



SCREENING DECISION REPORT NIRB FILE No.: 17UN038

Associated NIRB File Nos.: 06EN042,
07EN058, 08EA041, 10EN021
NPC File No.: 148400

June 30, 2017

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Boart Longyear Canada's (BLC) "Roche Bay Drill Demobilization" is not required pursuant to paragraph 92(1)(a) of the *Nunavut Planning and Project Assessment Act* (NuPPAA).

Subject to the Proponent's compliance with the terms and conditions as set out in below, the NIRB is of the view that the project proposal is not likely to cause significant public concerns, and it is unlikely to result in significant adverse environmental and social impacts. The NIRB therefore recommends that the responsible Minister(s) accepts this Screening Decision Report.

OUTLINE OF SCREENING DECISION REPORT

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REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Section 12.2.5 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement) as follows:

"In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area."

These objectives are confirmed under section 23 of the NuPPAA.

The purpose of screening is provided for under section 88 of the NuPPAA:

“The purpose of screening a project is to determine whether the project has the potential to result in significant ecosystemic or socio-economic impacts and, accordingly, whether it requires a review by the Board...”

To determine whether a review of a project is required, the NIRB is guided by the considerations as set out under subsection 89(1) of NuPPAA:

“89. (1) The Board must be guided by the following considerations when it is called on to determine, on the completion of a screening, whether a review of the project is required:

- (a) a review is required if, in the Board’s opinion,*
 - i. the project may have significant adverse ecosystemic or socio-economic impacts or significant adverse impacts on wildlife habitat or Inuit harvest activities,*
 - ii. the project will cause significant public concern, or*
 - iii. the project involves technological innovations, the effects of which are unknown; and*
- (b) a review is not required if, in the Board’s opinion,*
 - i. the project is unlikely to cause significant public concern, and*
 - ii. its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.”*

It is noted that subsection 89(2) provides that the considerations set out in paragraph 89(1)(a) prevail over those set out in paragraph 89(1)(b).

Where the NIRB determines that a project may be carried out without a review, the NIRB has the discretion to recommend specific terms and conditions to be attached to any approval of the project proposal. Specifically, paragraph 92(2)(a) of NuPPAA provides:

“92. (2) In its report, the Board may also
(a) recommend specific terms and conditions to apply in respect of a project that it determines may be carried out without a review.”

PROJECT REFERRAL

On March 21, 2017 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen Boart Longyear Canada’s (BLC) “Roche Bay Drill Demobilization” project proposal from the Nunavut Planning Commission (NPC or Commission), which noted that the project proposal is outside the area of an applicable regional land use plan.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement)

and section 87 of the *Nunavut Planning and Project Assessment Act* (NuPPAA), the NIRB commenced screening this project proposal and assigned it file number 17UN038.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Scope

The proposed “Roche Bay Drill Demobilization” project is located within the Qikiqtani (South Baffin) region, approximately 65 kilometres (km) southwest of Hall Beach and 105 km southwest of Igloolik. The Proponent intends to demobilize select drilling equipment and machinery from *Advanced Exploration’s* abandoned project sites (Roche Bay Exploration and Tuktu) in the area. The demobilization program of drilling and drilling related equipment and supplies is proposed to take place in August of 2017, with potential removal of stored materials during the 2018 sealift season.

As required under subsection 86(1) of the NuPPAA, the Board accepts the scope of the “Roche Bay Drill Demobilization” as set out by BLC in the project proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Transportation of fuel, chemicals, equipment, and storage seacans to site via sealift in 2017;
- Transportation of personnel and equipment to and from site using a fixed-wing aircraft to an existing airstrip;
- Use of helicopter to sling drill equipment and machinery from existing Roche Bay Camp and Tuktu Camp to the beach laydown area;
- Use of existing trail (between airstrip camp and beach laydown area), beach laydown area, and airstrip throughout demobilization operations;
- Deployment, use, and removal of a temporary 20-person camp including a domestic water intake system;
- Storage and use of up to 19,140 litres fuel (diesel, aviation fuel and gasoline) and chemicals for project and camp operations;
- Storage of materials and equipment, as well as recovered drilling and project equipment/machinery, in seacans for demobilization via sealift during the 2017 or 2018 sealift seasons;
- Incineration of combustible and human wastes with collection and transportation of ash for disposal at appropriate facilities;
- Collection of non-combustible wastes for disposal at appropriate facilities offsite; and
- Disposal of human wastes and greywater using a sump.

2. Inclusion or Exclusion to Scoping List

The NIRB has identified no additional works or activities in relation to the project proposal. As a result, the NIRB proceeded with screening the project based on the scope as described above.

3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
March 21, 2017	Receipt of project proposal from the NPC
March 27, 2017, April 23, 2017, April 26, 2017	Information request(s)
May 9, 2017	Proponent responded to information request(s)
May 9, 2017	Scoping pursuant to subsection 86(1) of the NuPPAA
May 26, 2017	Public engagement and comment request
June 16, 2017	Receipt of public comments

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on May 26, 2017 to community organizations in Hall Beach, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by June 15, 2017 regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic or socio-economic effects; and if so, why;
- Whether the project proposal is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; if so, why;
- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (please provide any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

The following is a summary of the comments and concerns received by the NIRB:

Environment and Climate Change Canada (ECCC)

- Proponent is requested to change the contact for ECCC in the Spill Contingency Plan to the appropriate one.
- Proponent is recommended to use an updated Species at Risk table for wildlife mitigation and monitoring.

