



SCREENING DECISION REPORT NIRB FILE No.: 16YN046

NPC File No.: 148306

August 16, 2016

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Advisian's "Geotechnical and Environmental Baseline Studies – Pond Inlet Small Craft Harbour Development" 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

- 1) REGULATORY FRAMEWORK
- 2) PROJECT REFERRAL
- 3) PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS
- 4) FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS
- 5) RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS
- 6) MONITORING AND REPORTING REQUIREMENTS
- 7) OTHER NIRB CONCERNS AND RECOMMENDATIONS
- 8) REGULATORY REQUIREMENTS
- 9) CONCLUSION

REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Section 12.2.5 of the Nunavut Land Claims Agreement (NLCA) 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 June 28, 2016 the NIRB received a referral to screen the project proposal from the Nunavut Planning Commission (NPC or Commission) with an accompanying positive conformity determination with the North Baffin Regional Land Use Plan.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Description

The proposed “Geotechnical and Environmental Baseline Studies – Pond Inlet Small Craft Harbour Development” project is located within the Qikiqtani (North Baffin) region, within the

community of Pond Inlet. The Proponent intends to conduct geotechnical and environmental baseline studies to support the design and potential future development of a quarry, small craft harbour, and breakwater. The program is proposed to consist of seasonal activities between July 2016 and September 2017.

According to the project proposal, the scope of the project includes the following undertakings, works or activities:

- Environmental studies to include:
 - Water and sediment quality sampling using different sampling techniques;
 - Fish and fish habitat identification studies using an underwater video camera and grab sampling to collect and study benthic invertebrate communities in the area;
 - Ocean current data collection using up to two (2) surface drogues equipped with Global Positioning System data loggers with seasonal removal;
 - Local migratory and marine bird species identification through a shoreline, near-shore, and off-shore visual survey;
 - Ecosystem mapping and rare plant identification using a meander search method survey;
- Geotechnical and geochemical studies to include:
 - Small Craft Harbour – Drilling and/or cone penetration testing at up to eight (8) test locations using a 660 square metre (m²) marine drilling barge and a 2.5 tonne portable drill rig with borehole tests (0.1 metre [m] diameter) up to 20 m below seabed;
 - Quarry – Drilling and/or cone penetration testing at up to two (2) test locations using a 2.5 tonne portable drill rig with borehole tests (0.1 m diameter) up to 15 m below grade;
 - Use of handheld drilling equipment to supplement geotechnical and geochemical sampling and studies;
 - Remediation of drill sites by filling and capping and removal of marine drilling equipment prior to seasonal demobilization;
- Accommodations for up to 20 personnel within the community of Pond Inlet and use of local facilities;
- Transportation of personnel and equipment using passenger vehicles, snow machines, and a motorboat;
- Storage and use of fuel, chemicals, and drilling additives to facilitate environmental and geotechnical research activities;
- Use of a municipal water source to facilitate geotechnical studies;
- Collection, separation, and disposal of combustible, non-combustible, and hazardous wastes at appropriate municipal facilities; and
- Storage of sewage within portable toilets at research sites with disposal at appropriate municipal facilities.

2. Scoping

The NIRB has identified no additional works or activities in relation to the project proposal.

3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
June 28, 2016	Receipt of project proposal from the NPC
June 28, 2016	Scoping pursuant to subsection 86(1) of the NuPPAA
July 13, 2016	Public engagement and comment request
August 3, 2016	Receipt of public comments
August 5, 2016	Proponent responded to comments/concerns raised by public
August 11, 2016	Ministerial extension requested

4. Public Comments and Concerns

From July 13 to August 3, 2016 the NIRB provided opportunity for the public to provide comments and concerns regarding the project proposal. The following is a summary of the comments and concerns received:

Fisheries and Oceans Canada (DFO)

