



SCREENING DECISION REPORT NIRB FILE No.: 15DN048

NPC File No.: 148150

November 30, 2015

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Aboriginal Affairs and Northern Development Canada's (AANDC, now Indigenous and Northern Affairs Canada) "FOX-D Site Remediation" 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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- 2) PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS
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- 4) RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS
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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 OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Description

The proposed “FOX-D Site Remediation” project is located within the Qikiqtani region, approximately 50 kilometres (km) from Qikiqtarjuaq near the former seasonal community of Kivitoo (adjacent to the Auyuittuq National Park). The Proponent intends to conduct remediation activities on the FOX-D Intermediate Distant Early Warning (DEW) Line Site that was operational from 1957 until its closure in 1963. The program is proposed to operate seasonally between July and September from July 2016 to September 2020.

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

- Rehabilitation, use and remediation of existing barge landing area for transportation of project equipment and materials to and from site via seasonal barge;
- Weekly transportation of equipment and personnel during operational months via chartered aircraft from Qikiqtarjuaq;
- Rehabilitation and use of existing airstrip and roads on site;
 - Airstrip and roads to be left as-is upon project completion;
- Accommodations for up to 30 personnel at a temporary camp site;
- Use of water for domestic and operational purposes;
- Construction, use and decommissioning of two temporary lagoons for treatment and disposal of black and grey water;
- Incineration of combustible wastes generated from camp operations;
- Transportation, storage and use of fuel and oil;
- Establishment of a temporary Waste Handling Facility and garage to facilitate project operations;
- Removal and processing of up to 68,000 cubic metres (m³) (total) of aggregate material from borrow sources to facilitate infrastructure rehabilitation and remediation activities;
- Use of heavy machinery and equipment, passenger vehicles and all-terrain vehicles to support site and remediation operations;
- Remediation activities to include:
 - Demolition of remaining infrastructure on site;
 - Excavation, collection, storage and transportation of contaminated soils and hazardous materials off-site for disposal at appropriate licenced facilities;
 - Excavation and treatment of petroleum hydrocarbon (PHC) Type A soils in-situ using a constructed biological and/or aeration treatment unit;
 - Excavation, collection, storage and transportation of non-hazardous materials off-site for disposal at appropriate licenced facilities;
 - Stabilization and covering of existing non-hazardous Class C landfills;
 - Monitoring and sampling to ensure effectiveness of remediation activities;
 - Re-grading of site and borrow areas;
- Demobilization of machinery and equipment upon project completion;
- Hiring of Nunavut residents for project components and services;
- Hosting periodic community meetings in Qikiqtarjuaq to provide residents with project updates and results.

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
October 13, 2015	Receipt of project proposal from the NPC

October 14, 2015	Scoping pursuant to subsection 86(1) of the NuPPAA
October 15, 2015	Information request
October 16, 2015	Public engagement and comment request
November 6, 2015	Receipt of public comments
November 18, 2015	Proponent responded to comments/concerns raised by public
November 27, 2015	Ministerial extension

4. Public Comments and Concerns

From October 16, 2015 to November 6, 2015 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:

Aboriginal Affairs and Northern Development Canada (AANDC)

- No comments to offer regarding the project proposal.

Environment Canada (EC)

- Highlighted operational guidelines and environmental protection measures applicable to the proposed project pursuant to the *Canadian Environmental Protection Act 1999*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*;
- Recommended mitigation measures related to quarrying operations and potential impacts to nearby water bodies pursuant to AANDC's "Northern Land Use Guidelines: Pits and Quarries" proponent guidance document;
- Recommended wildlife and species at risk impact mitigation measures including temporal and spatial avoidance measures and monitoring programs;
 - Provided recommended buffer zones for migratory bird nesting areas and a list of terrestrial species potentially at risk within the project area.

Fisheries and Oceans Canada (DFO)

- Noted that authorizations under the *Fisheries Act* and *Species at Risk Act* would not be required for this project proposal by following standard protection measures; and
- Referred the Proponent to the DFO's "Measures to Avoid Causing Harm to Fish and Fish Habitat" guidance document to ensure project activities remain in compliance with the *Fisheries Act*.