Indigenous and Northern Affairs Canada (INAC)

- No comments or additional terms and conditions to offer at this time.

5. Comments and Concerns with respect to Inuit Qaujimaningit, Traditional, and Community Knowledge

No concerns or comments were received with respect to Inuit Qaujimaningit or traditional and community knowledge in relation to the proposed project.

FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS

In determining whether a review of the project is required, the Board considered whether the project proposal had potential to result in significant ecosystemic or socio-economic impacts.

Accordingly, the assessment of impact significance was based on the analysis of those factors that are set out under section 90 of the NuPPAA. The Board took particular care to take into account Inuit Qaujimaningit, traditional and community knowledge in carrying out its assessment and determination of the significance of impacts.

The following is a summary of the Board's assessment of the factors that are relevant to the determination of significant impacts with respect of this project proposal:

1. *The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.*

The proposed equipment demobilization project would have a footprint consisting of the Tuktu camp, Roche Bay camp, airstrip and airstrip camp, beach laydown area, and an approximately seven (7) km long road connecting the beach laydown area to the Roche Bay camp. All features are already in existence on previously disturbed land. A temporary camp is proposed to be established within the vicinity of the airstrip on previously disturbed land and would consist of a mess tent, dry tent, and accommodation tents.

As identified by the Proponent and online data sources, the proposed activities may take place within habitats for many local far-ranging wildlife species such as caribou (Wager Bay herd), Polar Bear, wolf, fox, migratory birds such as snow geese and non-migratory birds, and may potentially affect animal migratory patterns.

2. *The ecosystemic sensitivity of that area.*

The proposed project would occur in an area with no particular identified ecosystemic sensitivity. However, NPC online maps indicate this area has been identified as having value and priority to the communities of Hall Beach and Igloolik for:

- i. Terrestrial wildlife, especially migrating caribou in the spring;
- ii. Marine wildlife, especially seal, narwhal, and walrus;
- iii. Fish and fish habitat; and
- iv. Migratory birds, especially nesting snow geese;

3. *The historical, cultural and archaeological significance of that area.*

Neither the Proponent nor any parties that submitted comments for this project identified any known areas of historical, cultural and archaeological significance associated with the project area. However, NPC online maps indicate this area has been identified as having value and priority to the communities of Hall Beach and Igloolik for:

- i. Fishing;
- ii. Caribou hunting in all four seasons;
- iii. Seal, narwhal, and walrus hunting; and

- iv. Historical use by and presence of Inuk within one (1) km of the shoreline.

Through work with the Qikiqtani Inuit Association, the Proponent is aware that there are archeological concerns in the area. Should the project be approved to proceed, the Proponent would be required to contact the Government of Nunavut-Department of Culture and Heritage if any sites of historical, cultural or archaeological significance are encountered.

- 4. *The size of the human and the animal populations likely to be affected by the impacts.*

Although no significant public concerns were raised during the public commenting period, the NIRB notes that the close proximity of the proposed activities to the communities of Hall Beach and Igloolik and an area used by residents for recreational/traditional pursuits could potentially contribute to public concern developing. A term and condition has been recommended to direct engagement with the community, hunters and trappers organization and interested parties, as well as the posting of public notices to ensure residents are aware of the equipment demobilization activities being or to be conducted.

- 5. *The nature, magnitude and complexity of the impacts; the probability of the impacts occurring; the frequency and duration of the impacts; and the reversibility or irreversibility of the impacts.*

As the proposed “Roche Bay Drill Demobilization” project is a demobilization project, the nature of potential impacts is considered to be well-known. Potential adverse impacts are likely to be localized, of low magnitude, infrequent (one-time) and restricted to the short period of project activities (two (2) weeks in August 2017) and the effects are considered positive as the Proponent is proposing to remove drilling equipment and machinery from an abandoned project. However, due to the proximity of project activities to habitat for wildlife such as the Wager Bay caribou herd, snow geese, and several marine mammals, specific mitigation measures for the protection of these species may be necessary. Based on past evidence of similar scope of activities, potential adverse impacts will be reversible and mitigable with due care and in addition, the removal of material due to the project should increase the ecological integrity and improve terrestrial habitats of the area.

- 6. *The cumulative impacts that could result from the impacts of the project combined with those of any other project that has been carried out, is being carried out or is likely to be carried out.*

The current project proposal would take place at an existing development; however, activities related to the previously approved Roche Bay Magnetite Project (NIRB File Nos. 06EN042, 07EN058, 08EA041 and 10EN021) have not been occurring since the site was placed into temporary closure and has since been abandoned by its owner, Advanced Explorations Inc. In fact, this project is likely to reduce the potential for long term cumulative effects as the purpose of the project is to remove equipment and materials left from the previous owner.

The proposed project would take place within a 100 km radius to one (1) currently active project: a tourism project called “Le Soleal 2017” (NIRB File No. 13AN028). However, it is noted that this project is not likely to result in residual or cumulative impacts.

The potential for cumulative impacts to wildlife and wildlife habitat and to hunting by local residents that may result from the demobilization activities and other projects occurring in the region has been identified and considered in the development of the NIRB’s recommendations. Terms and conditions recommended for each of these projects are expected to reduce any residual impacts, and as such would limit or eliminate the potential for cumulative effects to occur.