- Identified several aquatic species of special concern currently listed under COSEWIC that may be found within the project area including: Beluga Whale, Bowhead Whale, Killer Whale, Narwhal, and Atlantic Walrus;
- Recommended measures to be taken to protect aquatic Species at Risk and fish from the project including pre-activity area monitoring measures and work-cessation measures if marine mammals are observed in proximity to project activities;
- Noted that detailed substrate and fish use information in the area of proposed activities would be useful for the DFO's review of future projects;
- Concluded that, contingent on the application of the recommended mitigation measures, the proposal should not result in serious harm to fish, would not contravene applicable sections of the *Species at Risk Act*, and would not require approval under the *Fisheries Act* or the *Species at Risk Act* in order to proceed;
- Indicated that it has no concerns with the proposed quarry research activities, however, future quarry development proposals would require further assessment to determine potential impacts to waterbodies, fish, and fish habitats in proximity to future development areas;
- Highlighted that it is the Proponent's responsibility to ensure that it is in compliance with all applicable legislation and that the Proponent should consult with relevant resources and authorities to determine whether changes to the project proposal require further assessment; and
- Noted that it is the Proponent's *Duty to Notify* the DFO if it has caused, or is about to cause, serious harm to fish that are part of, or support, a commercial, recreational, or Aboriginal fishery.

Indigenous and Northern Affairs Canada (INAC)

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

Mittimatalik Hunters and Trappers Organization (Mittimatalik HTO)

- Recommended that the Proponent collaborate with the community, the Hamlet of Pond Inlet, the Mittimatalik HTO, and with local research bodies to plan project activities;

collect sea ice information; utilize existing studies in the area on sea ice, ocean currents, and wildlife; and utilize Elders for the collection of Inuit Qaujimaqatuqangit;

- Suggested that the Proponent hire local Inuit for project activities; and
- Requested that results and project updates be submitted to the Mittimatalik HTO and the Hamlet of Pond Inlet.

5. Comments and Concerns with respect to Inuit Qaujimaningit

The following is a summary of the comments and concerns received with respect to Inuit Qaujimaningit:

Mittimatalik Hunters and Trappers Organization (Mittimatalik HTO)

- Recommended that the Proponent collaborate with the Mittimatalik HTO and local Elders to inform project activities through Inuit Qaujimaqatuqangit.

6. Proponent's Response to Public Comments and Concerns

The following is a summary of the Proponent's response to concerns as received on August 5, 2016:

- Acknowledged the recommendations submitted by Fisheries and Oceans Canada (DFO) regarding measures to monitor marine mammal presence prior to conducting project activities and submitted an amended Wildlife Mitigation and Monitoring Plan which included revised fish and marine mammal monitoring and protection measures;
- Noted that baseline studies would map the existing habitat conditions on-site and provide data regarding fish use of the area;
- Acknowledged that DFO may need to review any future quarry development proposals associated with the proposed project; and
- Submitted a revised Spill Prevention Plan which included additional details regarding documentation to be made available on-site and equipment to be made available for spill response operations.

FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS

In determining whether a review of the project is required, the Board considered whether the project proposal had a 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 NuPPAA. The Board took particular attention to take into account traditional knowledge and Inuit Qaujimaningit 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 size of the geographic area for the project proposal includes shoreline and near-shore study areas adjacent to the southwest corner of Pond Inlet, on-land study areas southeast of Pond Inlet, and would include periodic transportation of equipment throughout and to the areas via passenger vehicle and boat. The proposed activities may take place within habitats for many far-ranging terrestrial wildlife species; however, significant interaction is considered unlikely due to the study areas' proximity to the community of Pond Inlet and the predominantly marine-based nature of the proposed activities. As the proposed project would involve in-water drilling, environmental research, and sampling activities, the proposed activities have the potential to impact fish populations, benthic invertebrates, migratory birds, Species at Risk (Ivory Gull), and marine mammals in the area and may potentially affect their migratory patterns.

2. *The ecosystemic sensitivity of that area.*

The proposed project would occur in an area where fish and marine populations, including several aquatic species listed under COSEWIC (Beluga Whale, Bowhead Whale, Killer Whale, Narwhal, and Atlantic Walrus), may be present. Further, this area has been identified as having value and priority to the local community for:

- i. Marine mammals;
- ii. Migratory birds;
- iii. Water quality; and
- iv. Polar bears.

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

The Proponent has indicated that there are no known areas of historical, cultural, or archaeological significance associated with the project area, however, noted that it would abide by any terms and conditions related to the protection of archaeological and palaeontological resources provided by the Government of Nunavut – Department of Culture and Heritage.

