



## SCREENING DECISION REPORT NIRB FILE No.:03DN117

*Associated with NIRB File No.: 04DN105*

NPC File No.: 148955

NWB File No.: 3BC-SHE0919

**December 21, 2018**

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Department of National Defence's (DND) "CAM-3, Shepherd Bay Water Licence Renewal" is not required pursuant to Article 12, Section 12.4.4(a) of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and s. 92(1)(a) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*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 accepts this Screening Decision Report.

### OUTLINE OF SCREENING DECISION REPORT

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## REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Article 12, Section 12.2.5 of the *Nunavut Agreement* and are confirmed by s. 23 of the *NuPPAA*:

*Nunavut Agreement*, Article 12, Section 12.2.5: 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.

The purpose of screening is provided for under Article 12, Section 12.4.1 of the *Nunavut Agreement* and s. 88 of the *NuPPAA* which states:

*NuPPAA*, s. 88: 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 Article 12, Section 12.4.2(a) and (b) of the *Nunavut Agreement* and s. 89(1) of *NuPPAA* which states:

*NuPPAA*, s. 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 under Article 12, Section 12.4.2(c) and s. 89(2) of the *NuPPAA* provides that the considerations set out in s. 89(1)(a) prevail over the considerations set out in s. 89(1)(b) of the *NuPPAA*.

As set out under Article 12, Section 12.4.4 of the *Nunavut Agreement* and s. 92(1) of the *NuPPAA*, upon conclusion of the screening process, the Board must provide its written report to the Minister. The contents of the NIRB's report are specified under *NuPPAA*:

*NuPPAA*, s. 92(1): The Board must submit a written report to the responsible Minister containing a description of the project that specifies its scope and indicating that:

- (a) a review of the project is not required;
- (b) a review of the project is required; or
- (c) the project should be modified or abandoned.

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 pursuant to paragraph 92(2)(a) of *NuPPAA* as follows:

*NuPPAA*, s. 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 October 29, 2018 the NIRB received a referral to screen the Department of National Defence's (DND) "CAM-3, Shepherd Bay Water Licence Renewal" project proposal from the Nunavut Planning Commission (NPC or Commission). The NPC noted that the project proposal was outside the area of an applicable Regional Land Use Plan and determined that the project proposal is a significant modification to the project because of the inclusion of a hydrocarbon landfarm.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Nunavut Agreement* and s. 87 of the *NuPPAA*, the NIRB has commenced screening this project proposal. Due to the proposal containing activities that are sufficiently related to previously assessed activities under NIRB file number **03DN117**, the NIRB views this project proposal as an amendment to the previously screened project and has assigned this proposal with this previous file number.

## PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

### 1. Information Requests

On October 29, 2018 the NIRB requested that the Proponent complete the online application form through the NIRB's public registry system and ensure, pursuant to s. 144(1) of the *NuPPAA*, that the information provided be sufficient to determine the scope of the project activities being proposed and that sufficient information has been provided to commence screening. On October 31, 2018 the NIRB received the required information and commenced the screening pursuant to Part 3 of the *NuPPAA*.

### 2. Project Scope

All documents received and pertaining to this project proposal can be accessed from the NIRB's online public registry at [www.nirb.ca/project/125416](http://www.nirb.ca/project/125416).

The "CAM-3, Shepherd Bay DEW Line Clean-up" project activities as previously screened by the NIRB (NIRB File No. 03DN117 and 04DN105) included annual maintenance, site clean up and

remediation activities. A complete description of the scope of activities previously approved has been included within [Appendix A](#).

The DND is currently proposing the “CAM-3, Shepherd Bay Water Licence Renewal” project which would be located in the same area as previously approved and would be located within the Kitikmeot region, approximately 82 kilometres (km) south of Taloyoak and 100 km east of Gjoa Haven. The Proponent intends to amend the scope of previously approved activities to construct a landfarm for remediation of hydrocarbon impacted soils. The program is proposed to take place from March 2019 to March 2029.