7. Any other factor that the Board considers relevant to the assessment of the significance of impacts.

No other specific factors have been identified as relevant to the assessment of this project proposal; however, these activities would improve the ecological integrity of the area

VIEWS OF THE BOARD

In considering the factors as set out above in the screening of the project proposal, the NIRB has identified a number of issues below and respectfully provide the following views regarding whether or not the proposed project has the potential to result in significant impacts. In addition, the NIRB has proposed terms and conditions that would mitigate the potential adverse impacts identified.

Administrative Conditions:

To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the following project-specific terms and conditions have been recommended: 1-4.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential adverse impacts to migratory birds and nesting habitat (especially snow geese and song birds), caribou (Wager Bay herd), and other terrestrial wildlife resulting from the noise and disturbance associated with the overland or aerial (low-level helicopter flights) transport of heavy machinery during the demobilization project.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impacts to wildlife is limited to a small geographic area and short time period (two (2) weeks in August) but may affect several terrestrial wildlife species. However, the potential adverse effects from the activities and project-related noise would be anticipated to be low in magnitude, reversible in nature and temporary only and the removal of the equipment would improve the aesthetics of the area and reduce the potential for spills or leaks further discussed in Issue 5. The Proponent has committed to flight restrictions and avoiding touching down where wildlife is present or especially during sensitive times for wildlife (e.g., caribou calving and post calving). Further the proponent submitted an Environmental and Heritage Protection Plan that it would be utilizing for the project and maintaining a wildlife log.

In addition, the Proponent would be required to follow the *Migratory Birds Convention Act*, *Migratory Birds Regulations*, the *Species at Risk Act*, and the *Wildlife Act (Nunavut)* (see Regulatory Requirements section).

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to cease activities when approaching or observing caribou in the area and follow its Environmental and Heritage Protection Plan. Terms and conditions 17 through 29 are suggested to mitigate the potential adverse impacts to migratory and non-migratory birds, caribou, and all other wildlife.

Issue 2: Potential adverse impacts to surface and marine water quality, vegetation and soils, and fish and fish habitat from fuel spills or improper storage or disposal of wastes during equipment and helicopter refuelling and overland transportation of heavy machinery from the Roche Bay camp to the beach laydown area as well as temporary camp activities.

Board views: As discussed in the previous section, the potential for impact(s) is applicable to a small geographic area and short time period. The probability of impacts occurring is considered to be low, with potential adverse effects anticipated to be low in magnitude, and reversible in nature.

The Proponent has provided a comprehensive Spill Prevention and Response Plan, which includes storage measures, spill response measures, equipment requirements, and overall handling procedures for the management of fuel (see Proponent Commitments section). The Proponent has also committed to store, collect, and dispose of all fuels and wastes properly and safely. In addition, the Proponent has committed to use an existing, previously disturbed access route for overland transport of equipment to the beach laydown area. The Proponent has committed to having the camp within previously disturbed areas and minimizing the camp foot print as outlined in its Environmental and Heritage Resources Plan. Further, the Proponent has committed to screen the water intake hose for its camp.

The Proponent would be required to follow the *Fisheries Act*, the *Arctic Waters Pollution Prevention Act*, the *Transportation of Dangerous Goods Regulations*, the *Transportation of Dangerous Goods Act*, and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (see Regulatory Requirements section).

Recommended Mitigation Measures: It is recommended that operational procedures for the storage and transfer of wastes would reduce the risk of uncontrolled releases resulting in adverse impacts to the surface and marine water quality, fish and fish habitat, soil and vegetation. Terms and conditions 5 through 16 and 33 and 34 are recommended to mitigate the potential adverse impacts from waste, fuels, and hazardous materials.

Issue 3: Potential adverse impacts to Inuit harvesting activities in the area due to the demobilization activities in an area frequently used by residents of Hall Beach and Igloodik for hunting and fishing.

Board Views: Due to the project's proximity to an area used by residents of Hall Beach and Igloodik for hunting and fishing and an area with cabins, there is the potential for adverse impacts to arise as a result of the demobilization activities. Mitigation measures have been recommended to ensure safety to the public and to minimal impacts to traditional land use activities. The Proponent has committed to following its Environmental and Heritage Resources Plan which outlines best practices like screening the water intake hose, minimizing the camp footprint, establishing the temporary camp in a previously disturbed area. It is noted that the Proponent has committed to not disturb, access or utilize cabins, nor interfere with related land use activities (see Proponent Commitments section).

Recommended Mitigation Measures: Term and condition 37 is recommended to ensure that the affected communities and organizations are kept informed about the project, such as the dates of the trip. Term and condition 38 has been recommended to ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities in the area. In addition terms and conditions 17 through 29 have been recommended to minimize interference with the movements of terrestrial wildlife and nesting/breeding birds.

Issue 4: Potential adverse impacts to vegetation and soil from the overland transportation of the heavy machinery to the beach laydown area and the erection of a temporary camp.

Board Views: The potential for impacts to vegetation and soils is limited to a small geographic area and the probability of impacts occurring is considered to be low, with potential adverse effects anticipated to be low in magnitude. The Proponent has committed to using an existing route between Roche Bay camp and the beach laydown area and to placing the temporary camp on previously disturbed areas by the airstrip (see Proponent Commitments section). Further, the Proponent has committed to following its Environmental and Heritage Resources Plan which outlines best practices like minimizing the camp footprint, establishing the temporary camp in a previously disturbed area.