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

The proposed project would occur directly adjacent to, and within, the community of Pond Inlet. As such, there exists the potential for human populations to be periodically exposed to heightened levels of noise and dust pollution through drilling activities, research activities, transportation activities, and overall increased human presence in the area. Marine activities along the shore and near-shore study areas could increase marine traffic, potentially impacting marine noise levels and sediment dispersal. Disruption of the marine environment could affect fish and several marine species, such as those listed under COSEWIC, within the area.

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 “Geotechnical and Environmental Baseline Studies – Pond Inlet Small Craft Harbour Development” project is a proposed research project, the nature of potential impacts is considered to be well-known, with potential for infrequent, localized impacts to the biophysical environment that are temporary in nature, reversible, and mitigable with due care.

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 proposed project would take place in proximity to other active projects that have been or are currently being assessed by the Board. This includes the “Expeditions 2016 Adventure Canada” (NIRB File No. 06AN041); the “Ice Dynamics and Cryospheric Changes in Northern Canada” (NIRB File No. 08YN010); the “One Ocean Expeditions” (NIRB File No. 12AN025); the “L’AUSTRAL 2016” (NIRB File No. 13AN028), the “Role of algae, sunlight, and humic substances in disinfection in an arctic wastewater stabilization pond” project (NIRB File No. 15YN038) and the “Baseline Monitoring of Marine Productivity and Oceanography Spanning the Northwest Passage using Ships of Opportunity” (NIRB File No. 16YN054). Potential for cumulative impacts to human and wildlife populations from increased noise and dust levels resulting from drilling and research activities has been identified and considered in development of the recommended mitigation measures set out in the following section. Further, this project proposal could induce additional infrastructure development activities and research in the area pending results of the proposed baseline studies.

Although no public concerns were raised during the public commenting period, the NIRB notes that the close proximity of the proposed activities to the community of Pond Inlet could potentially contribute to public concern developing. A term and condition has been recommended to encourage direct engagement with the community, local organizations, and the municipality, and posting of public notices to ensure residents are aware of the research being or to be conducted.

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.

In considering the factors as set out above in the screening of the project proposal, the NIRB has identified a number of issues and provides the following views regarding whether or not the proposed project has the potential to result in significant impacts, and 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 negative impacts to terrestrial wildlife (including caribou), migratory birds, and Species at Risk (Ivory Gull) from daily transportation of personnel to project sites by passenger vehicle and snow machines, on-land geotechnical studies, and research activities.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impact(s) is applicable to a small geographic area and is limited due to infrequent activities undertaken periodically throughout the duration of the proposed project. It is unlikely that the specific areas identified by the Proponent for drilling and sampling could be actively used by caribou, and any residual impacts would be expected to be temporary only. Some project activities, such as transport and use of personnel and drill equipment, ground disturbance from geotechnical drilling, and waste generation could potentially disturb migratory birds and small mammals with limited home range sizes habituated to the project area. Further, the Proponent has committed to employing operational procedures to mitigate impacts to wildlife consistent with measures detailed in the Wildlife Mitigation and Monitoring Plan.

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

Recommended Mitigation Measures: It is recommended that potential negative impacts to terrestrial wildlife may be mitigated by requiring the Proponent to employ specific measures for the use of overland vehicles for transportation, measures for the use and storage of fuel, and measures to ensure the protection and management of wildlife. The following terms and conditions are recommended to mitigate the potential adverse impacts to terrestrial wildlife: 7, 10, and 15 through 21.

Issue 2: Potential negative impacts to fish populations, benthic invertebrate habitats, and marine species from in-water research and drilling activities and the use of a motor boat to transport personnel.

Board views: The proposed marine based studies, including geotechnical drilling activities, could disturb or cause mortality events for fish, benthic habitats, and marine wildlife populations from general disruption and the discharge of drill cuttings to the seabed or to the surrounding aquatic environment; however, any resulting impacts would be expected to be temporary only. The Proponent has committed to undertaking visual surveys for the presence of marine mammals prior to commencement of any drilling activities, and has further indicated that if marine mammals were observed in the

vicinity of the drilling barge, drilling activities would not commence until wildlife exited the area.

The Proponent would also be required to conform to all Fisheries and Oceans Canada requirements for works being conducted in or near waterbodies that support fish, as well as follow the *Fisheries Act* and the *Arctic Waters Pollution Prevention Act* (see Regulatory Requirements sections).