Transport Canada (TC)

- Noted that vessels to be utilized for the proposed project would be required to abide by the *Canada Shipping Act (2001)*, the *Marine Liability Act*, and the *Arctic Water Pollution Prevention Act*;
- Noted regulations that apply to the proposed project for the use of barges including the "Vessel Pollution and Dangerous Chemicals Regulations" and the "Cargo Fumigation and Tackle Regulations";
- Highlighted the potential requirement for compliance with the *Marine Transportation Security Act* as well as the *Coasting Trade Act* and requested additional information pertaining to the origin, type, registration, and sail plan(s) of the vessels to be used for the proposed project;

- Noted information requirements under the *Navigation Protection Act* and requested a Notice to the Minister for the barge landing;
- Reminded the Proponent of the requirement for an Emergency Response Assistance Plan under the “Transportation of Dangerous Goods Regulations” should the project include the transportation of specific materials such as certain explosives or propane tanks of 3000 litres or more.

5. Comments and Concerns with respect to Inuit Qaujimaningit

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

6. Proponent’s Response to Public Comments and Concerns

The following is a summary of the Proponent’s response to concerns as received on November 18, 2015:

- Noted difficulties with identifying exact types, ratings and sail plans of vessels to be used for the proposed project during the licensing/permitting stage. The Proponent committed to using standard northern sealifts and provided information links to two contractors who would likely be providing transportation services for the project;
- Committed to providing vessel information associated sail plans as the proposed project progresses should it be requested;
- Noted its expected compliance with the *Navigation Protection Act* with regards to the barge landing area. The Proponent indicated that their proposed activities would fall under the assessment criteria of a “Minor Works Order” and would be classed as “designated works”, which do not require a Notice to the Minister to proceed;
- Committed to complying with the *Fisheries Act, 1985*, the *Canadian Environmental Protection Act, 1999*, the *Migratory Birds Convention Act, 1994*, and the *Species at Risk Act, 2002*.

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 proposed project would be approximately 8 km² which includes all roadways, borrow sites, remediation areas, the biological/aeration treatment facility, maintenance facilities, the barge landing area and the 30-person temporary camp. In addition, the proposed project has a physical footprint that includes periodic aircraft transportation to and from Qikiqtarjuaq during project operations as well as seasonal barge transportation.

The Proponent submitted an Environmental Impact Assessment Report which indicated that that project activities are expected to take place within the habitats of many far-ranging wildlife species as well as habitats for small and large terrestrial mammals, bird populations, marine mammals, and various other freshwater and coastal marine species. The Proponent also indicated that although the region was frequented in the past by caribou during seasonal migrations, in recent years caribou have not travelled within 200 km of the FOX-D site. This information was obtained through consultation with a local elder.

2. *The ecosystemic sensitivity of that area.*

The proposed project would occur in an area with no particular identified ecosystemic sensitivity.

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

As identified by the Proponent's Archaeological Impact Assessment Report, the FOX-D site is located adjacent to the former seasonal community of Kivitoo and is in the proximity of several identified heritage resource and land-use sites. The Kivitoo area has a significant history of traditional land use and was a whaling and trading post for many years contributing significantly to the history of the Baffin region. All archaeological and land-use sites revealed in the Proponent's report were found to be of moderate to high significance and include tent rings, artefacts, hunting caches, graves, human remains and animal remains, all from various time periods.

Within the report the Proponent noted that there are no plans to disturb any identified sites during the proposed remediation of the FOX-D site.

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

The proposed project would occur roughly 50 km from Qikiqtarjuaq, the nearest community; as such no human populations are likely to be affected by project impacts. Specific animal populations have been identified as potentially interacting with the proposed project area; however, mitigation measures recommended in the following section are expected to limit any potential impacts that would result from this project on any human or animal populations.

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 “FOX-D Site Remediation” is a proposed remediation 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.*

No cumulative impacts have been identified as potentially resulting from this proposed project in association with any projects that have been carried out, are being carried out or are likely to be carried out.

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

The objective of the proposed project is to remediate an existing contaminated area, and as such the long-term positive outcomes of the project would be expected to offset any short-term negative impacts which may result from the remediation of the FOX-D site. By removing contaminated soils, materials, structures and debris from the area, in addition to adhering to the NIRB’s terms and conditions as well as operational requirements of the authorizations, it is expected that the project would provide an increase to the ecosystemic and environmental integrity of the Kivitoo area.

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.

1. Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential negative impacts to wildlife and wildlife habitat resulting from remediation activities and periodic aircraft transportation from Qikiqtarjuaq during seasonal operations.

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 the seasonal undertaking of project activities. It is expected that standard operational considerations as well as aircraft flight restrictions would mitigate any potential adverse impacts to wildlife including marine mammals and migratory birds. Although the proponent has indicated that caribou no longer frequent the area, minimum flight altitudes have been recommended should caribou herds return to the region during operations.

Recommended Mitigation Measures: Terms and conditions 7, 13 and 24-38 have been recommended to mitigate any potential impacts to wildlife and wildlife habitat resulting from remediation activities and project operations.

Issue 2: Potential negative impacts to soil and water quality resulting from quarrying activities, land farming operations, remediation activities, camp operations and facilities, storage and disposal of wastes, as well as seasonal transportation, use, and storage of fuel.

Board Views: The potential for negative impacts is applicable to a small geographic area, with a low probability of impacts occurring, and the impacts being reversible in nature. The Proponent has provided an Environmental Impact Assessment Report and a Remedial Action Plan that detail environmental protocols and operational measures to be taken for the protection of the surrounding environment throughout the duration of the project. As such, the magnitude of potential impacts is considered to be low and would also have a low probability of extending beyond the immediate project area.

The Proponent will require a water licence from the Nunavut Water Board (see Regulatory Requirements section).

Recommended Mitigation Measures: Terms and Conditions 5, 6, 8, 11, 12, 14-22 and 39-54 have been recommended to mitigate potential impacts to soil and water quality from project activities in addition to ensuring that remediation activities are undertaken. The potential negative impacts are issues relevant for consideration by the Nunavut Water Board, and the NIRB recommendations would be considered through the licensing process. In order to provide responsible authorities with information related to the NIRB assessment and assist with determining compliance, terms and conditions 1 through 4 have also been recommended.

Issue 3: Potential negative impacts to air quality resulting from quarrying activities, remediation activities, incineration of combustible wastes and landfarming operations.

Board Views: The potential for impacts is applicable to select areas within the project footprint with a low probability of extending beyond the project area. The Proponent has committed to employing dust suppression measures as needed for project activities and components as highlighted in the Remedial Action Plan. In addition, the Proponent has committed to adhering to the Government of Nunavut's "Environmental Guideline for the Burning and Incineration of Solid Waste (2012)".

Recommended Mitigation Measures: Terms and conditions 8-10, 21, 23 and 41 have been recommended to mitigate potential impacts to air quality resulting from quarrying activities, remediation activities, incineration of combustible waste materials and landfarming operations.

2. Socio-economic effects on northerners:

Issue 4: Potential negative impacts to historical, cultural and archaeological sites. The Proponent is proposing to work in an area of known historical significance which may cause potential negative impacts.

Board Views: The Proponent has provided an Archaeological Impact Assessment Report that has identified several heritage resources and traditional land use sites in the proposed project area. As stated within the report, all archaeological work was undertaken through consultation with the Government of Nunavut – Department of Culture and Heritage under a Nunavut Archaeologists Permit. The Proponent has noted that there are no plans to disturb any identified sites during the proposed remediation of the FOX-D site.

Recommended Mitigation Measures: Consultation with the community has been recommended through term and condition 55 to ensure that the archaeological sites of importance to the people are considered. In addition, the Proponent has been referred to Government of Nunavut – Department of Culture and Heritage’s “Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders” (found in Appendix B of this report) which details measures to be taken by Proponents for the identification, avoidance and protection of archaeological and heritage resources in Nunavut pursuant to the *Nunavut Act*.

Issue 5: Potential positive impacts as the Proponent has committed to hiring local community members for various project activities as well as supporting a training program for local Inuit.

Board Views: As detailed in the Proponent’s project application, the contract for remedial activities will contain an Aboriginal Opportunities Considerations clause that will require the contractor to maintain a target level of Inuit employment on the project. The Proponent has indicated that similar projects in the past have had Inuit employment and sub-contracting levels between 60-80%. Inuit training opportunities would provide community members the necessary skills for employment opportunities related to this project and others in the future.

Recommended Mitigation Measures: Term and condition 55 has been recommended to ensure that local community members and contractors are informed of opportunities, and better prepared to take on employment opportunities related to the project.

Issue 6: Potential negative short-term impacts to traditional land use activities in the Kivitoo area.