Recommended Mitigation Measures: It is recommended that the potential for adverse impacts to vegetation, soils, and terrain be mitigated by following terms and conditions 30 through 36, which address the potential for gouging or rutting, and site restoration of the project area upon project completion or abandonment.

Issue 5: Potential benefit to the local environment due to the removal of heavy equipment that may otherwise corrode or leak fuel, impacting the terrestrial and aquatic environment, including habitat for fish and other wildlife habitat.

Board Views: It is noted that the removal of the equipment may have beneficial effects on fish and fish habitat, water quality, and terrain and soils by mitigating the potential for abandoned equipment to corrode and leak fuels (should any fuels have been left within the machinery). The abandoned machinery may also act as physical barriers to migrating caribou and benefits may arise if the machinery is removed.

Recommended Mitigation Measures: Term and conditions 7 through 16 are recommended to ensure safe storage, use, and disposal of fuels and wastes to minimize the potential for adverse impacts to the environment.

Socio-economic effects on northerners:

Issue 6: Potential adverse impacts to historical, cultural and archaeological sites during the demobilization activities.

Board Views: The Proponent is proposing to work in and around a shoreline area that local communities have identified as having historical importance. The Proponent would be required to contact the Government of Nunavut – Department of Culture and Heritage when encountering historical sites and is required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section). It is noted that the Proponent has indicated they have already consulted with the Qikiqtani Inuit Association regarding the proposal to use an existing, previously disturbed overland route for moving equipment to the beach laydown area. The Proponent has also committed to continue working with the Qikiqtani Inuit Association to determine the exact overland route for moving equipment in recognition of archaeological concerns.

Recommended Mitigation Measures: Term and condition 37 is recommended to ensure that available Inuit Qaujimaningit can inform project activities, and reduce the potential for negative impacts occurring to any potential historical sites.

Issue 7: Potential benefit to the local community from employment opportunities arising during the demobilization activities.

Board Views: It is noted that the Proponent has committed to offering short-term employment opportunities to residents of the local communities.

Recommended Mitigation Measures: Terms and condition 39 has been recommended to ensure the Proponent continues to inform the community of the project activities and potential employment opportunities.

Significant public concern:

Issue 8: No significant public concern was expressed during the public commenting period for this file.

Board Views: It is noted that Follow up consultation and involvement of local community members is expected to mitigate any potential for public concern resulting from project

activities. Further it is noted that the Proponent has committed to continue consulting with the Qikiqtani Inuit Association.

Recommended Mitigation Measures: Term and condition 37 is recommended to ensure that the affected community and organizations are informed about the project proposal, and to provide the Proponent with an opportunity to proactively address or mitigate any concerns that may arise from the project activities findings.

Technological innovations for which the effects are unknown:

No specific issues have been identified associated with this project proposal.

In considering the above factors and subject to the Proponent's compliance with the terms and conditions necessary to mitigate against the potential adverse environmental and social effects, the Board is of the view that the proposed project is unlikely to cause significant public concern and its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS

The Board is recommending the following specific terms and conditions to apply in respect of the project:

General

1. Boart Longyear Canada (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.
2. The Proponent shall forward copies of all permits obtained and required for this project to the Nunavut Impact Review Board (NIRB) prior to the commencement of the project.
3. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (Application to Determine Conformity, March 17, 2017), and the NIRB (Online Application Form, April 18, 2017; Map and Spill Contingency and Environmental and Heritage Protection Plans, May 9, 2017).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Water Use

5. The Proponent shall not extract water from any fish-bearing waterbody unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish. Small lakes or streams should not be used for water withdrawal unless approved by the Nunavut Water Board.
6. The Proponent shall not use water, including constructing or disturbing any stream, lakebed or the banks of any definable water course unless approved by the Nunavut Water Board.

Waste Disposal/Incineration

7. The Proponent shall keep all garbage and debris in bags placed in a covered metal container or equivalent until disposed of at an approved facility. All such wastes shall be kept inaccessible to wildlife at all times.
8. The Proponent shall incinerate all combustible wastes daily, and remove the ash from incineration activities and non-combustible wastes from the project site to an approved facility for disposal.
9. The Proponent shall ensure that no waste oil/grease is incinerated on site.

Fuel and Chemical Storage

10. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
11. Unless otherwise authorized by the Nunavut Water Board, the Proponent shall locate all fuel and other hazardous materials a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent their release into the environment.
12. The Proponent shall ensure that re-fueling of all equipment occurs a minimum of thirty-one (31) metres away from the high water mark of any water body, unless otherwise authorized by the Nunavut Water Board.
13. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing barreled fuel and chemicals at all locations.
14. The Proponent shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available during any transfer of fuel or hazardous substances.
15. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.
16. The Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures. All spills of fuel or other deleterious materials of any amount must be reported immediately to the 24 hour Spill Line at (867) 920-8130.

Wildlife - General

17. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
18. The Proponent shall not harass wildlife. This includes persistently circling, chasing, hovering over pursuing or in any other way harass wildlife, or disturbing large groups of animals.
19. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.

