returned to security, this will be documented and MHTO will be notified.

If any hunter and visitors require medical attention, Security will coordinate with the Physician Assistants to assist the hunter and visitors in the capacity that they have in their onsite clinics.

Baffinland is not responsible for any equipment or supplies left by hunter and visitors at Project sites or HTO cabins.

# 6 REFERENCES

Alcohol and Drug Search Policy

Hunting and Fishing Policy

Weapons on Site Policy

Inuit Impact and Benefit Agreement

# Appendix A Hunter and Visitor Log Template

# Appendix B Security Email Distribution Template

**To:** BIM-Onsite Hunters

Hi All,

Visitors have arrived at the _____ Site.

**Date: _____**

**Time of arrival: _____**

**Name of Individuals: _____**

**Home Community: _____**

**Estimated departure from site: _____**

**Traveling to (Mine Site/Community/Hunting location): _____**

**Purpose for visit on site: _____**

**Requested fuel: _____**

**Requested repairs: _____**

**Caribou harvested: _____**

**Additional comments: _____**

The above information has been added to the Hunter and Visitor Access Log for our records.

# Appendix C Hunter and Visitor Site Access Guidelines

# Hunter and Visitor Site Access Guidelines

*These guidelines are the step-by-step procedure to be followed by site personnel, hunters, and visitors. Please follow this procedure and all posted signage to ensure your stay at Milne Port or Mary River is as safe as possible. Safety First, Always.*

**Prior to Departure.**

1. Hunters and visitors planning on visiting Milne Port or the Mine site shall inform the Baffinland Community Liaison Officer (BCLO) prior to departure. They should provide information as to the number of people travelling, the expected date of arrival, the duration of their stay, and any supplies or transportation they may require. Should the BCLO be unavailable the hunter/visitor should inform their community Hunter and Trapper Organization (HTO).

2. The BCLO shall relay all information received from a hunter/visitor to Baffinland on site Departments by emailing BIMSiteEnvironment@baffinland.com or by calling Security at 1-647-253-0598, extension 6047. Security will then relay the appropriate information to Baffinland personnel.

3. Should the BCLO and HTO be unavailable the hunter/visitor should contact Head of Northern Affairs, Joe Tigullaraq, at 1-867 975 2502, or Security directly, at 1-647-253-0598, extension 6047.

| | NAME | COMMUNITY | CONTACT INFORMATION |
|---|---|---|---|
| Visitor's Notification of Intent to Visit Site to BCLO | George Iqalukjuak | Clyde River | George.Iqalukjuak@baffinland.com<br>1.867.924.6444 |
| | Meena Oyukuluk | Arctic Bay | Meena.Oyukuluk@baffinland.com<br>1.867.439.8847 |
| | Terry Killiktee | Pond Inlet | Terry.Killiktee@baffinland.com<br>1.867.899.1844 |
| | Deborah Qanatsiaq | Hall Beach | Deborah.Qanatsiaq@baffinland.com<br>1.867.928.8497 |
| | Vacant | Igloolik | TBD<br>1.867.934.8464 |
| BCLO's Notification of Hunter's Intent to Visit Site to Environment Department | Environment Department | Site | BIMSiteEnvironment@baffinland.com |

**Arrival at Milne Port or Mary River**

4. Upon arrival at Milne Port or Mary River, hunter/visitors shall follow all procedures and posted signage, and use the safe access route maps to report to Security.

- At no time should visitors arriving via boat in Milne Inlet approach any of the commercial marine infrastructure unless instructed to do so and escorted by a Baffinland employee.
- Please safety store **all** weapons and ammunition in the HTO cabins. Hunting and fishing equipment, including firearms, are prohibited within project accommodation complexes.
- All pets and dog teams are to remain at the HTO cabins.
- Milne Port, Mary River and the Tote Road are restricted to all visitors for their safety, hunter and visitors are to stay within the foot access area only on the way to Security (yellow area on map). Please remember **unescorted travel along the Tote Road or site roads is prohibited at all times**
- Park in the designated parking location only (blue area identified on the map). Snowmobiles or ATVs are not permitted unescorted within project areas, including the pick-up truck parking lots and laydowns at the Weatherhaven, Sailiivik and Sealift ramp.
- Security will log the arrival and departure of hunters and visitors in Baffinland's *Hunters and Visitors Access Log*. Hunter and visitors are to provide Security with the following information:
    - Names of all individuals.
    - Time of arrival and planned departure from Milne Port.
    - Purpose for visit to site.
    - Travel plans. Example - traveling to Mary River.
    - Expected departure date to home community.

- Fuel or repair request.
- Number of Caribou harvested.

5. Security will offer further assistance to arrange for the provision of supplies, fuel, or medical services as required as well as an explanation of relevant health and safety procedures and site policies. Security shall call on the Cultural Advisor as required during a hunter/visitor check in to assist in translations or communications. If at any time, hunters/visitors require assistance during their stay they should report to Security following all posted signage, safety procedures, and by using safe access routes.

7. If transportation between Milne Port and Mary River is requested, equipment is to be parked in the designated Drop-Off location at the time communicated by the Site Services supervisor or Security. When accessing the Drop-Off location with equipment at Milne Port, an escort is required for the safety of individuals while accessing the work area.

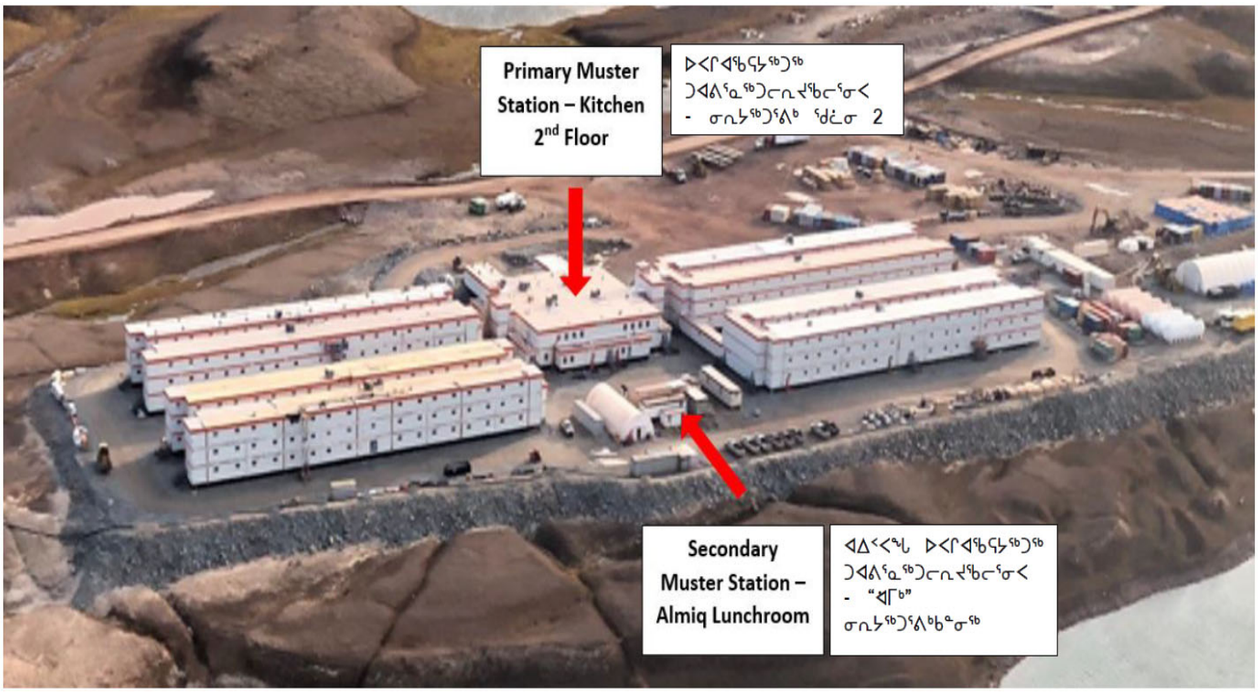
8. If at any time during your stay you require any assistance, or in the case of an emergency, please see Security and they will provide assistance as required.

**We hope your stay at Milne Port and Mary River is enjoyable and we wish you safe travels!**

# Appendix D Hunter and Visitor Meet and Greet Hand-Out

# Welcome to Mary River Mine Site

**A guide to your visit at Sailiivik Camp.**




**This is a 3 story camp featuring a commissary, full cafeteria, common area/games room and fitness centre.**

**Emergency Contact:**

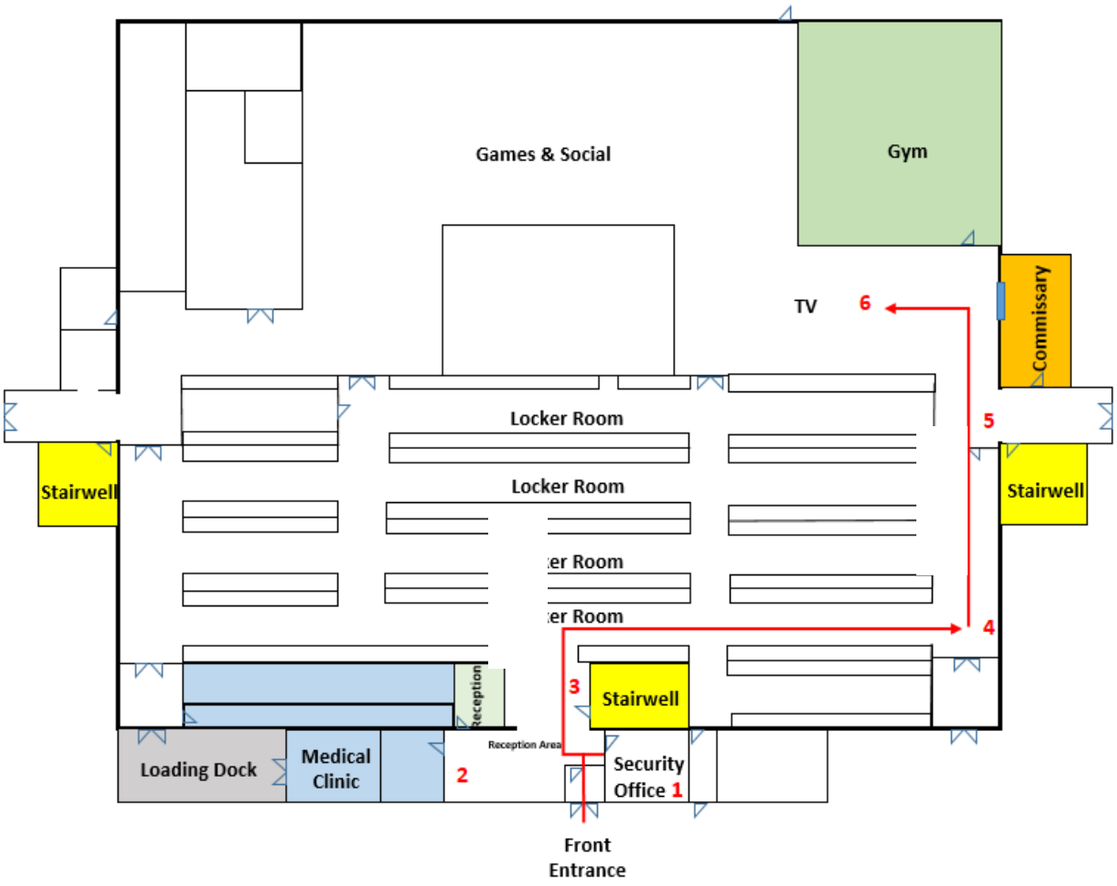
**Sailiivik Security 6721**
**MSC Security 6911**