Board Views: Although the proposed project would be expected to increase the ecosystemic and environmental integrity of the Kivitoo region, project activities have the potential to overlap spatially and temporally with traditional land use activities in the project area. However this potential overlap of land use activities would be short term and would reduce safety hazards, remove contaminants, and increase the quality of experience for subsequent land uses.

Recommended Mitigation Measures: Term and condition 56 has been recommended to mitigate potential negative impacts to Inuit wildlife harvesting and traditional land use activities.

3. Significant public concern:

Issue 7: 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.

Recommended Mitigation Measures: Term and condition 55 is recommended to mitigate potential adverse impacts.

4. 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. Aboriginal Affairs and Northern Development 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, October 13, 2015), the NIRB (Part 1 and Part 2 Forms, Remedial Action Plan, Environmental Impact Assessment Report, Archaeological Impact Assessment Report, October 13, 2015 and additional project information on October 16, 2015 and October 19, 2015) the Nunavut Water Board (General Water Licence Application, October 13, 2015), and the Qikiqtani Inuit Association (October 13, 2015).
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 the incineration of combustible camp wastes comply with the *Canadian Wide Standards for Dioxins and Furans*, and the *Canadian Wide Standards for Mercury*.
10. The Proponent shall ensure that no waste oil/grease is incinerated on site.

Fuel and Chemical Storage

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 store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
14. 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.
15. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) at all refueling stations. Appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) must be readily available during any transfer of fuel or hazardous substances, as well as at vehicle-maintenance areas and at drill sites.
16. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.
17. 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.

Landfarm Operations

18. The Proponent shall treat only petroleum and hydrocarbon contaminated soils at the landfarm facility. Materials contaminated with other substances such as glycol and heavy metals are not to be stored at the landfarm and must be disposed of at an authorized facility.
19. The Proponent shall ensure that it meets the required standards as set out in the Nunavut Water Board's Water Licence for this project prior to any discharge of water collected in the retention cell(s).
20. The Proponent shall ensure that the equipment used for aeration in the landfarm operation have been cleaned off within the landfarm facilities prior to exiting.
21. The Proponent shall take appropriate dust suppression measures when conducting soil turning and removal.
22. All operations personnel shall be adequately trained prior to commencement of landfarm operations, and shall be made aware of all operational guidelines and Proponent commitments relating to the Project.

Landfill Operations

23. The Proponent shall take appropriate dust suppression measures when conducting soil topping of landfill materials, or landfill capping activities.

Wildlife - General

24. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
25. 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.
26. 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

27. 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 metre 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.
28. The Proponent shall minimize activities during periods when birds are particularly sensitive to disturbance such as migration, nesting and moulting.
29. The Proponent shall avoid the seaward site of seabird colonies and areas used by flocks of migrating waterfowl by 3 kilometres.

30. The Proponent shall ensure its aircraft avoid excessive hovering or circling over areas where bird presence is likely.

Aircraft Flight Restrictions

31. The Proponent shall restrict aircraft/helicopter activity related to the project to a minimum altitude of 610 metres above ground level unless there is a specific requirement for low-level flying, which does not disturb wildlife and migratory birds.
32. 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.
33. The Proponent shall ensure that aircraft/helicopter do not, unless for emergency, touch-down in areas where wildlife are present.
34. 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 Muskoxen Disturbance

35. 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.
36. The Proponent shall not block or cause any diversion to caribou migration, and shall cease activities likely to interfere with migration such as airborne geophysics surveys, drilling or movement of equipment or personnel until such time as the caribou have passed.
37. The Proponent shall not construct or operate any camp, cache any fuel or conduct blasting within 10 km, or conduct any drilling operation within 5 km of any paths or crossings known to be frequented by (e.g. designated caribou crossings).
38. During the period of May 15 to July 15, when caribou are observed within 1 km of project operations, the Proponent shall suspend all operations, including low-level over flights, blasting, and use of snow mobiles and all terrain vehicles outside the immediate vicinity of the camps. Following July 15, if caribou cows or calves are observed within 1 km of project operations, the Proponent shall also suspend all operations in the vicinity, including low-level over flights, blasting, and use of snow mobiles and all terrain vehicles, until caribou are no longer in the immediate area.