20. The Proponent shall ensure that all project personnel are made aware of the measures to protect wildlife and are provided with training and/or advice on how to implement these measures.

Migratory Birds and Raptors Disturbance

21. The Proponent shall not disturb or destroy the nests or eggs of any birds. If nests are encountered and/or identified, the Proponent shall take precaution to avoid further interaction and or disturbance (e.g., a 100 metres buffer around the nests).
22. The Proponent shall ensure its aircraft avoid excessive hovering or circling over areas where bird presence is likely.

Aircraft Flight Restrictions

23. The Proponent shall not alter flight paths to approach wildlife, and avoid flying directly over animals.
24. The Proponent shall restrict aircraft/helicopter activity related to the project to a minimum flight altitude of 610 metres above ground level unless except during landing, take-off or if there is a specific requirement for low-level flying, which does not disturb wildlife or migratory birds.
25. The Proponent shall ensure that aircraft maintain a vertical distance of 1000 metres and a horizontal distance of 1500 metres from any observed groups (colonies) of migratory birds. Aircraft should avoid critical and sensitive wildlife areas at all times by choosing alternate flight corridors.
26. The Proponent shall ensure that aircraft/helicopter do not, unless for emergency, touch-down in areas where wildlife are present.
27. The Proponent shall advise all pilots of relevant flight restrictions and enforce their application over the project area, including flight paths to/from the project area.

Caribou and Muskox Disturbance

28. The Proponent shall cease activities that may interfere with the migration or calving of caribou or muskox, until the caribou or muskox have passed or left the area.
29. The Proponent shall not block or cause any diversion to caribou or muskox migration, and shall cease activities likely to interfere with migration such as movement of equipment or personnel until such time as the caribou or muskox have passed.

Ground Disturbance

30. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging.
31. The Proponent shall implement suitable erosion and sediment suppression measures on all areas before, during and after conducting activities in order to prevent sediment from entering any waterbody.
32. All construction and road vehicles must be fitted with standard noise suppression devices and engine idling is to be minimized.

Temporary Camps

33. The Proponent shall ensure that all camps are located on gravel, sand or other durable land.
34. The Proponent shall ensure that the land use area is kept clean and tidy at all times.

Restoration of Disturbed Areas

35. The Proponent shall remove all garbage, fuel and equipment upon abandonment.
36. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state as practical as possible upon completion of field work.

Other

37. The Proponent should consult with local residents regarding their activities in the area and solicit available Inuit Qaujimaningit and information that can inform project activities.
38. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
39. The Proponent should, to the extent possible, hire local people and access local services where possible.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board is recommending the following:

Change in Project Scope

1. Responsible authorities or Proponent shall notify the Nunavut Planning Commission (NPC) and the NIRB of any changes in operating plans or conditions, including phase advancement, associated with this project prior to any such change.

Bear and Carnivore Safety

2. The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf. Further information on bear/carnivore detection and deterrent techniques can be found in the "*Safety in Grizzly and Black Bear Country*" pamphlet, which can be downloaded from this link: http://www.enr.gov.nt.ca/sites/default/files/web_pdf_wd_bear_safety_brochure_1_may_2015.pdf.
3. There are polar bear and grizzly bear safety resources available from the Bear Smart Society with videos on polar bear safety available in English, French and Inuktitut at <http://www.bearsmart.com/play/safety-in-polar-bear-country/>. Information can also be obtained from Parks Canada's website on bear safety at the following link: <http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx> or in reviewing the "*Safety in Polar Bear Country*" pamphlet, which can be downloaded from the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/_media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx.

4. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Hall Beach, phone: 867-928-8507).

Species at Risk

5. The Proponent review Environment and Climate Change Canada's "Environment Assessment Best Practice Guide for Wildlife at Risk in Canada", available at the following link:
http://www.sararegistry.gc.ca/virtual_sara/files/policies/EA%20Best%20Practices%202004.pdf. The guide provides information to the Proponent on what is required when Wildlife at Risk, including *Species at Risk*, are encountered or affected by the project.

Migratory Birds

6. The Proponent review Canadian Wildlife Services' "Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut", available at the following link: <http://publications.gc.ca/site/eng/317630/publication.html> and "Key marine habitat sites for migratory birds in Nunavut and the Northwest Territories", available at the following link: <http://publications.gc.ca/site/eng/392824/publication.html>. The guide provides information to the Proponent on key terrestrial and marine habitat areas that are essential to the welfare of various migratory bird species in Canada.
7. For further information on how to protect migratory birds, their nests and eggs when planning or carrying out project activities, consult Environment and Climate Change Canada's Incidental Take web page and the fact sheet "Planning Ahead to Reduce the Risk of Detrimental Effects to Migratory Birds, and their Nests and Eggs" available at <http://www.ec.gc.ca/paom-itmb/>.

Incineration of Wastes

8. The Proponent review the Canadian Council of Ministers of the Environment's "Guidance Document for Canadian Jurisdictions on Open-Air Burning", available at the following link: http://www.ccme.ca/files/Resources/air/wood_burning/pn_1548_CCME%20Guidance%20Document%20on%20Open%20Air%20Burning%20FINAL.pdf as a guidance document for best practices associated with open-air burning.