**The kitchen is open 24/7. No outdoor clothing, boots or bags are allowed in the kitchen; boot covers and coat hooks are provided.**

**Phones are available for use; if you wish to call out dial 9 and then the number.**

*****Please note primary and secondary muster stations*****
**Take time to note the location of fire extinguishers and exits in case of an emergency.**

# Sailiivik Camp, Core 1st Floor




## Legend

| | |
|---|---|
| ▬ | Meet and greet tour path |
| 1 | Security Office |
| 2 | PA Medical Clinic |
| 3 | Stairwell to cafeteria and dining room |
| 4 | Outdoor Clothing & Boot Covers Storage |
| 5 | Stairwell to cafeteria and dining room |
| 6 | Commissary and Gym |

# Mary River Hunter & Visitor Orientation Checklist

Location: _____ Date:/Time: _____

Visitors: _____ Security/ Safety: _____

## Camp Tour by Baffinland Representative

- ☒ Greeted by Baffinland Representative
- ☒ Security Office
- ☒ Physician's Assistant "PA" / Medical Clinic
- ☒ Coat hooks and boot covers
- ☒ Kitchen Access Stairwells
- ☒ Commissary, TV, Games & Social Area
- ☒ Muster Points and Emergency Procedures Explained
- ☒ Phone's and Dial-Out Information Explained
- ☒ Hand-Out Received Post Tour

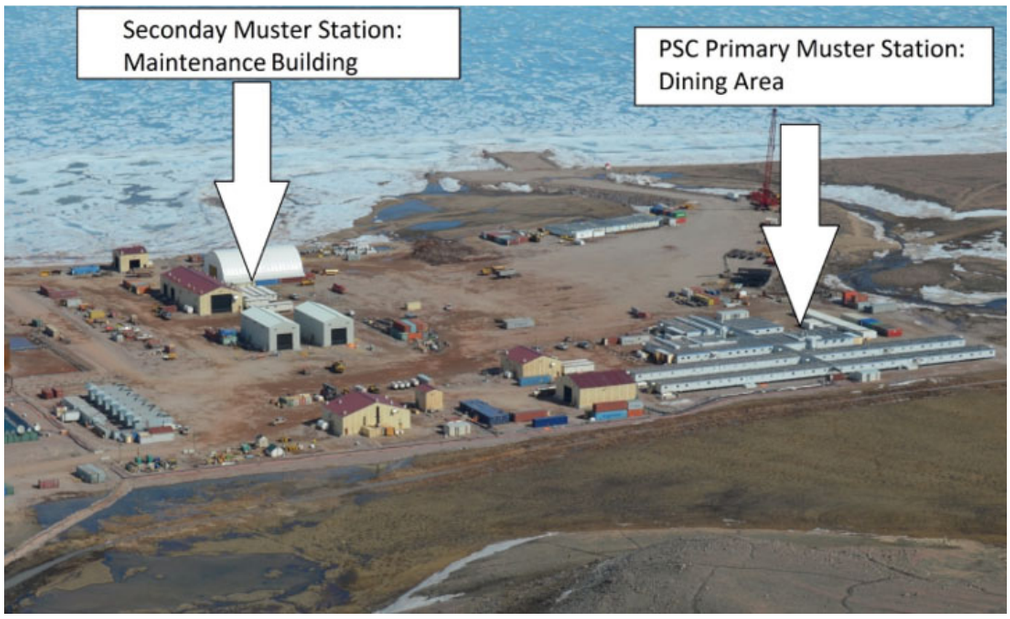
*By signing below, I hereby acknowledge that I have read understand the above named, procedures, and instructions. Please Print Legibly.*

Name: _____

Signature: _____

# Welcome to Milne Port Site

## A guide to your visit at Port Site Complex (PSC) Camp.




**This camp features a commissary, full cafeteria, common area/games room and fitness centre.**

**Emergency Contact:**

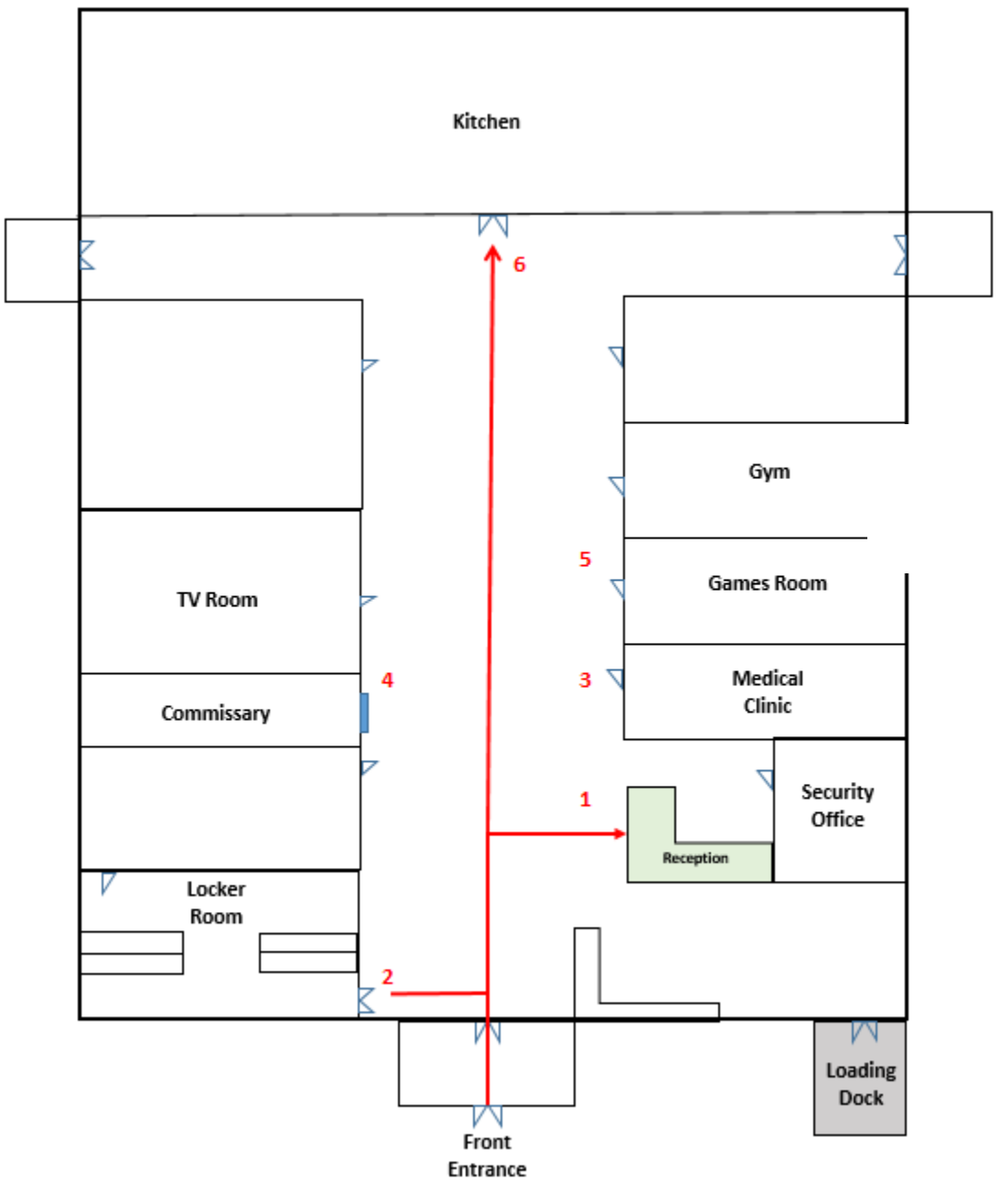
**PSC Security 4911**

**The kitchen is open 24/7. No outdoor clothing, boots or bags are allowed in the kitchen; boot covers and coat hooks are provided.**

**Phones are available for use; if you wish to call out dial 9 and then the number.**

*****Please note primary and secondary muster stations*****
**Take time to note the location of fire extinguishers and exits in case of an emergency.**

# PSC Camp, Core




## Legend

| | |
|---|---|
| ▬ | Meet and greet tour path |
| **1** | Security Office |
| **2** | Outdoor Clothing & Boot Covers Storage |
| **3** | PA Medical Clinic |
| **4** | TV Room/ Commissary |
| **5** | Games Room/ Gym |
| **6** | Kitchen |

# Milne Port Hunter & Visitor Orientation Checklist

Location: _____ Date:/Time: _____

Visitors: _____ Security/ Safety: _____

## Camp Tour by Baffinland Representative

- ☒ Greeted by Baffinland Representative
- ☒ Security Office
- ☒ Physician's Assistant "PA" / Medical Clinic
- ☒ Coat hooks and boot covers
- ☒ Kitchen Access Stairwells
- ☒ Commissary, TV, Games & Social Area
- ☒ Muster Points and Emergency Procedures Explained
- ☒ Phone's and Dial-Out Information Explained
- ☒ Hand-Out Received Post Tour

*By signing below, I hereby acknowledge that I have read and understand the above named, procedures, and instructions. Please Print Legibly.*

Name: _____

Signature: _____

# Appendix E Baffinland Provided Transportation Sign-Off Release Form

## Baffinland Provided Transportation Sign-Off Release Form

To accommodate hunter and visitor access in project restricted areas, Baffinland provides transportation of people and equipment between sites. Hunter and visitors are to notify the Baffinland Community Liaison Officer (BLCO) in their community if transportation at site will be required three (3) days in advance of departure from their home community.

This form, once signed, authorizes Baffinland to move and transport the following equipment belonging to hunter/ visitors. Please list the types of equipment (i.e. snowmobiles, ATVs, qamutiiks etc.), contents (i.e. tools, caribou etc.) and quantities below.

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

Baffinland strongly encourages hunter and visitors' presence during the loading and offloading of equipment.

*By signing below, I hereby acknowledge that I have read and understand the above and accept the risk involved in moving, loading, and transporting this equipment.*

*Please Print Legibly.*

Name: _____

Signature: _____

Date: _____

# APPENDIX F BAFFINLAND COVID-19 VISITOR INFORMATION

# Baffinland COVID-19 Visitor Information

Baffinland is committed to both maintaining our relationship with the residents of Nunavut, particularly the Qikiqtani Region, and acting responsibly during the COVID-19 Pandemic by taking all measures to prevent any potential transfer of the COVID-19 virus to the people and communities of Nunavut.