Ground Disturbance

39. 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.
40. The Proponent shall implement suitable erosion and sediment suppression measures on disturbed areas before, during and after construction in order to prevent sediment from entering any waterbody.

Aggregate Removal Operations

41. The Proponent shall use water or other non-toxic and biodegradable additives for dust suppression as necessary to maintain ambient air quality without causing water to pool or runoff.
42. The Proponent shall not remove any material from below the ordinary high water mark of any lake or stream.
43. The Proponent shall not deposit or permit the deposit of sediment into any water body.
44. The Proponent shall clearly stake and flag pit and quarry boundaries so they remain visible to other land users.
45. The Proponent shall ensure there is no obstruction of natural drainage, flooding or channel diversion from quarry/pit access, stockpiles, or other structures or facilities.
46. The Proponent shall ensure that silt fences/curtains are installed down gradient of any quarry activities.
47. The Proponent shall maintain an undisturbed buffer zone between the periphery of quarry sites and the high water mark of any water body that is of an adequate distance to ensure erosion control.
48. The Proponent shall locate screening and crushing equipment on stable ground, at a location with ready access to stockpiles.

Temporary Camps

49. The Proponent shall ensure that all camps are located on gravel, sand or other durable land.
50. The Proponent shall not erect camps or store material on the surface ice of lakes or streams.
51. The Proponent shall ensure that the land use area is kept clean and tidy at all times.

Restoration of Disturbed Areas

52. The Proponent shall remove all garbage, fuel and equipment upon abandonment.
53. 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.

Ship-based Activities

54. 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.

Other

55. The Proponent should, to the extent possible, hire local people and consult with local residents regarding their activities in the area and available Inuit Qaujimaningit that can inform project activities.
56. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.

In addition, the Board is recommending the following:

Marine Vessel Information and Sail Plan

1. Prior to the commencement of shipping activities, the Proponent shall submit a summary report to the Nunavut Impact Review Board and Transport Canada indicating the origin, type, registration, and anticipated sail plan(s) of the marine vessels to be used for project operations.

Annual Report

2. The Proponent shall submit a comprehensive annual report with copies provided to the Nunavut Impact Review Board by March 31st of each year of permitted activities beginning March 31, 2017. The annual report must contain at least the following information:
 - a) A summary of activities undertaken for the year, including:
 - a map and summary of remediation activities undertaken;
 - a map showing the location of the camp and fuel cache;
 - a description of local hires, contracting opportunities and initiatives;
 - flight altitudes, frequency of flights and flight routes;
 - details regarding the marine vessels used for barge transportation and their travel routes; and
 - 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 as well as any follow-up actions that were required or taken to resolve any concerns expressed about the project proposal;
 - d) Summary of any consultation conducted with Government of Nunavut biologists and any relevant outcomes including revisions or alterations to the timing of project activities, wildlife plans, or updates to other plans associated with the project;
 - e) A log of instances in which community residents occupy or transit through the project area for the purpose of traditional land use or harvesting. This log should include the location and number of people encountered, activity being undertaken (e.g., berry picking, fishing, hunting, camping, etc.), date and time, and any mitigation measures or adaptive management undertaken to prevent disturbance;
 - f) 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.

Transport of Waste/Dangerous Goods

3. The Proponent shall ensure that a waste manifest accompanies the shipment of all waste oil/grease and is registered with the Government of Nunavut Department of Environment

(GN-DoE). Contact the Manager of Pollution Control and Air Quality at (867) 975-7748 to obtain a manifest if hazardous waste will be generated during project activities.

4. The Proponent shall ensure that an export manifest or the appropriate transportation of dangerous goods (TDG) documentation accompany all potential hazardous samples and/or materials that are transported off site.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

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

Bear and Carnivore Safety

1. The Proponent review the bear/carnivore detection and deterrent techniques outlined in “Safety in Grizzly and Black Bear Country” which can be down-loaded from this link: http://www.enr.gov.nt.ca/sites/default/files/web_pdf_wd_bear_safety_brochure_1_may_2015.pdf. There are polar bear and grizzly bear safety resources available from the Government of Nunavut at the following link: <http://env.gov.nu.ca/wildlife/resources/polarbearsafety> and a “You are in Polar Bear Country” pamphlet from Parks Canada at the following link <http://www.pc.gc.ca/eng/lhn-nhs/mb/prince/securite-safety/ours-bear.asp> following link <http://www.pc.gc.ca/eng/pn-np/nu/auyuittuq/visit/visit6/d/i.aspx>.
2. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Joseph Guay, Conservation Officer, Qikiqtarjuaq, phone: (867) 927-8966)

Incineration of Wastes

3. The Proponent review Environment Canada’s “Technical Document for Batch Waste Incineration”, available at the following link: <http://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=F53EDE13-1>. The technical document provides information on appropriate incineration technologies, best management and operational practices, monitoring and reporting.