Transport of Dangerous Goods and Waste Management

9. Environment and Climate Change Canada recommends that all hazardous wastes, including waste oil, receive proper treatment and disposal at an approved facility.
10. The Proponent shall ensure that proper shipping documents (waste manifests, transportation of dangerous goods, etc.) accompany all movements of dangerous goods. Further, the Proponent shall ensure that the shipment of all dangerous goods is registered with the Government of Nunavut Department of Environment, Department of Environment Manager. Contact the Manager (867) 975-7748 to obtain a manifest if dangerous goods including hazardous wastes will be transported.

REGULATORY REQUIREMENTS

The Proponent is also advised that the following legislation may apply to the project:

Acts and Regulations

1. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-28.8/>).
3. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
4. The *Species at Risk Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html>). Attached in **Appendix A** is a list of Species at Risk in Nunavut.
5. The *Wildlife Act (Nunavut)* and its corresponding regulations (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.
6. The *Nunavut Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-28.6/>). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix B**.
7. The *Transportation of Dangerous Goods Regulations* (<http://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm>), *Transportation of Dangerous Goods Act* (<http://laws-lois.justice.gc.ca/eng/acts/t-19.01/>), and the *Canadian Environmental Protection Act* (<http://laws-lois.justice.gc.ca/eng/acts/C-15.31/>).
8. The *Aeronautics Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-2/>).
9. The *Arctic Waters Pollution Prevention Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-12/>).

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Boart Longyear Canada's (BLC) "Roche Bay Drill Demobilization". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated June 30, 2017 at Whale Cove, NU.



Elizabeth Copland, Chairperson

Attachments: Appendix A: Species at Risk in Nunavut
Appendix B: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

Appendix A

Species at Risk in Nunavut

Due to the requirements of Section 79(2) of the Species At Risk Act (SARA), and the potential for project-specific adverse effects on listed wildlife species and its critical habitat, measures should be taken as appropriate to avoid or lessen those effects, and the effects need to be monitored. Project effects could include species disturbance, attraction to operations and destruction of habitat. This section applies to all species listed on Schedule 1 of SARA, as listed in the table below, or have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which may be encountered in the project area. This list may not include all species identified as at risk by the Territorial Government. The following points provide clarification on the applicability of the species outlined in the table.

- Schedule 1 is the official legal list of Species at Risk for SARA. SARA applies to all species on Schedule 1. The term “listed” species refers to species on Schedule 1.
- Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.
- Some species identified at risk by COSEWIC are “pending” addition to Schedule 1 of SARA. These species are under consideration for addition to Schedule 1, subject to further consultation or assessment.

If species at risk are encountered or affected, the primary mitigation measure should be avoidance. The Proponent should avoid contact with or disturbance to each species, its habitat and/or its residence. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the species at risk Registry at <http://www.sararegistry.gc.ca> for information on specific species.

Monitoring should be undertaken by the Proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of species at risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.

For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.

Mitigation and monitoring measures must be undertaken in a way that is consistent with applicable recovery strategies and action/management plans.

Schedules of SARA are amended on a regular basis so it is important to check the SARA registry (www.sararegistry.gc.ca) to get the current status of a species.

Updated: October 2016

Terrestrial Species at Risk ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Migratory Birds			
Eskimo Curlew	Endangered	Schedule 1	EC
Buff-breasted Sandpiper	Special concern	Pending	EC
Ivory Gull	Endangered	Schedule 1	EC
Ross's Gull	Threatened	Schedule 1	EC
Harlequin Duck (Eastern population)	Special Concern	Schedule 1	EC
Rusty Blackbird	Special Concern	Schedule 1	Government of Nunavut
Peregrine Falcon	Special Concern (<i>anatum-tundrius</i> complex ³)	Schedule 1 - Threatened (<i>anatum</i>) Schedule 3 – Special Concern (<i>tundrius</i>)	Government of Nunavut
Short-eared Owl	Special Concern	Schedule 1	Government of Nunavut
Red Knot (<i>rufa</i> subspecies)	Endangered	Schedule 1	EC
Red Knot (<i>islandica</i> subspecies)	Special Concern	Schedule 1	EC
Horned Grebe (Western population)	Special Concern	Pending	EC
Red-necked Phalarope	Special concern	Pending	EC
Vegetation			
Felt-leaf Willow	Special Concern	Schedule 1	Government of Nunavut
Blanket-leaved Willow	Special Concern	Schedule 1	Government of Nunavut
Porsild's Bryum (Moss)	Threatened	Schedule 1	Government of Nunavut
Terrestrial Wildlife			
Peary Caribou	Endangered	Schedule 1	Government of Nunavut
Peary Caribou (High Arctic Population)	Endangered	Schedule 2	Government of Nunavut
Peary Caribou (Low Arctic Population)	Threatened	Schedule 2	Government of Nunavut
Dolphin and Union Caribou	Special Concern	Schedule 1	Government of Nunavut
Grizzly Bear (Western Population)	Special Concern	Pending	Government of Nunavut
Wolverine	Special Concern	Pending	Government of Nunavut
Marine Wildlife			
Polar Bear	Special Concern	Schedule 1	Government of Nunavut/DFO
Atlantic Walrus	Special Concern	Pending	DFO
Beluga Whale (Cumberland Sound population)	Threatened	Pending	DFO
Beluga Whale (Eastern Hudson Bay population)	Endangered	Pending	DFO
Beluga Whale (Western Hudson Bay population)	Special Concern	Pending	DFO
Beluga Whale (Eastern High Arctic – Baffin Bay population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Canada – West	Special Concern	Pending	DFO