The health and safety of Baffinland employees, contractors and Nunavummiut remains our greatest concern and priority. As a precaution to the COVID-19 pandemic, Baffinland is putting all visits to Project facilities by non-project staff on hold effective immediately until further notice. This temporary measure is necessary to eliminate any potential close interactions between employees and visitors of the mine.

As a result of this **temporary closure**:

- All camps and accommodations are closed to non-Project staff
- Transportation along the tote road will not be provided until further notice
- HTO Cabins remain available for use by hunters/ visitors
- Food and fuel will only be provided at the HTO cabins if advance notification is provided

Daily public communications via radio are occurring in Pond Inlet to notify personnel of the temporary closure at site and protocols in place. The BCLO is monitoring social media and advising Nunavummiut of current Covid-19 protocols in place at the Project.

With this temporary closure in place, we still recognize that visitors may arrive on site in some cases. If visitors are observed on site by any personnel, security must be notified immediately. Security will then notify Environment personnel to meet with visitors to communicate the Visitor Protocols. If visitors are in need of assistance Baffinland has implemented temporary measures to ensure we can safely address these requirements.

**HTO Cabins / Visitor Communication Centre**

While the HTO Cabins are provided as a lodging area and supplied with food and fuel for visitors, we understand that from time to time, visitors to the Mine site may need assistance from Baffinland. When this occurs, it is imperative for the health of visitors, that we eliminate any potential contact with site personnel. To accomplish this Baffinland has established a non-contact Visitor Communication Centre at each work site; (Mary River and Milne Inlet) eliminating the necessity for visitors and Baffinland employees to closely interact. A map has been posted in each HTO cabin to provide directions to the Visitor Communication Centre. (See Figures 1, 2 & 3)

The Visitor Communication Centre will have a dedicated base radio, which will be locked to our community radio channel and monitored 24 hours a day by security. Instructions will be posted beside the radio to provide directions on radio use in Inuktitut. Visitors requiring emergency services or additional assistance can proceed to the Visitor Communication Centre to contact Security.

**Supplies**

The HTO Cabin will be supplied with dry goods, water and fuel. This will be monitored weekly and replenished after any observed visit by Environment personnel. If further goods are required during the observed visit security will notify Environment personnel and a reasonable amount will be dropped at the Visitor Communication Centre at a predetermined drop off time.

**Transportation**

If transportation is required for visitors, security will contact Site Services to arrange for travel. Dedicated vehicles have been pre-determined for transport purposes and will be sanitized before and after use. Only personnel who have tested negative to both the initial and 5-day COVID-19 test can provide transport. A dedicated bus will be utilized for transporting visitors across the Tote Road. A roll off trailer will be utilized to transport all terrain vehicles on the Tote Road. See Appendix G for further details.

**Medical Attention**

If medical assistance is required, security will notify the Emergency Response Team for response. The onsite ambulance will be dispatched to the Visitor Communication Centre and Emergency Response Personnel will respond following COVID-19 Pandemic Protocols to provide assistance. Any responding vehicles transporting visitors will be decontaminated before and after use.

**Mechanical Assistance**

If mechanical assistance is required, mobile maintenance will attempt to provide field servicing to the vehicle. If the problem requires servicing at the maintenance shop, the snowmobile or all terrain vehicle will be picked up, serviced and dropped off at the visitor communication centre. If the unit is unrepairable, a communication will be left with security to pass on to the visitor when they call in.

At all times, physical distancing of 2m must be maintained between Visitors and Site personnel.

**Translation to Inuktitut**

If visitors need an Inuktitut translator for communication, Security will contact the Cultural Advisor for assistance.

**Visitor Communication Centre Location Maps**

**FIGURE 1 APPENDIX F VISITOR COMMUNICATION CENTRE: MILNE PORT NEXT TO THE SNOWMOBILE PARKING AREA ADJACENT TO THE PSC CAMP**



**FIGURE 2 APPENDIX F VISITOR COMMUNICATION CENTRE: MARY RIVER, NEXT TO THE OFFLOADING AREA ADJACENT TO THE WEATHERHAVEN LAYDOWN**




**FIGURE 3 APPENDIX F VISITOR COMMUNICATION CENTRE WITH REFLECTIVE SIGNAGE**



# APPENDIX G BAFFINLAND COVID-19 VISITOR INTERACTION PROTOCOLS FOR SITE PERSONNEL

As a precaution to the COVID-19 pandemic, Baffinland has put all visits to Project facilities by non-project staff on hold effective immediately until further notice. This preventative measure is being taken in cooperation with the Government of Nunavut and Nunavut Public Health and to ensure we are applying the most effective measures to prevent the potential spread of the coronavirus.

As a result of this temporary closure:

- All camps and accommodations are closed to non-Project staff
- Transportation of visitors along the tote road will not be provided until further notice
- Hunter and Trapper (HTO) Cabins remain available for use by hunters/visitors
- Food and fuel will only be provided at the HTO cabins if advance notification is provided

Regardless of the temporary closure, we may still have unexpected visitors on site.

**HTO Cabins / Visitor Communication Centre**

While the HTO Cabins are provided as a lodging area and supplied with food and fuel for visitors, we understand that from time to time, visitors to the Mine site may need assistance from Baffinland. When this occurs, it is imperative for the health of visitors, that we eliminate any potential contact with site personnel. To accomplish this Baffinland has established a non-contact Visitor Communication Centre at each work site; (Mary River and Milne Inlet) eliminating the necessity for visitors and Baffinland employees to closely interact. A map has been posted in each HTO cabin to provide directions to the Visitor Communication Centre.

The Visitor Communication Centre will have a dedicated base radio, which will be locked to our community radio channel and monitored 24 hours a day by security. Instructions will be posted beside the radio to provide directions on radio use in Inuktitut. Visitors requiring emergency services or additional assistance can proceed to the Visitor Communication Centre to contact Security.

**Visitor Contact Person**

The BIM designated person for Nunavummiut visitor interactions on site is the BIM Site Environmental Coordinator.

**Scenario 1: Visitor(s) request assistance via visitor communication center radio**

- Visitor communicates via visitor communication center radio to security
- Security gathers and communicates the following information to HSE Manager/Superintendents and Environmental Coordinator;
    - Location of visitors
    - Total number of visitors
    - Visitor equipment or vehicles
    - Current activity of visitors
    - Visitor request for assistance, if any

  If a visitor appears to be injured or in distress call a CODE 1 and communicate the following:
    - Provide the nature of the emergency (Fire/Rescue, Medical, and Environmental)
    - Identify the location of the emergency (specific location in Mary River or Milne Port)
    - State your name
    - Pause and wait for instructions to repeat if necessary
    - **Note:** ERT will respond following the site COVID-19 Pandemic Protocols. The clinic is equipped with a separate cordoned off room for patients
- If a BIM presence is requested at visitor communication center security will immediately contact the Environmental Coordinator.
    - The Environmental Coordinator as designated visitor contact person will meet with the visitor(s) at the visitor communication center.
    - The Environmental Coordinator will keep a minimum of 2 metres of physical distance at all times, don a mask and gloves.

- The Environmental Coordinator as designated visitor contact person will notify the visitor and will reiterate the following COVID-19 requirements;
    - Baffinland has put all visits to Project facilities by non- project staff on hold effective immediately until further notice.
    - All camps and accommodations are closed to non-Project staff
    - Transportation of visitors along the tote road will not be provided until further notice
    - Hunter and Trapper (HTO) Cabins remain available for use by hunters/visitors
    - Food and fuel will only be provided at the HTO cabins
- The Environmental Coordinator will take lead on coordinating any non-emergency assistance requested by the visitor. EHS Manager/Superintendents to be notified of any visitor's request for assistance.
    - The Environmental Coordinator with the assistance of Site Services Supervisor will meet at the isolated staging areas (away from BIM personnel and project activities) to accommodate the visitor's request for supplies or transportation.
- HSE Manger/Superintendents to notify the General Manager and Site Services Manager/Superintendent of any visits to site and of any visitor request for assistance.
- Site Services Manager/Superintendent to mobilize site services personnel and equipment for transportation of visitor and visitor equipment;
    - Dedicated vehicles have been pre-determined for transport purposes and will be sanitized before and after use and mobilized to the isolated staging area.
    - A dedicated bus will be utilized for transporting visitors across the Tote Road.
    - The bus will have the first three rows blocked off to ensure physical distancing from operator and passengers. Bus operator will don mask and gloves prior to passenger arrival.
    - A dedicated roll off trailer/flat deck will be utilized to transport all terrain vehicles on the Tote Road. Operator will keep a minimum of 2 metres of physical distance at all times, and don a mask and gloves.
    - Site Services Manager/Superintendent to have a bus driver and roll off truck operator on stand-by when notified of a visitor on site.
    - Site Services Manager/Superintendent will ensure only personnel who have tested negative to both the initial and 5-day COVID-19 test can provide transport.
    - The Environmental Coordinator will request assistance from Site Services to establish an isolated staging area (away from BIM personnel and project activities) to accommodate the visitor's request for supplies or transportation. Note: Isolated staging area identified on map.
    - Physical Distancing of two meters and the donning of mask and gloves must be respected for any interaction between the Site Services personnel and the visitor(s).

**Scenario 2; Unexpected visitor up at either the mine site or the port site and does not comply with COVID-19 restrictions.**

If an unexpected visitor is seen on site including shorelines, camps, facilities or roadways conduct the following measures:

- Site Personnel are not to approach or make contact with visitors. Keep a minimum of 2 metres of physical distance at all times
- Site Personnel are to immediately contact security and communicate the following:
    - Location of visitors
    - Total number of visitors
    - Visitor equipment or vehicles
    - Current activity of visitors

  If a visitor appears to be injured or in distress call a CODE 1 and communicate the following:
    - Provide the nature of the emergency (Fire/Rescue, Medical, and Environmental)
    - Identify the location of the emergency (specific location in Mary River or Milne Port)
    - State your name

- Pause and wait for instructions to repeat if necessary
- **Note:** ERT will respond following the site COVID-19 Pandemic Protocols. The clinic is equipped with a separate cordoned off room for patients