Recommended Mitigation Measures: It is recommended that the potential negative impacts may be mitigated by measures such as requiring the Proponent to use appropriate spill response equipment and clean-up materials (drip pans and absorbents) during fueling, to conduct visual surveys for marine mammals prior to conducting activities, and to remove all waste materials and debris following project activities. The following terms and conditions are recommended to mitigate the potential adverse impacts: 6, 8 through 10, 15, and 22.

Issue 3: Potential negative impacts to surface and marine water quality from drilling activities, research activities, and transportation of equipment and personnel by boat.

Board views: The potential for impacts is applicable 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, infrequent in occurrence and reversible in nature. The Proponent has committed to using environmental friendly drilling muds to avoid or minimize adverse impacts from in-water drilling. Additionally, the Proponent has committed to implementing a Spill Prevention Plan to manage and mitigate impacts associated with fuel and chemical use and storage, and managing wastes consistent with the Waste Management Plan.

The Proponent would require a water licence from the Nunavut Water Board and would also be required to follow the *Fisheries Act*, the *Arctic Water Pollution Prevention Act*, the *Transportation of Dangerous Goods Regulations*, the *Transportation of Dangerous Goods Act*, the *Navigation Protection Act*, and the *Canadian Environmental Protection Act* (see Regulatory Requirements).

Recommended Mitigation Measures: It is recommended that the potential negative impacts may be mitigated by measures such as requiring the Proponent to properly store fuel, to manage drill wastes, and to remove all waste materials and debris following project activities. The following terms and conditions are recommended to mitigate the potential adverse impacts: 5, 6, 8, 9, 11, 24 through 26, 28, 29, and 31.

Issue 4: Potential negative impacts to surface soils and terrestrial vegetation from drilling activities, research activities, and transportation of equipment and personnel by passenger vehicle.

Board views: The potential for impacts is applicable 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, infrequent in occurrence and reversible in nature. The Proponent has committed to using environmental friendly drilling muds to avoid or minimize adverse impacts from drilling activities. Additionally, the Proponent has committed to implementing a Spill Prevention Plan to manage and mitigate impacts associated with fuel and chemical use and storage, and managing wastes consistent with the Waste Management Plan.

Recommended Mitigation Measures: It is recommended that the potential negative impacts may be mitigated by measures such as requiring the Proponent to properly store fuel, to manage drill wastes, to remove all waste materials and debris following project activities, to properly remediate drilling areas, and to comply with overland transportation restrictions. The following terms and conditions are recommended to mitigate the potential adverse impacts: 7, 11 through 14, 23 through 25, 27, 30, 32, and 33.

Issue 5: Potential negative impacts to public and traditional land use activities in the area due to drilling activities, research activities, and from transportation of personnel and equipment.

Board Views: The Proponent has indicated that the proposed project would take place within and adjacent to the community of Pond Inlet. Due to existing development and activities in the area, it is unlikely that the proposed project areas would be used for traditional activities; however, noise from the proposal may temporarily change distribution of harvested species through avoidance and may affect personal enjoyment of the land and marine areas. If situations arise where the project may interfere with traditional land use, a term and condition has been recommended to ensure minimal impacts to traditional land use activities.

Recommended Mitigation Measures: Terms and conditions 34 and 36 have been recommended to ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities in the area.

Socio-economic effects on northerners:

Issue 6: Potential negative impacts to historical, cultural, and archaeological sites from land-based activities, research activities, and transportation activities.

Board Views: The Proponent indicated that there are no known areas of historical, cultural, or archaeological significance associated with the project area, however, noted that it would abide by any terms and conditions related to the protection of archaeological and palaeontological resources provided by the Government of Nunavut – Department of Culture and Heritage.

Although no significant archaeological, historical, or cultural sites were specifically identified during the public commenting period, the Proponent would be required to contact the Government of Nunavut – Department of Culture and Heritage if historical

sites were encountered during the proposed project and would be required to follow the *Nunavut Act* (see Regulatory Requirements section).

Recommended Mitigation Measures: Term and condition 34 is recommended to ensure that available Inuit Qaujimaningit can inform project activities and reduce the potential for negative impacts occurring to any additional historical sites.

Issue 7: Potential positive impact to the local economy through sourcing accommodations, supplies, and services within Pond Inlet.

Board Views: It is noted that the Proponent has committed to continue to consult with local community members from Pond Inlet as detailed within the Stakeholder Consultation Summary. In addition, results from the proposed project could also influence potential future infrastructure development, thus increasing the economic potential of the community.