As required under s. 86(1) of the *NuPPAA*, the Board accepts the scope of the CAM-3, Shepherd Bay Water Licence Renewal project proposal as set out by DND in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Construction, operation, and decommissioning of landfarm facility for remediating hydrocarbon impacted soil including:
  - Ground preparation including removal of organic materials and debris;
  - Use of pick-up truck and heavy equipment (loader, grader, dozer, excavator, water truck, fuel truck) on site for remediation activities;
  - Construction of roadways for access;
  - Placement of Type B hydrocarbon contaminated soils in landfarm which would include:
    - Distribution of granular nutrients over the surface of contaminated soil;
    - Use of water spray to maintain optimum moisture content within soil;
    - Tilling of soil every 5-10 days;
  - Collection of and recycling of leachate water;
  - Collection of soil samples to ensure soil is remediating; and
  - Decommissioning of landfarming operation to the Canadian Council of Minister of Environment (CCME) Canadian Soil Quality Standards for commercial coarse-grained soil.
- Sample and test water from within bermed fuel storage facilities at sites prior to release just outside the berm if it meets discharge criteria, if it does not meet discharge criteria, the contaminated water as HAZMAT to be shipped offsite and disposed of in a licenced waste HAZMAT disposal facility;
- Use of a helicopter and fixed winged aircraft to access each main site as well as adjacent sites;
- Transportation of bulk materials, dry goods, and fuel to the sites by ship (seasonal barge);
- Use of permanent camp for staff accommodations;
- Storage and use of aviation fuel, oil, glycol, paint, and batteries;
- Disposal of combustible wastes in adjacent communities; and
- Sewage (including greywater) deposited in a sump.

### **3. Inclusion or Exclusion to Scoping List**

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

#### 4. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
October 29, 2018	Receipt of project proposal and referral from the NPC
October 29, 2018	Information request
October 31, 2018	Proponent responded to information request
November 07, 2018	Scoping pursuant to s. 86(1) of the <i>NuPPAA</i>
November 09, 2018	Public engagement and comment request
November 30, 2018	Receipt of public comments
December 17, 2018	Ministerial Extension Request

#### 5. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on November 9, 2018 to community organizations in Taloyoak and Gjoa Haven, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by November 30, 2018 regarding:

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

On or before November 30, 2018 the NIRB received comments from the following interested parties (see Comments and Concerns section below):

- **Government of Nunavut (GN)**
- **Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)**
- **Kugluktuk Angoniatit Association (HTO)**

**a. Summary of Public Comments and Concerns Received during the Public comment period of this file**

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

##### **Government of Nunavut**

- Made recommendations that the Proponent provide the following information:
  - Provide rationale for capacity and footprint of the proposed soil treatment facilities and the expected lifetime of the project;

- Reference regulatory guidelines documents and confirm adherence to these regulatory documents;
- Define the applicable setbacks and buffer zone inside the perimeter of the facility to be used;
- Confirm hydraulic conductivity of the landfarm base.
- Discuss the proposed liner or provide rationale for not having a liner for the landfarm and prove no significant effect on ground and surface water will occur;
- Estimate the amounts of filtrate, contaminant runoff, and snowmelt from the landfarm;
- Describe the site security, including a fence to prevent wildlife access;
- Provide rationale for the proposed soil acceptance criteria;
- Describe the proposed ground and surface water monitoring for the landfarms;
- Describe the project closure and site remediation in case remediation objectives have not been reached;
- Define “Type B hydrocarbon contaminated soils”;
- Indicated that there are twenty one (21) recorded archeological sites within the vicinity of CAM-3 project activity area; and
- Recommended the proponent hire a qualified archaeologist in order to conduct field assessments at all the sites and to mitigate any potential impacts

#### **Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)**

- Does not have any comments or concerns at this time.

#### **Kugluktuk Angoniatit Association (HTO)**

- Does not directly affect them but are in favour of an action plan.