- Security will notify HSE Manager/Superintendents and Environmental Coordinator of the unexpected visit
- The Environmental Coordinator with the assistance of Security will intervene and interact with the visitor, and will reiterate the following COVID-19 requirements;
  - Baffinland has put all visits to Project facilities by non- project staff on hold effective immediately until further notice.
  - All camps and accommodations are closed to non-Project staff
  - Transportation of visitors along the tote road will not be provided until further notice
  - Hunter and Trapper (HTO) Cabins remain available for use by hunters/visitors
  - Food and fuel will only be provided at the HTO cabins.
- Physical Distancing of two meters and the donning of mask and gloves must be respected for any interaction between the Environmental Coordinator/Security and the visitor(s).
- The Environmental Coordinator with the assistance of security will isolate the immediate area and establish a restricted area where the visitor is located.
  - Security will announce restricted area on the radio, BIM activities to stop within restricted area and access to restricted area by BIM personnel to stop.
- The Environmental Coordinator will take lead on coordinating any non-emergency assistance requested by the visitor. EHS Manager/Superintendents to be notified of any visitor's request for assistance.
  - The Environmental Coordinator with the assistance of Site Services Supervisor will establish isolated staging areas (away from BIM personnel and project activities) to accommodate the visitor's request for supplies or transportation.
- HSE Manger/Superintendents to notify the General Manager and Site Services Manager/Superintendent of any visits to site and of any visitor request for assistance.
- Site Services Manager/Superintendent to mobilize site services personnel and equipment for transportation of visitor and visitor equipment;
  - Dedicated vehicles have been pre-determined for transport purposes and will be sanitized before and after use and mobilized to the isolated staging area.
  - A dedicated bus will be utilized for transporting visitors across the Tote Road.
  - The bus will have the first three rows blocked off to ensure physical distancing from operator and passengers. Bus operator will don mask and gloves prior to passenger arrival.
  - A dedicated roll off trailer/flatdeck will be utilized to transport all terrain vehicles on the Tote Road. Operator will keep a minimum of 2 metres of physical distance at all times, and don a mask and gloves.
  - Site Services Manager/Superintendent to have a bus driver and roll off truck operator on stand-by when notified of a visitor on site.
  - Site Services Manager/Superintendent will ensure only personnel who have tested negative to both the initial and 5-day COVID-19 test can provide transport.
  - The Environmental Coordinator will request assistance from Site Services to establish an isolated staging area (away from BIM personnel and project activities) to accommodate the visitor's request for supplies or transportation. Note: Isolated staging area identified on map.
  - Physical Distancing of two meters and the donning of mask and gloves must be respected for any interaction between the Site Services personnel and the visitor(s).

**Scenario 3; Unexpected visitor comes to site and enters a building.**

- Individual that discovers the visitor inside a building shall immediately call security

- Individual reporting shall maintain two meters physical distancing and ask the visitor to stay put until help arrives
- Security shall contact Environment Coordinator and advise to attend the scene
- Security shall contact cultural advisor and ask them to be on standby
- Security shall contact HSS Superintendent & Environment Superintendent and advise them of the unexpected visitor in the building.
- Security and Environmental Coordinator to don masks and gloves, then proceed to the location of the visitor.
- Environmental Coordinator should attempt to escort the person to a safe area outdoors and provide assistance ensuring no project personnel interaction.
- Follow protocols for assistance and transportation as per the scenarios 1 & 2

**Medical Attention**

- If medical assistance is required, security will notify the Emergency Response Team for response. The onsite ambulance will be dispatched to the Visitor Communication Centre and Emergency Response Personnel will respond following COVID-19 Pandemic Protocols to provide assistance. Any responding vehicles transporting visitors will be decontaminated before and after use. The clinic will be sanitized prior to occupancy and separate cordoned off room for the patient.

**Mechanical Assistance**

- If mechanical assistance is required, the Environmental Coordinator will coordinate with mobile maintenance to provide field servicing to the vehicle. If the problem requires servicing at the maintenance shop, the snowmobile or all terrain vehicle will be picked up, serviced and dropped off at the visitor communication centre. If the unit is unrepairable, a communication will be left with security to pass on to the visitor when they call in.
- At all times, physical distancing of 2 meters must be maintained between Visitors and Site personnel.

**Duty Card**

In the event of a Nunavummiut visitor on site during the COVID-19 Pandemic, the Environmental Coordinator shall be the visitor contact person, and all non-emergency visitor request must be coordinated through the Environmental Coordinator.

| **Security - Checklist** | | |
|---|---|---|
| ☐ | **1)** | Visitor communication via the visitor communication centre radio, gather the following information from the visitor<br>○ Location of visitors<br>○ Total number of visitors<br>○ Visitor equipment or vehicles<br>○ Current activity of visitors<br>○ Visitor request for assistance, if any |
| ☐ | **2)** | Site personnel notification of visitor onsite, gather the following information from the visitor<br>○ Location of visitors<br>○ Total number of visitors<br>○ Visitor equipment or vehicles<br>○ Current activity of visitors |
| ☐ | **3)** | Notify EHS Manager/Superintendent and Environmental Coordinator |
| ☐ | **4)** | Notify Cultural Advisor of visitor on site |
| ☐ | **5)** | If required by the Environmental Coordinator, provide support to intervene and interact with unannounced visitor on site |
| ☐ | **6)** | Ensure physical distancing (2 meters) and mask and gloves are worn when interacting with visitors |

| | | |
|---|---|---|
| ☐ | **7)** | If required by the Environmental Coordinator, announce on the radio the established restricted area to prevent interaction between visitor and project activities/personnel. |

| **ENVIRONMENTAL COORDINATOR -** Checklist | | |
|---|---|---|
| ☐ | **1)** | Security notifies Environmental Coordinator |
| ☐ | **2)** | Environmental Coordinator is the lead contact person for visitor(s) onsite, and coordinates all non-emergency visitor activities/request. EHS Manager/Superintendents to be notified of any visitor's request for assistance. |
| | | The Environmental Coordinator as designated visitor contact person will meet with the visitor(s) at the visitor communication centre, if requested by the visitor |
| | | The Environmental Coordinator with the assistance of Security will intervene and interact with the visitor, and will reiterate the following COVID-19 requirements |
| | | Ensure physical distancing (2 meters), mask and gloves to be worn when interacting with visitors |
| ☐ | **3)** | The Environmental Coordinator with the assistance of Site Services Supervisor will meet at isolated staging areas (away from BIM personnel and project activities) |
| ☐ | **4)** | Ensure physical distancing (2 meters), mask and gloves to be worn when interacting with visitors |
| ☐ | **5)** | The Environmental Coordinator with the assistance of security will isolate the immediate area and establish a restricted area where the visitor is located, when required |
| ☐ | **6)** | The Environmental Coordinator will coordinate with mobile maintenance to provide field servicing to the vehicle |
| ☐ | **7)** | Notify Cultural Advisor of visitor on site |

| **Site Services –** Checklist | | |
|---|---|---|
| ☐ | **1)** | EHS Manager/Superintendents to notify Site Services Manager/Superintendent of visitor on site and visitor request for assistance |
| ☐ | **2)** | Assist Environmental Coordinator in establishing isolated staging areas |
| ☐ | **3)** | Site Services Supervisor to mobilize site services personnel and equipment for transportation of visitor and visitor equipment |
| ☐ | **4)** | Site Services Manager/Superintendent to have a bus driver and roll off truck operator on stand-by when notified of a visitor on site. |
| ☐ | **5)** | Dedicated bus will be utilized for transporting visitors across the Tote Road |
| ☐ | **6)** | Dedicated roll off trailer/flatdeck will be utilized to transport all terrain vehicles on the Tote Road |
| ☐ | **7)** | Site Services Manager/Superintendent will ensure only personnel who have tested negative to both the initial and 5-day COVID-19 test can provide transport. |
| ☐ | **8)** | Physical Distancing of two meters and the donning of mask and gloves must be respected for any interaction between the Site Services personnel and the visitor(s). |

# APPENDIX H BAFFINLAND TOTE ROAD VISITOR TRANSPORTATION

Baffinland maintains a 100 kilometer Tote Road between the Milne Port Site and the Mary River Mine site that is primarily used to transport iron ore. Given the high risks; such as vehicle interactions, flying debris from passing vehicles, dust restricting visibility and road conditions, visitor travel on the Tote Road is prohibited. Due to stringent site rules and training required to operate a vehicle safely on the Tote Road, Baffinland has previously provided safe dedicated transportation to Nunavummiut and their recreational vehicles between sites via Cargo trucks, trailers, buses and passenger vehicles.

As per Appendix G, visitors arrive at site and make contact with security through the Visitor Communication Centre via radio. Instructions are posted in the Visitor Communication Centre on how to use the radio and contact security. The Environmental Coordinator will subsequently notify the visitors of the isolated staging area and ensure visitors remain at the staging area and await transportation.

- Security will gather and communicate the following information to HSE Manager/Superintendents and Environmental Coordinator;
    - Location of visitors
    - Total number of visitors
    - Visitor equipment or vehicles
    - Names and home community of all visitors
    - Current activity of visitors
    - Visitor requests for assistance, if any
- Environmental Coordinator and Site Services Supervisor will don Tyvek suits, face mask and gloves prior to interaction with visitors and maintain 2 metres of physical distance at all times.
- The Environmental Coordinator and Site Services Supervisor will meet at the isolated staging areas (away from BIM personnel and project activities) to accommodate the visitor's request for transportation.
- Environmental Coordinator will review transportation protocols which include designated drop off, pick up and delivery points with the visitors.
    - Site Services Manager/Superintendent will ensure operators who have tested negative to both the initial and 5-day COVID-19 test will provide transport in the bus.
    - Site Services Supervisor to have a bus driver and roll off truck operator on stand-by and readily available for all shifts.
    - Site Services will provide dedicated vehicles which include a bus, roll off truck/flatbed which are parked at the isolated staging area and sanitized before and after use.
    - Any fuel containers, packaged food and water containers will be sanitized prior to dropping off at the isolated staging area.
    - The dedicated bus driver and roll off truck/flatbed operator will don Tyvek suits, face masks and gloves prior to loading passengers on the bus or loading equipment on the roll off truck/flatbed.
    - Visitors will remain in the isolated staging area while site personnel load and secure equipment on roll off truck/flatbed.
    - Any site personnel assisting with the loading of visitors or their equipment will keep a minimum of 2 metres of physical distance at all times, and shall don Tyvek suits, face masks and gloves.
    - The bus will have the first three rows blocked off to ensure physical distancing from operator and passengers.
    - The Environmental Coordinator will escort the visitors onto the bus and ensure everyone is safely seated before the bus driver boards. The Environmental Coordinator will remind all visitors to wear seatbelts whenever the bus is in motion.
    - Prior to departing the bus driver will communicate via radio to security with number of passengers on board and intended destination.
    - Bus and roll off truck/flatbed will travel in tandem to destination. Once on route to destination there will be no stopping along the Tote Road except for emergency situations

- Once within 10 kilometers of either isolated staging areas at the Mine Site or Milne Port the bus driver will contact Security to notify of ETA.
- Security will subsequently contact the Environmental Coordinator and Site Services Supervisor to ensure individuals report to the isolated staging area and are present for offloading of passengers and equipment.
- Environmental Coordinator and Site Services Supervisor will don Tyvek suits, face mask and gloves prior to interaction with visitors.
- Upon arrival at the designated isolated staging area at the Mine Site or Port Site visitors will remain on bus until Environment Coordinator instructs passengers to disembark to isolated staging area.
- Visitors will remain in designated isolated staging area while all equipment is being offloaded from roll off truck/flatbed.
- Any site personnel assisting with the offloading of visitors and their equipment will keep a minimum of 2 metres of physical distance at all times, don Tyvek suits, face masks and gloves.
- If required, any additional fuel containers, packaged food and water containers will be sanitized prior to dropping off at the isolated staging area.
- The Environmental Coordinator will review the pick up protocols at the isolated staging area for return trip (if requested) with the visitors prior to their departure
- The Environmental Coordinator will remain at the isolated staging area until the visitors are safely on the land.