Greenland population)			
Bowhead Whale (Eastern Arctic population)	Endangered	Schedule 2	DFO
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Grey Whale (Eastern North Pacific population)	Special Concern	Schedule 1	DFO
Humpback Whale (Western North Atlantic population)	Special Concern	Schedule 3	DFO
Narwhal	Special Concern	Pending	DFO
Fish			
Northern Wolffish	Threatened	Schedule 1	DFO
Atlantic Wolffish	Special Concern	Schedule 1	DFO
Bering Wolffish	Special Concern	Schedule 3	DFO
Fourhorn Sculpin	Special Concern	Schedule 3	DFO
Roundnose Grenadier	Endangered	Pending	DFO
Spotted Wolffish	Threatened	Schedule 1	DFO
Thorny Skate	Special Concern	Pending	DFO
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Blackline Prickleback	Special Concern	Schedule 3	DFO

¹ The Department of Fisheries and Oceans has responsibility for aquatic species.

² Environment Canada (EC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.

³ The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tundrius* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was assessed by COSEWIC as Special Concern.

Appendix B

Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders



INTRODUCTION

The Department of Culture and Heritage (CH) routinely reviews land use applications sent to the Nunavut Water Board, Nunavut Impact Review Board and the Indigenous and Northern Affairs Canada. These terms and conditions provide general direction to the permittee/proponent regarding the appropriate actions to be taken to ensure the permittee/proponent carries out its role in the protection of Nunavut's archaeological and palaeontological resources.

TERMS AND CONDITIONS

- 1) The permittee/proponent shall have a professional archaeologist and/or palaeontologist perform the following **Functions** associated with the **Types of Development** listed below or similar development activities:

	Types of Development (See Guidelines below)	Function (See Guidelines below)
a)	Large scale prospecting	Archaeological/Palaeontological Overview Assessment
b)	Diamond drilling for exploration or geotechnical purpose or planning of linear disturbances	Archaeological/ Palaeontological Inventory
c)	Construction of linear disturbances, Extractive disturbances, Impounding disturbances and other land disturbance activities	Archaeological/ Palaeontological Inventory or Assessment or Mitigation

Note that the above-mentioned functions require either a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit. CH is authorized by way of the *Nunavut and Archaeological and Palaeontological Site Regulations*¹ to issue such permits.

- 2) The permittee/proponent shall not operate any vehicle over a known or suspected archaeological or palaeontological site.

¹ P.C. 2001-1111 14 June, 2001

- 3) The permittee/proponent shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.
- 4) The permittee/proponent shall immediately contact CH at (867) 934-2046 or (867) 975-5500 should an archaeological site or specimen, or a palaeontological site or fossil, be encountered or disturbed by any land use activity.
- 5) The permittee/proponent shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation until permitted to proceed with the authorization of CH.
- 6) The permittee/proponent shall follow the direction of CH in restoring disturbed archaeological or palaeontological sites to an acceptable condition. If these conditions are attached to either a Class A or B Permit under the Territorial Lands Act Indigenous and Northern Affairs Canada directions will also be followed.
- 7) The permittee/proponent shall provide all information requested by CH concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.
- 8) The permittee/proponent shall make best efforts to ensure that all persons working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.
- 9) If a list of recorded archaeological and/or palaeontological sites is provided to the permittee/proponent by CH as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.
- 10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

Legal Framework

As stated in Article 33 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement):

Where an application is made for a land use permit in the Nunavut Settlement Area, and there are reasonable grounds to believe that there could be sites of archaeological importance on the lands affected, no land use permit shall be issued without written consent of the Designated Agency. Such consent shall not be unreasonably withheld. [33.5.12]

Each land use permit referred to in Section 33.5.12 shall specify the plans and methods of archeological site protection and restoration to be followed by the permit holder, and any other conditions the Designated Agency may deem fit. [33.5.13]

Palaeontology and Archaeology

Under the *Nunavut Act*², the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under

² s. 51(1)

the *Nunavut Archaeological and Palaeontological Sites Regulations*³, it is illegal to alter or disturb any palaeontological or archaeological site in Nunavut unless permission is first granted through the permitting process.

Definitions

As defined in the *Nunavut Archaeological and Palaeontological Sites Regulations*, the following definitions apply:

“archaeological site” means a place where an archaeological artifact is found.

“archaeological artifact” means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement).

“palaeontological site” means a site where a fossil is found.

“fossil” includes:

Fossil means the hardened or preserved remains or impression of previously living organisms or vegetation and includes:

- (a) natural casts;*
- (b) preserved tracks, coprolites and plant remains; and*
- (c) the preserved shells and exoskeletons of invertebrates and the preserved eggs, teeth and bones of vertebrates.*

Guidelines for Developers for the Protection of Archaeological Resources in the Nunavut Territory

(Note: Partial document only, complete document at: www.ch.gov.nu.ca/en/Archaeology.aspx)

Introduction

The following guidelines have been formulated to ensure that the impacts of proposed developments upon heritage resources are assessed and mitigated before ground surface altering activities occur. Heritage resources are defined as, but not limited to, archaeological and historical sites, burial grounds, palaeontological sites, historic buildings and cairns. Effective collaboration between the developer, the Department of Culture, and Heritage (CH), and the contract archaeologist(s) will ensure proper preservation of heritage resources in the Nunavut Territory. The roles of each are briefly described.