Recommended Mitigation Measures: Terms and conditions 34 and 35 have been recommended to ensure that the Proponent continues to inform the community of the research activities and findings, as well as provide community members with information to ensure a successful local hiring opportunity.

Significant public concern:

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

Board Views: 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 consult with local community members on project results and potential future developments.

Recommended Mitigation Measures: Term and condition 34 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 project activities.

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. Advisian (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, June 28, 2016), and the NIRB (Online Application Form, June 22, 2016).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Water Use

5. 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.

Ship-based Activities

6. The Proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes (including waste water) or sediment into any marine waters, and shall manage wastes on board the vessel prior to final disposal at approved port facilities.

Waste Disposal

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.

Fuel and Chemical Storage

8. 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.
9. 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.
10. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
11. 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.
12. 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, at all fuel storage sites, at vehicle maintenance areas and at drill sites.

13. The Proponent shall remove hydrocarbon contaminated soils on site and transport them to an approved disposal site for treatment.
14. 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

15. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
16. The Proponent shall not harass wildlife. This includes persistently worrying or chasing animals, or disturbing large groups of animals. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
17. 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

18. 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). If active nests of any birds are discovered (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have left the nest.
19. The Proponent shall minimize activities during periods when birds are particularly sensitive to disturbance such as migration, nesting and moulting.

Caribou Disturbance

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

Marine Mammals

22. All work areas should be monitored for marine mammal presence prior to the commencement of in-water activities. All activities should cease if marine mammals are observed within, or approaching, work locations and activities should only recommence when the marine mammals have left the area.

Ground Disturbance

23. 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. Overland travel of equipment or vehicles must be suspended if rutting occurs.
24. 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.

Drilling on Land

25. The Proponent shall not allow any drilling wastes to spread to the surrounding lands or water bodies.
26. If an artesian flow is encountered, the Proponent shall ensure the drill hole is immediately plugged and permanently sealed.
27. The Proponent shall ensure that all drill areas are constructed to facilitate minimizing the environmental footprint of the project area. Drill areas should be kept orderly with garbage removed daily to an approved disposal site.
28. The Proponent shall ensure that all sump/depression capacities are sufficient to accommodate the volume of waste water and any fines that are produced. The sumps/depression shall only be used for inert drilling fluids, and not any other materials or substances.
29. The Proponent shall not locate any sump within thirty-one (31) metres of the normal high water mark of any water body. Sumps and areas designated for waste disposal shall be sufficiently bermed or otherwise contained to ensure that substances do not enter a waterway unless otherwise authorized.
30. The Proponent shall ensure all drill holes are backfilled or capped prior to the end of each field season. All sumps must be backfilled and restored to original or stable profile prior to the end of each field season.

Drilling on Ice

31. The Proponent shall ensure that all drill cuttings are removed from ice surfaces daily.

Restoration of Disturbed Areas

32. The Proponent shall remove all garbage, fuel and equipment upon abandonment.
33. The Proponent shall complete all clean-up and restoration of the lands used prior to the end of each field season and/or upon abandonment of site.

Other

34. The Proponent should engage with local residents regarding planned activities in the area and should solicit available Inuit Qaujimaningit and information regarding current recreational and traditional usage of the project area which may inform project activities. Posting of translated public notices and direct engagement with potentially interested groups and individuals prior to undertaking project activities is strongly encouraged.
35. The Proponent should, to the extent possible, hire local people.

36. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.

MONITORING AND REPORTING REQUIREMENTS

In addition, the Board is recommending the following:

Annual Report

1. The Proponent shall submit a comprehensive annual report with copies provided to the Nunavut Impact Review Board and the Mittimatalik Hunters and Trappers Organization upon completion of yearly activities by March 31 of each year. The annual report must contain at least the following information:
 - a) A summary of activities undertaken for the year, including:
 1. a map showing the approximate location of drill and research sites;
 2. a summary of research findings; and
 3. site photos.
 - b) A work plan for the following year, including any progressive reclamation work undertaken;
 - c) A summary of community consultations undertaken throughout the year, providing copy of materials presented to community members, a description of issues and concerns raised, discussions with community members and advice offered to the company as well as any follow-up actions that were required or taken to resolve any concerns expressed about the project proposal;
 - d) A discussion of issues related to wildlife and environmental monitoring, including the number of cease-work orders required as a result of proximity to marine mammals and any other wildlife;
 - e) A brief summary of Wildlife Mitigation and Monitoring Plan results as well as any mitigation actions that were undertaken, in addition to their effectiveness. The Proponent shall maintain a record of wildlife observations while operating within the project area and include it as part of the summary report. The summary report based on wildlife observations should include the following:
 1. Locations (i.e., latitude and longitude), species, number of animals, a description of the animal activity, and a description of the gender and age of animals if possible.
 2. Additionally, the Proponent should indicate potential impacts from the project, and ensure that operational activities are managed and modified to avoid impacts on wildlife and sensitive sites.
 - f) A summary of any heritage sites encountered during the exploration activities, any follow-up action or reporting required as a result, and how project activities were modified to mitigate impacts on the heritage sites; and
 - g) A summary of how the Proponent has complied with conditions contained within this Screening Decision, and all conditions as required by other authorizations associated with the project proposal.

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 Pond Inlet, phone: (867) 899-8819).

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/>.

Waste Management

8. The Proponent shall provide an authorization or letter of conformation of disposal from the owner/operator of the landfill to be used for disposal of project-related wastes.

Nunavut Water Board

9. The Nunavut Water Board impose mitigation measures, conditions and monitoring requirements pursuant to the Water Licence, which require the Proponent to respect the sensitivities and importance of water in the area. These mitigation measures, conditions and monitoring requirements should be in regard to use of water, snow and ice; waste disposal; access infrastructure and operation for camps; drilling operations; spill contingency planning; abandonment and restoration planning; and monitoring programs.

REGULATORY REQUIREMENTS

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

Acts and Regulations

1. The Proponent is advised that the *Canadian Environmental Protection Act* (<http://laws.justice.gc.ca/en/C-15.31/>) lists calcium chloride (CaCl) as a toxic substance. The Proponent should assess alternatives to the use of CaCl as a drill additive, including biodegradable and non-toxic additives.
2. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
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* (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) which 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/>). The Proponent must ensure that proper

shipping documents accompany all movements of dangerous goods. The Proponent must register with the Government of Nunavut, Department of Environment Manager of Pollution Control and Air Quality at 867-975-7748.

8. The *Arctic Waters Pollution Prevention Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-12/>).
9. The *Navigation Protection Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-22/index.html>).

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to Advisian's "Geotechnical and Environmental Baseline Studies – Pond Inlet Small Craft Harbour Development".

Dated August 16, 2016 at Arviat, 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

This list includes species listed on one of the Schedules of SARA (*Species at Risk Act*) and under consideration for listing on Schedule 1 of SARA. These species have been designated as at risk by COSEWIC (Committee on the Status of Endangered Wildlife in Canada). This list may not include all species identified as at risk by the Territorial Government.

- 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.

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: June 2015

Species at Risk ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Eskimo Curlew	Endangered	Schedule 1	Environment Canada (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 (GN)
Peregrine Falcon	Special Concern (<i>anatum-tundrius</i> complex ³)	Schedule 1 - Threatened (<i>anatum</i>) Schedule 3 – Special Concern (<i>tundrius</i>)	GN
Short-eared Owl	Special Concern	Schedule 3	GN
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
Buff-breasted Sandpiper	Special concern	Pending	EC
Felt-leaf Willow	Special Concern	Schedule 1	GN
Porsild's Bryum	Threatened	Schedule 1	GN
Peary Caribou	Endangered	Schedule 1	GN
Barren-ground Caribou	Special Concern	Schedule 1	GN

Species at Risk ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
(Dolphin and Union population)			
Polar Bear	Special Concern	Schedule 1	GN/Fisheries and Oceans Canada (DFO)
Grizzly Bear	Special Concern	Pending	GN
Wolverine	Special Concern	Pending	GN
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Atlantic Walrus	Special Concern	Pending	DFO
Beluga Whale (Cumberland Sound population)	Threatened	Schedule 2	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 Greenland population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Arctic population)		Schedule 2	DFO
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Narwhal	Special Concern	Pending	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 *Nunavut Land Claims 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 Nunavut Land Claims 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.*

³ P.C. 2001-1111 14 June, 2001

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, Language, Elders and Youth (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 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 Nunavut Land Claims 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*

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.