# APPENDIX D - LAND DISTURBANCE FORM

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
It shall not be disclosed in whole or in part, to any other party, without the express permission in writing by Baffinland Iron Mines Corporation.

Note: This is an UNCONTROLLED COPY. All staff members are responsible to ensure the latest revision is used.

# LAND DISTURBANCE FORM

**Project Name:** **Department:**

**Date:** **Name & Position:**

**Site (Mary River, Milne Port, Tote Road, Steensby, Other [specify]):**

**Project Duration:** Start Finish

## Project Details

**GPS Coordinates (UTM):**

**Total Land disturbance area:** $m^2$

**Type of disturbance** (Drilling, Excavation, Rutting due to site access, etc.):

**Detailed description of planned work.**

You must provide a detailed Issued for Construction Design/Engineering Drawings and an Erosion and Sediment Control Plan (which must include a site drainage drawing)

## Land Disturbance Preparation Check List

| | | |
|---|---|---|
| 1 | **Have the Environmental Concerns & Protections Measures in Section 4.3 'Land Disturbance' of the Environmental Protection plan been reviewed?**<br>- If No, they must be reviewed by the Project/Construction management team. | Yes/ No |
| 2 | **Do you have a detailed Issued for Construction Design/ Engineering Drawing?**<br>- If No, you must get one prior to construction & submit with this land disturbance form request. | Yes/ No |
| 3 | **Is any of the work planned to be completed within 31m of the Ordinary High Water Mark of any stream or water body?**<br>- If Yes, please contact the Environment Department immediately | Yes/ No |
| 4 | **Is there a stream or waterbody in close proximity to the work site?**<br>- Include a detailed description of the Sediment and Erosion Control Plan and site drainage drawing. | Yes/ No |
| 5 | **Has the area been cleared by Archaeology?.**<br>- If No or Unknown, contact the Environment Department. | Yes/ No |
| 6 | **Will any of the land disturbance occur between May 31 and August 5?.**<br>'- If Yes, an Active Migration Bird Nest Survey is required prior to start. Request this from the Environment Department approx. 1 week prior to requirement. Area surveyed must be disturbed within 5 days of the survey. | Yes/ No |

## Design/Engineering Drawing

Include any notes below, and attach designs & drawings to Land Disturbance Form submittal.

## Environment Department Approval

Approved by: Position: Date:

Comments and recommendations by the Environment Department:

| Sediment and Erosion Control Measures |
| --- |
| Provide a detailed discription of the run-off control measure which will be put in place, and the material that will be used. |
| |

| Site Drainage Drawing |
| --- |
| Include a detailed site drainage plan, to illustrate all locations are addressed in the sediment and erosion control plan. Include all water bodies and streams, slope direction and other infrastructure. |
| |

# APPENDIX E - WATER COLLECTION LOGS

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
It shall not be disclosed in whole or in part, to any other party, without the express permission in writing by Baffinland Iron Mines Corporation.

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Source Examples: Camp Lake Jetty, KM97, Mag Road Check Dams

Discharge Location Example: Km 104 - Km 105, Km 110-WRD

# Mine Operations Water Collection Log for Dust Suppression

| 740 Water truck capacity | | 8,000 US Gal | | Kenworth Water truck capacity | | 4,500 US Gal |
|---|---|---|---|---|---|---|
| Date | Time (hh:mm) | Truck ID | Load (US Gal) | Source | Discharge Location (KM range) | Operator Name |
| | | | | | | |
| | | | | | | |
| | | | | | |

Source Examples: Camp Lake Jetty, KM97, KM97 borrow pit

Discharge Location Example: Km 100 - Km 98, Km 88-90

# Site Services Water Collection Log for Dust Suppression

| 740 Water truck capacity | | 8,000 US Gal | | Kenworth Water trucks | | 4,500 US Gal |
|---|---|---|---|---|---|---|
| Date | Time (hh:mm) | Truck ID | Load (US Gal.) | Source | Discharge Location (KM range) | Operator Name |
| | | | | | | |
| | | | | | | |
| | | | | | |

**Source Examples: WH Pumps, Jetty, KM97, KM80, KM62, KM32...**

**Discharge Location: Km 100 - Km 94, Km 85-90...**

# Ore Handling Water Collection Log for Dust Suppression

| Date | Time | Truck ID | Load (US Gal.) | Source | Discharge Location | Operator Name | Initials |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Road Maintenance - Tote Road Water Collection Log - 740 Water Truck & Tanker (8,000 US Gallons)**

| Date | Time (hh:mm) | Approved Sources with Daily Maximum Loads | | | | | | | | Recycled Water Ponds with No Daily Maximum Loads | | | | | | | Discharge Location | Operator Name | Initials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PH at Camp Lake | KM 17 (CV128 Phillips Creek Bridge) | KM 32 Lake (Water intake at KM 32 Lake) | KM 62 (BG50) | KM 78 (BG32) | KM 80 (CV217 Muriel Lake Outlet) | Muriel Lake (KM 81) | KM 87 (David Lake) | Bridge at KM 97 (CV233 Tom River Bridge) | KM 97 Borrow | KM 57 Borrow | KM 102 Warehouse Pond MS-RW-02 (East of Warehouse Laydown) | Flight Ops Pond MS-RW-01 (East of Flight Ops Building) | Mag Road Pond | Q1 Ditch (Near MP LP7) | Matrix Ditch (Near MP Matrix Camp) | | | |
| | | Daily Limits - check one box per load - when all boxes for a source are filled use a different source to avoid exceeding daily limit. | | | | | | | | | No Daily Limits | | | | | | | | | |
| | | 3 | 19 | 12 | 5 | 4 | 4 | 7 | 4 | 4 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | |

# APPENDIX F - DRILL INSPECTION FORMS

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
It shall not be disclosed in whole or in part, to any other party, without the express permission in writing by Baffinland Iron Mines Corporation.

Note: This is an UNCONTROLLED COPY. All staff members are responsible to ensure the latest revision is used.

| | |
|---|---|
| Baffinland | **PRE-DRILLING INSPECTION REPORT** |
| | **BIM / consultant personnel:** |
| | **Date:** |
| | **Time:** |
| | **Project:** |
| | **Proposed drill hole ID:** |

| **PROPOSED DRILL HOLE INFORMATION:** | | | |
|---|---|---|---|
| **Location:** | **Collar coordinates:** | E | N |
| **Section:** | (UTM NAD 83) | **UTM Zone:** | |
| **Area:** | | **Dip:** | |
| **National Topographic System (NTS):** | | **Azimuth:** | |
| **Elevation:** | | **Target depth:** | |
| **Description of drill hole location:** | | | |
| **Purpose of drill hole:** | | | |

| **DRILLING INFORMATION:** | | | |
|---|---|---|---|
| **Has site been approved by Drill Foreman?** | Yes / No | | **Foreman:** |
| **Drill contractor:** | | | |
| **Drill ID #:** | | | |
| **Expected start date and time of drilling:** | | | |
| **Does drilling location need to be moved?** | Yes / No | | |
| If yes, provide reason: | | | |
| **New drill hole collar coordinates:** | E | N | |

| **WATER MANAGEMENT:** | | | | | |
|---|---|---|---|---|---|
| **Water source:** | | | | | |
| **Pump station ID #:** | **Portable tank(s):** | Yes / No | | | |
| **Natural depression / drainage evident?** | | Yes / No | | If yes, then photo is required. | |
| **Water control system constructed?** | | Yes / No | | If yes, then photo is required. | |
| **Corner 1:** | E | N | **Corner 2:** | E | N |
| **Silt fence(s) constructed?** | | Yes / No | | If yes, then photo is required. | |
| **Corner 1:** | E | N | **Corner 2:** | E | N |
| **Silt fence(s) constructed?** | | Yes / No | | If yes, then photo is required. | |
| **Corner 1:** | E | N | **Corner 2:** | E | N |
| **Silt bag(s) used:** | Yes / No | | If yes, then photo is required. | | |

| **SITE ASSESSMENT:** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Are wildlife present?** | Yes / No | | If yes, record details in Wildlife Log | | | | |
| **Does site meet safety requirements for drilling?** | Yes / No | | If not, why? | | | | |
| Stable platform: | Yes / No | | Fire extinguishers (2): | Yes / No | | | |
| First aid kit: | Yes / No | | Eye wash stations (2): | Yes / No | | | |
| PPE: | Yes / No | | Spill kits (2): | Yes / No | | | |
| Lined berms: | Yes / No | | Fall prevention if platform is higher than 1.8 m: | | | Yes / No | |
| Survival shack: | Yes / No | | | | | | |
| **Safety concerns and/or issues:** | Yes / No | | | | | | |
| If yes, please describe here: | | | | | | | |
| **Environmental concerns:** | Yes / No | | | | | | |
| If yes, please describe here: | | | | | | | |
| **Any additional work required?** | Yes / No | | | | | | |
| If yes, please describe here: | | | | | | | |
| **Corrective actions required?** | Yes / No | | **Description:** | | | | |
| **Action plan (if required):** | | | | | | | |
| **Responsible party:** | | | **Date to be completed:** | | | | |
| **Photograph (only required to document problems and corrective actions):** | | | | Yes / No | | | |

| **PHOTOGRAPHIC RECORD:** | | | |
|---|---|---|---|
| **Photo(s) of drill hole location taken prior to setup?** | Yes / No | | |
| **Location of photo(s):** | | | |
| **File names of photo(s):** | | | |

| **COMMENTS:** |
|---|
| |
| |

# DAILY DRILL INSPECTION REPORT

**BIM / consultant personnel:**
**Date:**
**Time:**
**Project:**
**Drill hole ID:**

## DRILL HOLE INFORMATION:

| | | | |
|---|---|---|---|
| **Location:** | **Collar coordinates:** | E | N |
| **Section:** | (UTM NAD 83) | **UTM Zone:** | |
| **Area:** | | **Dip:** | |
| **National Topographic System (NTS):** | | **Azimuth:** | |
| **Elevation:** | | **Target depth:** | |
| **Description of drill hole location:** | | | |
| **Purpose of drill hole:** | | | |