CH is the Nunavut Government agency which oversees the protection and management of heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and the federal government. Its role in mitigating impacts of developments on heritage resources is as follows: to identify the need for an impact assessment and make recommendations to the appropriate regulatory agency; set the terms of reference for the study depending upon the scope of the development; suggest the names of qualified individuals

³ P.C. 2001-1111 14 June, 2001

prepared to undertake the study to the developer; issue an archaeologist or palaeontologist permit authorizing field work; assess the completeness of the study and its recommendations; and ensure that the developer complies with the recommendations.

The primary regulatory agencies that CH provides information and assistance to are the Nunavut Impact Review Board, for development activities proposed for Inuit Owned Lands (as defined in Section 1.1.1 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement)), and the Indigenous and Northern Affairs Canada, for development activities proposed for federal Crown Lands.

A developer is the initiator of a land use activity. It is the obligation of the developer to ensure that a qualified archaeologist or palaeontologist is hired to perform the required study and that provisions of the contract with the archaeologist or palaeontologist allow permit requirements to be met; i.e. fieldwork, collections management, artifact and specimen conservation, and report preparation. On the recommendation of the contract archaeologist or palaeontologist in the field and the Government of Nunavut, the developer shall implement avoidance or mitigative measures to protect heritage resources or to salvage the information they contain through excavation, analysis, and report writing. The developer assumes all costs associated with the study in its entirety.

Through his or her active participation and supervision of the study, the contract archaeologist or palaeontologist is accountable for the quality of work undertaken and the quality of the report produced. Facilities to conduct fieldwork, analysis, and report preparation should be available to this individual through institutional, agency, or company affiliations. Responsibility for the curation of objects recovered during field work while under study and for documents generated in the course of the study as well as remittance of artifacts, specimens and documents to the repository specified on the permit accrue to the contract archaeologist or palaeontologist. This individual is also bound by the legal requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations*.

Types of Development

In general, those developments that cause concern for the safety of heritage resources will include one or more of the following kinds of surface disturbances. These categories, in combination, are comprehensive of the major kinds of developments commonly proposed in Nunavut. For any single development proposal, several kinds of these disturbances may be involved

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*
- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*
- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*

- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources.*

Types of Studies Undertaken to Preserve Heritage Resources

Overview: An overview study of heritage resources should be conducted at the same time as the development project is being designed or its feasibility addressed. They usually lack specificity with regard to the exact location(s) and form(s) of impact and involve limited, if any, field surveys. Their main aim is to accumulate, evaluate, and synthesize the existing knowledge of the heritage of the known area of impact. The overview study provides managers with baseline data from which recommendations for future research and forecasts of potential impacts can be made. A Class I Permit is required for this type of study if field surveys are undertaken.

Reconnaissance: This is done to provide a judgmental appraisal of a region sufficient to provide the developer, the consultant, and government managers with recommendations for further development planning. This study may be implemented as a preliminary step to inventory and assessment investigations except in cases where a reconnaissance may indicate a very low or negligible heritage resource potential. Alternately, in the case of small-scale or linear developments, an inventory study may be recommended and obviate the need for a reconnaissance.

The main goal of a reconnaissance study is to provide baseline data for the verification of the presence of potential heritage resources, the determination of impacts to these resources, the generation of terms of reference for further studies and, if required, the advancement of preliminary mitigative and compensatory plans. The results of reconnaissance studies are primarily useful for the selection of alternatives and secondarily as a means of identifying impacts that must be mitigated after the final siting and design of the development project. Depending on the scope of the study, a Class 1 or Class 2 Permit is required for this type of investigation.

Inventory: A resource inventory is generally conducted at that stage in a project's development at which the geographical area(s) likely to sustain direct, indirect, and perceived impacts can be well defined. This requires systematic and intensive fieldwork to ascertain the effects of all possible and alternate construction components on heritage resources. All heritage sites must be recorded on Government of Nunavut Site Survey forms. Sufficient information must be amassed from field, library and archival components of the study to generate a predictive model of the heritage resource base that will:

- allow the identification of research and conservation opportunities;
- enable the developer to make planning decisions and recognize their likely effects on the known or predicted resources; and
- make the developer aware of the expenditures, which may be required for subsequent studies and mitigation. A Class 1 or 2 permit is required.

Assessment: At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a

heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

Mitigation: This refers to the amelioration of adverse impacts to heritage resources and involves the avoidance of impact through the redesign or relocation of a development or its components; the protection of the resource by constructing physical facilities; or, the scientific investigation and recovery of information from the resource by excavation or other method. The type(s) of appropriate mitigative measures are dictated by their viability in the context of the development project. Mitigation strategies must be developed in consultation with, and approved by, the Department of Culture and Heritage. It is important to note that mitigation activities should be initiated as far in advance of the construction of the development as possible.

Surveillance and monitoring: These may be required as part of the mitigation program.

Surveillance may be conducted during the construction phase of a project to ensure that the developer has complied with the recommendations.

Monitoring involves identification and inspection of residual and long-term impacts of a development (i.e. shoreline stability of a reservoir); or the use of impacts to disclose the presence of heritage resources, for example, the uncovering of buried sites during the construction of a pipeline.