Species at Risk

4. The Proponent review Environment Canada’s “Environment Assessment Best Practice Guide for Wildlife at Risk in Canada”, available at the following link: http://epe.lac-bac.gc.ca/100/200/301/environment_can/cws-scf/environmental_assessment-ef/ea_best_practices_2004_e.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

5. 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.

6. For further information on how to protect migratory birds, their nests and eggs when planning or carrying out project activities, consult Environment 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/>.

Change in Project Scope

7. Responsible authorities or the Proponent shall notify the NPC and the NIRB of any changes in operating plans or conditions associated with this project prior to any such change.

Aboriginal Affairs and Northern Development Canada

8. Aboriginal Affairs and Northern Development Canada (AANDC) impose mitigation measures, conditions and monitoring requirements pursuant to the Federal Land Use Permit, which require the Proponent to respect the importance of the area. These mitigation measures, conditions and monitoring requirements should be in regard to the location and area; type, location, capacity and operation of facilities; use, storage, handling and disposal of chemical or toxic material; wildlife and fisheries habitat; and petroleum fuel storage.
9. AANDC consider the importance of conducting regular Land Use Inspections, pursuant to the authority of the Federal Land Use Permit, while the project is in operation. The Land Use Inspections should be focused on ensuring the Proponent is in compliance with the conditions imposed through the Federal Land Use Permit.

Nunavut Water Board

10. The Nunavut Water Board (NWB) impose mitigation measures, conditions and monitoring requirements pursuant to the Water Licence, which require the Proponent to respect the 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.

Aboriginal Affairs and Northern Development Canada – Water Resources Division

11. AANDC – Water Resources Division should consider the importance of conducting regular inspections, pursuant to the authority of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, while the project is in operation. Inspectors should focus on ensuring the Proponent is in compliance with the conditions imposed through the Water Licence.

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://www.canlii.org/ca/sta/n-28.8/whole.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*, *Transportation of Dangerous Goods Act* (<http://www.tc.gc.ca/eng/tdg/safety-menu.htm>), 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 *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/>).
10. The *Canada Shipping Act, 2001* (<http://laws-lois.justice.gc.ca/eng/acts/C-10.15/>).
11. The *Marine Liability Act* (<http://laws-lois.justice.gc.ca/eng/acts/M-0.7/>).
12. The *Navigation Protection Act (NPA)* (<http://laws-lois.justice.gc.ca/eng/acts/N-22/index.html>).
13. The Proponent shall undertake quarrying in accordance with the *Nunavut Mining Safety Ordinance* and the *Territorial Quarrying Regulations* (<http://www.canlii.org/en/ca/laws/regu/crc-c-1527/latest/crc-c-1527.html>) or equivalent.

Other Applicable Guidelines

14. The Proponent shall practice progressive reclamation in accordance with the restoration guidelines outlined in Aboriginal Affairs and Northern Development Canada's *Northern Land Use Guidelines Pits and Quarries* (<http://www.aadnc-aandc.gc.ca/eng/1100100023585>).
15. The Proponent shall review and apply as applicable, design, operation, monitoring, sampling, analytical methods, decommissioning and closure, record keeping and reporting requirements for landfarming projects as found within the *Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils* (Science Applications International Corporation Canada, March 2006). It is recommended that the Proponent and any consultants hired for the project refer to this document as it relates to the future operations of the landfarming activities.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the AANDC's "FOX-D Site Remediation".

Dated November 30, 2015 at Churchill, MB.



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 Aboriginal Affairs and Northern Development 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.

¹ P.C. 2001-1111 14 June, 2001

- 2) The permittee/proponent shall not operate any vehicle over a known or suspected archaeological or palaeontological site.
- 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 Aboriginal Affairs and Northern Development 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 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.*

² s. 51(1)

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 Aboriginal Affairs and Northern Development 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.