## DRILLING INFORMATION

| | | | |
|---|---|---|---|
| **Drill contractor:** | | **Drill type:** | |
| **Drill personnel:** | | | |
| **Drill ID #:** | | | |
| **Target depth:** | **Depth at end of day shift:** | | **Depth at end of night shift:** |
| **Any rods, casing, or tools lost in the drill hole?** | Yes / No | | **Items lost:** |
| **Delays and/or problems:** | | | |
| (i.e. breakdowns, stuck rods, bit change, weather, wait time, drill move, etc.) | | | |
| **Estimated amount of time lost due to delays:** | | | |
| **Was there an active layer?** | Yes / No | | |
| The active layer is the top layer of soil that thaws during summer and freezes during winter. | | | |
| **Was permafrost layer encountered?** | Yes / No | | Depth of top of permafrost: |
| **Bottom of permafrost layer drilled through?** | Yes / No | | Depth of bottom of permafrost: |

## WATER MANAGEMENT:

| | | | |
|---|---|---|---|
| **Sediment control measures in place:** | Yes / No | | **Total daily water use:** |
| **Assessment of effectiveness:** | Yes / No | | Flow meter reading (start of shift): |
| **Colour of water in sump:** | | | Flow meter reading (end of shift): |
| **Colour of runoff:** | | | |
| **Conductivity readings:** | Station ID: | | Conductivity: |
| Record additional readings in separate document. | Station ID: | | Conductivity: |
| **Turbidity readings and/or sample(s) taken:** | Station ID: | | Turbidity: |
| Record additional readings in separate document. | Station ID: | | Turbidity: |
| **Salt usage per day:** | | | |

## SITE ASSESSMENT:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Has wildlife been present?** | | | Yes / No | | If yes, record details in Wildlife Log | | |
| (check Wildlife Log for any wildlife activity on previous shifts) | | | | | | | |
| **Does site meet safety requirements for drilling?** | | | Yes / No | | If not, why? | | |
| Stable platform: | Yes / No | | Fire extinguishers (2): | Yes / No | | | |
| First aid kit: | Yes / No | | Eye wash stations (2): | Yes / No | | | |
| PPE: | Yes / No | | Spill kits (2): | Yes / No | | | |
| Lined berms: | Yes / No | | Fall prevention in place if platform is higher than 1.8 m: | | | Yes / No | |
| Survival shack: | Yes / No | | | | | | |
| **Safety concerns and/or issues:** | | Yes / No | | | | | |
| If yes, please describe here: | | | | | | | |
| **Environmental concerns:** | | Yes / No | | | | | |
| If yes, please describe here: | | | | | | | |
| **Any additional work required?** | | Yes / No | | | | | |
| If yes, please describe here: | | | | | | | |
| **Corrective actions required?** | | Yes / No | | **Description:** | | | |
| **Action plan (if required):** | | | | | | | |
| **Responsible party:** | | | | **Date to be completed:** | | | |
| **Photograph(s)** (only required to document problems and corrective actions)**:** | | | | Yes / No | | | |

## PHOTOGRAPHIC RECORD:

| | | | | | |
|---|---|---|---|---|---|
| **Photo(s) of drill hole during drilling?** | Yes / No | | **Photo(s) of sediment control measures?** | Yes / No | |
| **Location of photo(s):** | | | | | |
| **File name of photo(s):** | | | | | |

## COMMENTS:

| | | | | |
|---|---|---|---|---|
| Baffinland | | | **POST-DRILL CLEAN UP INSPECTION REPORT** | |
| | | | **BIM / consultant personnel:** | |
| | | | **Date:** | |
| | | | **Time:** | |
| | | | **Project:** | |
| | | | **Final drill hole ID:** | |
| **DRILL HOLE INFORMATION:** | | | | |
| **Location:** | **Collar coordinates:** | E | | N |
| **Section:** | (UTM NAD 83) | | **UTM Zone:** | |
| **Area:** | | | **Dip:** | |
| **National Topographic System (NTS):** | | | **Azimuth:** | |
| **Elevation:** | | | **End of hole depth:** | |
| **Description of drill hole location:** | | | | |
| **Purpose of drill hole:** | | | | |
| **DRILLING INFORMATION:** | | | | |
| **Drill contractor:** | | | | |
| **Drill personnel:** | | | | |
| **Drill ID #:** | | | | |
| **End date of drilling:** | | | | |
| **Final depth:** | | | | |
| **Was the active layer encountered?** | Yes / No | | | |
| The active layer is the top layer of soil that thaws during summer and freezes during winter. | | | | |
| **Was permafrost encountered?** | Yes / No | | Depth of top of permafrost: | |
| **Bottom of permafrost layer drilled through?** | Yes / No | | Depth of bottom of permafrost: | |
| **SITE ASSESSMENT:** | | | | |
| **All materials and debris removed from site?** | Yes / No | | | |
| **Casing left?** | Yes / No | | | |
| **Has casing left been cut to ground level?** | Yes / No | | | |
| **Were any drill rods lost in the drill hole?** | Yes / No | | If yes, how many? | |
| **Has the drill hole been properly marked?** | Yes / No | | | |
| **Has the drill hole been sealed and/or plugged?** | Yes / No | | | |
| **Provide details on method used to seal and/or plug hole:** | | | | |
| (i.e. bentonite, grout, etc.) | | | | |
| **Safety concerns and/or issues:** | Yes / No | | | |
| If yes, please describe here: | | | | |
| **Environmental concerns:** | Yes / No | | | |
| If yes, please describe here: | | | | |
| **Any additional work required?** | Yes / No | | | |
| **If yes, please describe here:** | | | | |
| **Corrective actions required?** | Yes / No | | **Description:** | |
| **Responsible party:** | | | **Date to be completed:** | |
| **Photo(s) taken (only required to document corrective action requirements):** | | | Yes / No | |
| **PHOTOGRAPHIC RECORD:** | | | | |
| **Photo(s) of drill hole location following demobilization and clean up?** | | Yes / No | | |
| **Location of photo(s):** | | | | |
| **File name(s) of photo(s):** | | | | |
| **COMMENTS:** | | | | |
| | | | | |
| | | | | |
| **INSPECTION COMPLETED BY:** | | | | |
| **BIM / consultant signature:**<br><br>**Date:** | | | **Drill Foreman signature:**<br><br>**Date:** | |

# APPENDIX G - NT-NU SPILL REPORT FORM

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
It shall not be disclosed in whole or in part, to any other party, without the express permission in writing by Baffinland Iron Mines Corporation.

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# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

**NT-NU 24-HOUR SPILL REPORT LINE**
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

**REPORT LINE USE ONLY**

| | | | | |
|---|---|---|---|---|
| A | REPORT DATE: MONTH – DAY – YEAR | REPORT TIME | ☒ ORIGINAL SPILL REPORT, OR | REPORT NUMBER |
| B | OCCURRENCE DATE: MONTH – DAY – YEAR | OCCURRENCE TIME | ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT | ____-_____ |

| | | |
|---|---|---|
| C | LAND USE PERMIT NUMBER (IF APPLICABLE) **IOL - Commercial Lease No.: Q13C301** | WATER LICENCE NUMBER (IF APPLICABLE) **2AM-MRY1325 Type "A"** |
| D | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION | REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN |
| E | LATITUDE DEGREES MINUTES SECONDS | LONGITUDE DEGREES MINUTES SECONDS |

| | | | |
|---|---|---|---|
| F | RESPONSIBLE PARTY OR VESSEL NAME | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION | |
| G | ANY CONTRACTOR INVOLVED | CONTRACTOR ADDRESS OR OFFICE LOCATION | |
| H | PRODUCT SPILLED | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES | U.N. NUMBER |
| | SECOND PRODUCT SPILLED (IF APPLICABLE) | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES | U.N. NUMBER |
| I | SPILL SOURCE | SPILL CAUSE | AREA OF CONTAMINATION IN SQUARE METRES |
| J | FACTORS AFFECTING SPILL OR RECOVERY | DESCRIBE ANY ASSISTANCE REQUIRED | HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT |
| K | ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS | | |

| | | | | | |
|---|---|---|---|---|---|
| L | REPORTED TO SPILL LINE BY | POSITION | EMPLOYER | LOCATION CALLING FROM | TELEPHONE |
| M | ANY ALTERNATE CONTACT | POSITION | EMPLOYER | ALTERNATE CONTACT LOCATION | ALTERNATE TELEPHONE |

**REPORT LINE USE ONLY**

| | | | | | |
|---|---|---|---|---|---|
| N | RECEIVED AT SPILL LINE BY | POSITION STATION OPERATOR | EMPLOYER | LOCATION CALLED YELLOWKNIFE, NT | REPORT LINE NUMBER (867) 920-8130 |

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

| AGENCY | CONTACT NAME | CONTACT TIME | REMARKS |
|---|---|---|---|
| LEAD AGENCY | | | |
| FIRST SUPPORT AGENCY | | | |
| SECOND SUPPORT AGENCY | | | |
| THIRD SUPPORT AGENCY | | | |

# APPENDIX H - DAILY TANK FARM INSPECTION FORM


The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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Baffinland

# Daily Jet-A Fuel Tank and Diesel Tank Farm Inspection Checklist

**Employee Name:** Week Ending Date:

☐ Mary River ☐ Milne Inlet ☐ Other

| **All functional areas will be inspected daily.** | **M** | **T** | **W** | **T** | **F** | **S** | **S** |
|---|---|---|---|---|---|---|---|
| Visually inspect entire bulk fuel facility, tanks, pipelines and pump buildings | | | | | | | |
| Note any alarms or lit warning lamps, and determine cause | | | | | | | |
| Check evidence of tank leakage, damage or any unusual condition. | | | | | | | |
| Check evidence of pipeline connection leakage, damage or any unusual condition. | | | | | | | |
| Are all pipe supports solidly in place? | | | | | | | |
| Check that the correct tank supply valves are open | | | | | | | |
| Check condition of catwalks, stairs and building access - clear snow. | | | | | | | |
| Empty trash containers and remove trash from all areas inside and out. | | | | | | | |
| Reduce or eliminate drips or seeps where possible | | | | | | | |
| Ensure that all drops are cleaned and sorbent pads are regularly checked | | | | | | | |
| Ensure that an adequate supply of new sorbent pads are on hand | | | | | | | |
| Confirm all listed fire extinguishers are checked. | | | | | | | |
| Check and confirm the availability and contents of the spill response kits. | | | | | | | |
| Ensure that electric lighting is adequate and no lamps are burned out. | | | | | | | |
| Confirm that signs are posted indicated no smoking, no ignition sources. | | | | | | | |
| Ensure that eyewash and first air kits are in place. | | | | | | | |

| Date | Mon | Tues | Wed | Thurs | Fri | Sat | Sun |
|---|---|---|---|---|---|---|---|
| Jet-A Tank 001 | | | | | | | |
| Jet-A Tank 002 | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Date | Mon | Tues | Wed | Thurs | Fri | Sat | Sun |
| Tank Farm 001 | | | | | | | |
| Tank Farm 002 | | | | | | | |
| Tank Farm 003 | | | | | | | |
| Tank Farm 004 | | | | | | | |

Comments:

# APPENDIX I - FUEL TANK DIPPING FORM

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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Baffinland

# Mary River Fuel Dip Sheet for Tanks 1 - 4

| | | | | | | |
|---|---|---|---|---|---|---|
| Tank 1 | Top of Flange | | 9.51 M | | | |
| | Dip 1 | Dip 2 | Dip 3 | Final | Temperature | Calculated Volume |
| | | | | | | 0 |
| Comments or notes | | | Meter | | | |
| | | | | | | |
| Tank 2 | Top of Flange | | 9.48 M | | | |
| | Dip 1 | Dip 2 | Dip 3 | Final | Temperature | Calculated Volume |
| | | | | | | 0 |
| Comments or notes | | | Meter | | | |
| | | | | | | |
| Tank 3 | Top of Flange | | 9.485 M | | | |
| | Dip 1 | Dip 2 | Dip 3 | Final | Temperature | Calculated Volume |
| | | | | | | 0 |
| Comments or notes | | | Meter | | | |
| | | | | | | |
| Tank 4 | Top of Flange | | 9.445 M | | | |
| | Dip 1 | Dip 2 | Dip 3 | Final | Temperature | Calculated Volume |
| | | | | | | 0 |
| Comments or notes | | | Meter | | | |

Numbers bolded, below tank number, and red are taken from the metre inside the station.

| | |
|---|---|
| Tank being Filled (Outlet Valves Open ) | |
| Tank being Consumed from (Inlet Valves Open) | |
| Light Vehicle Meter reading at dispense | |
| Refueler Truck Meter reading at dispense | |
| Dipped By | |
| Date & Time | |
| Weather conditions | |

*NOTE:* A MINIMUM OF 2 DIPS FOR EACH TANK ARE REQUIRED. IF THEY ARE DIFFERENT A 3rd DIP IS REQUIRED FOR A 2 DIP MATCH
CHECK FOR ANY SAFETY CONCERNS BEFORE CLIMBING THE STAIRS SUCH AS ICE ON THE STEPS.
ALWAYS HOLD THE HAND RAIL WHEN CLIMBING OR DESCENDING THE STAIRS
BE SURE TO RECORD WHICH TANKS ARE BEING FILLED OR CONSUMED FROM ON THE DIP DAY

PPE REQUIRED FOR DIP

FULL PPE REQUIRED. SPECIAL PPE REQUIRED WILL BE GLOVES FIT FOR PURPOSE, DRESS FOR WEATHER CONDITIONS

TOOLS REQUIRED FOR DIP

CARRY BAG, DIPPING TAPE WITH BRASS WEIGHT TIP, DIPPING THERMOMETER, WIPING RAGS, FUEL & WATER PASTE (Ajax)

# APPENDIX J - POLAR BEAR READINESS AUDIT FORM

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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# Polar Bear Readiness Audit Form

Auditors: _____ Date: _____

**Dressing Hardware** – located in a kit in the Security closet

- ☐ Two 6 inch Buck Knives
- ☐ Two 4 inch Buck Knives
- ☐ One Sawblade

**Personnel Approved to Sign Out a Shotgun on Site (ERT preferred)** – list at Security

| Name | Shift | Room |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Pre-approved Polar Bear Dressers on Site** – HR & Environment have a list

A preapproved worker documented by Human Resources with the experience and expertise will attend to field dressing, gutting, skinning, cutting the carcass, if an on-site QIA representative does not identify a desired individual. In the event of polar bear mortality, the following parts must be preserved and delivered to the Conservation Officer:

- The lower jaw or an undamaged post-canine tooth,
- Any lip tattoos present,
- Any radio collars or ear tags present, and
- Evidence of sex (i.e. penis/baculum).

| Name | Shift | Room |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Carcass Storage Location** – Physically check the seacan/ reefer

Prior to being delivered and to avoid spoilage, all salvageable wildlife parts must be promptly and safely stored in a refrigerated place. The meat and salvagable parts should not be stored in a c-can or be allowed to spoil.

| Storage location Confirmation | Temperature Confirmation |
|---|---|
| | |

**Carcass Delivery Capabilities** – confirm with Flight Operations

All salvagable parts of the carcass must be delivered to the designated cummunity within 24 hours of the kill if possible.

| Delivery Method | Delivery Timeline |
|---|---|
| Dornier to Community | |

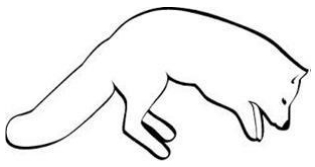
## Comments:

# APPENDIX K - WILDLIFE LOG

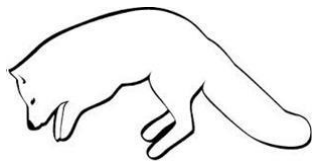
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Note: This is an UNCONTROLLED COPY. All staff members are responsible to ensure the latest revision is used.

# DID YOU SEE ANY WILDLIFE?



# LET US KNOW



# ᓂᕿᐊᑎᓂ ᑕᑯᓐᓂᖅᐱᒃ? ᐊᑎ ᖃᐅᔨᖅᑲᐃᓕᓪᓚᑦ

Wildlife observations by site personnel make very important contributions to environmental baseline studies.
It is important enough that Baffinland asks you to record any observations of wildlife by listing them on this form.

ᓂᕿᐊᑎᓂ ᐅᓴᐅᕐᓂᑎᐊᖃᖅᑕᕿᓂᖅ ᑕᒪᓂ ᐱᘁᓴᕿᐊᓚᓴᐅᒪᒪᑦ ᐊᐢᑎᓪᓗᓚᓂᓕᒥᒃ ᖃᖅᑐᖅᑕᕿᓂᖅᑕᐅᓚᖅ ᐃᓕᓴᕿᐊᓚᓴᐅᒪᒪᑦ ᐊᑦᑕᑯᓂᖅ.

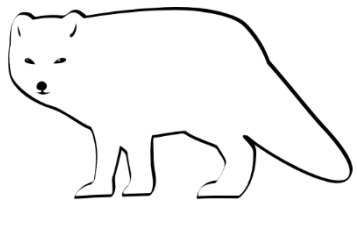
ᐱᘁᓴᕿᐊᓚᓴᐅᓂᖏᓐᓄᑯᓂ ᕿᘁᓐᓂᒪᓂᓂᓂ ᑎᑎᖅᑐᓂᐊᓴᐅᐅᑎ ᓇᓗᓇᐃᔪᓗᒍ ᑕᑯᔭᘁᓂᓗᒍ ᒥᓂᕐᒥᓗ ᒥᓂᕐᒥᓗ.

| DATE<br>ᐅᓪᓗᖏᓚ | ANIMAL & HOW MANY?<br>ᑭᓯᓪᓚᐅᖅᑐᑦ ᓂᕿᐊᑎ,<br>ᖃᓄᐊᓂᐅᓪᓗᑎ? | WHERE?<br>ᓇᓂ ? | COMMENTS<br>ᐅᖃᓕᓂᐊᕐᓂᖅ |
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*Please leave wildlife alone. Do not feed them and never leave waste behind.*

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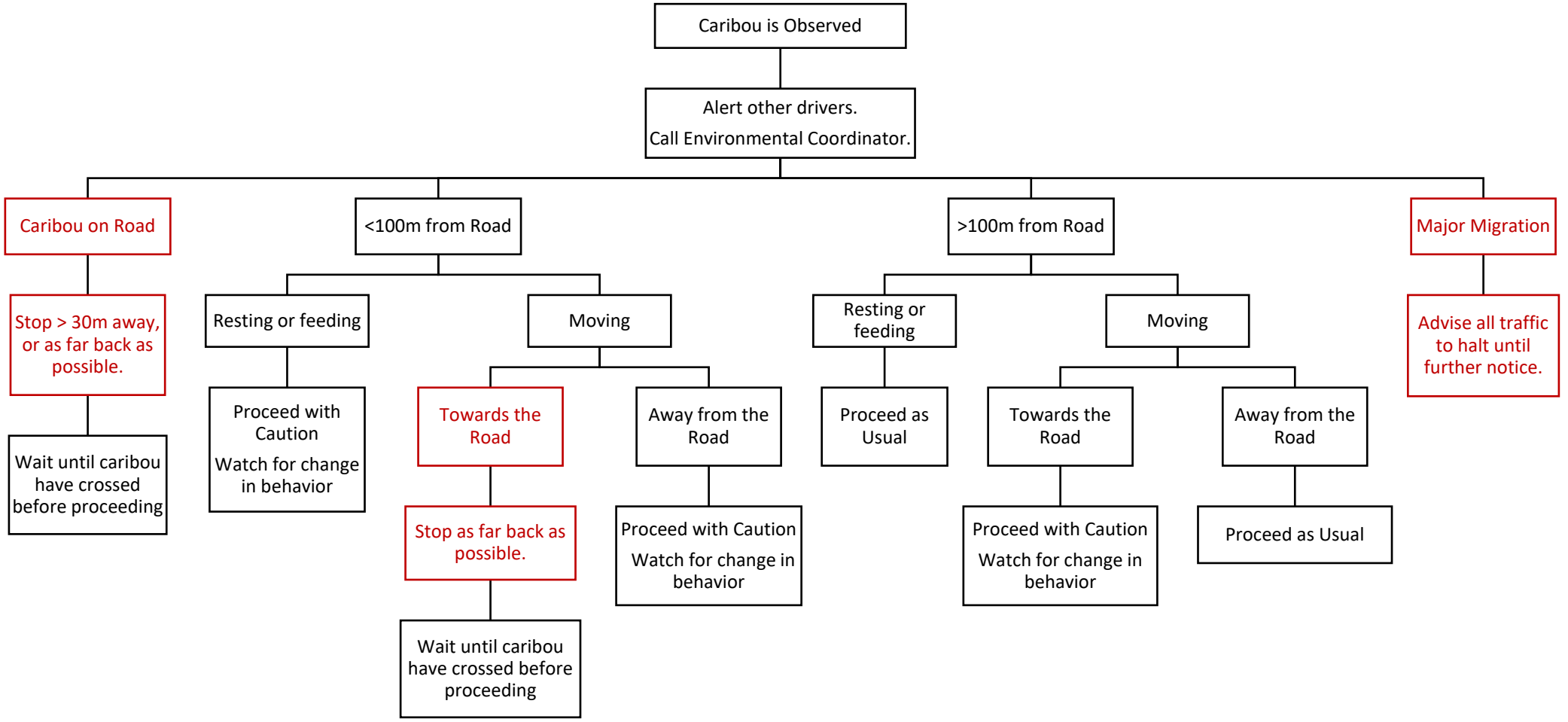


# APPENDIX L - CARIBOU ENCOUNTER DECISION TREE

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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Caribou is Observed
Alert other drivers.
Call Environmental Coordinator.
Caribou on Road
Stop > 30m away, or as far back as possible.
Wait until caribou have crossed before proceeding
<100m from Road
Resting or feeding
Proceed with Caution
Watch for change in behavior
Moving
Towards the Road
Stop as far back as possible.
Wait until caribou have crossed before proceeding
Away from the Road
Proceed with Caution
Watch for change in behavior
>100m from Road
Resting or feeding
Proceed as Usual
Moving
Towards the Road
Proceed with Caution
Watch for change in behavior
Away from the Road
Proceed as Usual
Major Migration
Advise all traffic to halt until further notice.

# APPENDIX M - ACTIVE MIGRATORY BIRD NEST SURVEY FIELD SHEET

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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# Active Migratory Bird Nest Survey Field Sheet

| Survey Date: MM/DD/YYYY | Start Time: 24 hour | End Time: 24 hour |
|---|---|---|
| | | |

| Names of Surveyors: | Total # of Surveyors: |
|---|---|
| | |

| Weather Conditions (Precipitation, Cloud cover, Wind[1], Temperature) – Note: Surveys should not be conducted in rain, snow or other inclement weather |
|---|
| |

| Description of Search Area (Location – Geographic Place Name or Distance & Direction from Named Location, Size etc.): | Photos of Site: |
|---|---|
| | |

| Survey Map (Include any existing disturbance, water bodies or other geographic features and the location of any nests found) | Waypoint Corners of Search Area (Waypoint #, Latitude, Longitude) |
|---|---|
| | Waypoint Corner 1: |
| | |
| | Waypoint Corner 2: |
| | |
| | Waypoint Corner 3: |
| | |
| | Waypoint Corner 4: |
| | |

**Birds Observed during Surveys (That are not on a Nest):**

| Species detected (if species is unknown, default to species group – e.g. songbird, shorebird, duck, raptor) | Number of individuals | Method of detection (song, call, visual – foraging, flying, etc.) |
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**Number of Nests Found (Details on Other Side):**

| |
|---|
| |

[1] **Beaufort wind scale:** 0 = no wind (smoke rise vertically, >1km/h), 1= light air (Smoke drifts slightly, 1-5 km/h), 2= light breeze (wind felt on face, 6-11 km/h), 3= gentle breeze (wind extends light flag, 12-19 km/h), 4= moderate breeze (Raises dust and loose paper, 20-28 km/h), 5= Fresh breeze ( Crested wavelets form on inland waters, 29-38 km/h), 6= strong breeze (Large branches in motion. Whistling heard in wires, 39-49 km/h), 7= near gale (Inconvenience felt in walking against wind, 50-61 km/h), 8= gale (Walking into wind almost impossible, 62-74 km/h).

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**Nest Observations:**

** Record any nests that appear new, but do not have any eggs or young in them, fill out form below including photos.*

| Nest ID # | Waypoint (Waypoint #, Latitude, Longitude) | Species/Species Group | # Eggs/Young |
|---|---|---|---|
| | | | |
| | Description of Nest (Type of Nest, How it was Found, Habitat Surrounding Nest, etc.) | | Photo Numbers |
| | | | |
| | Nest Buffer Applied (Size, How it was Determined, How it was Marked) | | |
| | | | |

| Nest ID # | Waypoint (Waypoint #, Latitude, Longitude) | Species/Species Group | # Eggs/Young |
|---|---|---|---|
| | | | |
| | Description of Nest (Type of Nest, How it was Found, Habitat Surrounding Nest, etc.) | | Photo Numbers |
| | | | |
| | Nest Buffer Applied (Size, How it was Determined, How it was Marked) | | |
| | | | |

| Nest ID # | Waypoint (Waypoint #, Latitude, Longitude) | Species/Species Group | # Eggs/Young |
|---|---|---|---|
| | | | |
| | Description of Nest (Type of Nest, How it was Found, Habitat Surrounding Nest, etc.) | | Photo Numbers |
| | | | |
| | Nest Buffer Applied (Size, How it was Determined, How it was Marked) | | |
| | | | |

| Nest ID # | Waypoint (Waypoint #, Latitude, Longitude) | Species/Species Group | # Eggs/Young |
|---|---|---|---|
| | | | |
| | Description of Nest (Type of Nest, How it was Found, Habitat Surrounding Nest, etc.) | | Photo Numbers |
| | | | |
| | Nest Buffer Applied (Size, How it was Determined, How it was Marked) | | |
| | | | |

# APPENDIX N - OFF-SITE WASTE DISPOSAL LOG

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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**Off-Site Waste Disposal Form**

| Line | Prov. Code | Shipping Name of Waste (i.e. Kitchen Grease, Contaminated Oily Solid, etc.) | Class | UN | P.G. | Quant. Shipped (kg) | Packaging | | | | Phys. State (S, L, G) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Mine Site | Milne Port | Total | Packaging Type | |
| | | | | | | | | | | | |
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# APPENDIX O - WASTEWATER LOG

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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# EFFLUENT TRUCK HTP003

| Month/Year: | | | From | To | √ the LEVEL in the Effluent Tanks @ START of pump cycle | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | Operator | Time | Effluent | Ocean | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 |
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**Return to the MBR Office when complete**

# APPENDIX P - WATERCOURSE CROSSING MONITORING DATA SHEET

The information contained herein is proprietary to Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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# WATER CROSSING MONITORING FORM
## PART 1 - GENERAL INFORMATION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **WATER CROSSING ID:** | | | | | | | | | |
| **Construction Duration:** | | | **Start (YY/MM/DD XX:XX HRS):** | | **Finish (YY/MM/DD XX:XX HRS):** | | | | |
| **During Frozen Conditions?** | Yes / No | | | | | | | | |
| **During Periods of Flow?** | Yes / No | | | | | | | | |
| ***IF CONSTRUCTION OCCURS DURING PERIODS OF FLOW, COMPLETE ENTIRE FORM (PART 1 & PART 2A, B & C) (PRE, DURING AND POST CONSTRUCTION WATER QUALITY MONITORING)*** | | | | | | | | | |
| ***IF CONSTRUCTION OCCURS DURING FROZEN CONDITIONS, COMPLETE PART 1 & PART 2C OF THIS FORM (POST CONSTRUCTION WATER QUALITY MONITORING)*** | | | | | | | | | |
| **CROSSING MODIFICATION / REPAIR DETAILS** | | | | | | | | | |
| **Change in existing design?** | **Yes / No** | | **If Yes, details of change:** | | | | | | |
| **Final Design (e.g. number of culverts, length, etc.):** | | | | | | | | | |
| **Applicable Approvals** | | | | | | | | | |
| **TRAN** | | | | | | | | | |
| **DFO Approvals** | | | | | | | | | |
| **Notes:** | | | | | | | | | |
| **LOCATION** | | | | | | | | | |
| **Datum:** | **Zone:** | | | | | | | | |
| **Easting (m):** | **Northing (m):** | | **Elevation (from mapping):** | | | | | | |
| **Notes:** | | | | | | | | | |
| **FISH ASSESSMENT PRIOR TO CONSTRUCTION** | | | | | | | | | |
| **Date (YY/MM/DD):** | | | | | | | | | |
| **Fish Present?** | Yes / No | | **If Yes, distance from crossing:** | | | | | US / DS | |
| **Spawning Arctic charr present at crossing?** | | | Yes / No | | If Yes, contact a biologist | | | | |
| **Spawning site present 20 m upstream or downstream of crossing?** | | | Yes / No | | | | | | |
| **Notes:** | | | | | | | | | |
| **SEDIMENT AND EROSION CONTROL MEASURES** | | | | | | | | | |
| Measures Installed: | | | | | | Date installed: | | | |
| | | | | | | Date removed: | | | |
| Measures taken to stabilize disturbed areas: | | | | | | | | | |
| **Notes:** | | | | | | | | | |
| **PHOTOS** | | | | | | | | | |
| **View across water crossing, view from upstream, view from downstream and view of sediment controls employed.** | | | | | | | | | |
| | **Photo #** | **Date (YY/MM/DD)** | **Direction** | **Vantage Point** | | **Photo #** | **Date (YY/MM/DD)** | **Direction** | **Vantage Point** |
| **Before** | | | | | **After** | | | | |
| Across | | | | | Across | | | | |
| From US | | | | | From US | | | | |
| From DS | | | | | From DS | | | | |
| **During** | | | | | **Sed. Cont.** | | | | |
| Across | | | | | Across | | | | |
| From US | | | | | From US | | | | |
| From DS | | | | | From DS | | | | |
| **Notes:** | | | | | | | | | |

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# WATER CROSSING MONITORING FORM
## PART 2A - PRE-CONSTRUCTION WATER QUALITY MONITORING

**WATER CROSSING ID:** **Pg. (X/X):**

| Location (e.g. 100 m downstream) | Date (YY/MM/DD) | Time (XX:XX HRS) | Field Monitoring | | | | | | Water Sample Collected (Yes / No) | Lab Water Sample ID | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Turbidity (NTU) | pH (pH Units) | Sp. Cond. (µS/cm) | Water Temp. (°C) | DO (mg/L) | DO (% Sat.) | | | |
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**Monitoring Frequency:**

Water Sampling - At least one (1) sampling event at locations 100 m downstream and 50 m upstream of the affected water crossing, prior to construction.

Field Monitoring - At least one (1) monitoring event (alongside water sampling event listed above) at locations 100 m and 50 m downstream and 50 m upstream of the affected water crossing, prior to construction.

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# WATER CROSSING MONITORING FORM
## PART 2B - DURING CONSTRUCTION WATER QUALITY MONITORING

**WATER CROSSING ID:** **Pg. (X/X):**

| Location (e.g. 100 m downstream) | Date (YY/MM/DD) | Time (XX:XX HRS) | Field Monitoring | | | | | | Water Sample Collected (Yes / No) | Lab Water Sample ID | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Turbidity (NTU) | pH (pH Units) | Sp. Cond. (µS/cm) | Water Temp. (°C) | DO (mg/L) | DO (% Sat.) | | | |
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**Monitoring Frequency:**

Water Sampling - Every eight (8) hours at locations 100 m downstream and 50 m upstream of the affected water crossing, during construction.

Field Monitoring - Every four (4) hours at locations 100 m and 50 m downstream and 50 m upstream of the affected water crossing, during construction.

Note: Field monitoring and water sampling shall be conducted concurrently where frequency and locations overlap.

Adaptive water sampling events will also be conducted when downstream flows are suspected of encroaching on TSS and turbidity criteria limits.

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# WATER CROSSING MONITORING FORM
## PART 2C - POST CONSTRUCTION WATER QUALITY MONITORING

**WATER CROSSING ID:** **Pg. (X/X):**

| Location (e.g. 100 m downstream) | Date (YY/MM/DD) | Time (XX:XX HRS) | Field Monitoring | | | | | | Water Sample Collected (Yes / No) | Lab Water Sample ID | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Turbidity (NTU) | pH (pH Units) | Sp. Cond. (µS/cm) | Water Temp. (°C) | DO (mg/L) | DO (% Sat.) | | | |
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**Monitoring Frequency:**

Water Sampling - Three sampling events: once in June, July and August at locations 100 m downstream and 50 m upstream of the affected water crossing. Sampling events will occur at least 10 days apart.

Field Monitoring - Field monitoring will be conducted concurrently with water sampling events listed above.