#### **b. Comments and Concerns with respect to Inuit Qaujimaningit, Traditional and Community Knowledge**

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

#### **6. Time of Report Extension**

Owing to limited board member availability, the NIRB was not able to provide its screening decision report to the responsible Minister within 45 days as required by Article 12, Section 12.4.5 of the *Nunavut Agreement* and s. 92(3) of the *NuPPAA*. Therefore, on December 17, 2018 the NIRB wrote to the Minister of Intergovernmental Affairs, Northern Affairs and Internal Trade, Government of Canada, seeking an extension to the 45-day timeline for the provision of the Board’s Report.

#### ASSESSMENT OF THE PROJECT PROPOSAL IN ACCORDANCE WITH PART 3 OF *NUPPAA*

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

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

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

<b>Factor</b>	<b>Comment</b>
The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.	<ul style="list-style-type: none"> <li>▪ The proposed project is approximately 82 km south of the community of Taloyoak and 100 km east of Gjoa Haven and located within the CAM-3 Dew Line site. The proposed project would be located in the previously constructed landfarm facility that was decommissioned in 2007.</li> <li>▪ The proposed activities take place within habitats for terrestrial wildlife species such as caribou, muskox, grizzly bears, wolves, wolverine, foxes, arctic hare, migratory and non-migratory birds and Species at Risk such as Polar Bear. The site is along a migration route for caribou and their calving grounds.</li> </ul>
The ecosystemic sensitivity of that area.	<ul style="list-style-type: none"> <li>▪ The proposed project would occur in an area with no particular identified ecosystemic sensitivity. The communities have identified this area as important for traditional hunting and camping, fishing (Char, whitefish, trout, sea run lake trout); caribou; muskox and birds.</li> </ul>
The historical, cultural, and archaeological significance of that area.	<ul style="list-style-type: none"> <li>▪ CAM-3 was built in the 1950's as on the of the Distant Early Warning Line (DEW Line) radar sites.</li> <li>▪ The Government of Nunavut has indicated that there are twenty one (21) recorded archeological sites within the vicinity of CAM-3 project activity area.</li> </ul>
The size of the human and the animal populations likely to be affected by the impacts.	<ul style="list-style-type: none"> <li>▪ Inuit hunt, fish, and trap in the region.</li> <li>▪ The proposed project would occur on a previously established site and is unlikely to result in impacts to local human and animal populations.</li> </ul>
The nature, magnitude and complexity of the impacts; the probability of the impacts occurring; the frequency and duration of the	<ul style="list-style-type: none"> <li>▪ A zone of influence of up to 10 km from the most potentially-disruptive project activities was selected for the NIRB's assessment.</li> </ul>

impacts; and the reversibility or irreversibility of the impacts.	<ul style="list-style-type: none"> <li>▪ Based on past evidence from projects with a similar scope of activities, the potential adverse impacts are considered to be well-known, with potential for localized impacts to the biophysical environment that are mitigable with due care.</li> <li>▪ With adherence to the relevant regulatory requirements and application of the mitigation measures recommended by the NIRB, no significant residual effects are expected to occur.</li> </ul>
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.	<ul style="list-style-type: none"> <li>▪ The mitigation measures recommended by the NIRB have been designed with consideration for the potential for cumulative effects to result from the impacts of the project combined with other past, present and reasonably foreseeable projects.</li> </ul>
Any other factor that the Board considers relevant to the assessment of the significance of impacts.	<ul style="list-style-type: none"> <li>▪ The proposed location for the construction of the landfarm facility is based on the location of the previous land farm facility which was constructed during the DEW Line Clean Up Project. Further, the construction of the landfarm facility would allow the remediation of hydrocarbon impacted soil that would improve the overall environment in the area which is considered positive.</li> </ul>

### **Other past, present and reasonably foreseeable projects considered in this assessment:**

There are no other past, present or reasonable foreseeable projects that are within the project area.

#### **VIEWS OF THE BOARD**

In considering the factors as set out above in the screening of the project proposal, the NIRB has identified a number of issues below and respectfully provides the following views regarding whether or not the proposed project has the potential to result in significant impacts. In addition, the NIRB has proposed terms and conditions that would mitigate the potential adverse impacts identified. The Board would also note that, as justified in its previous decisions for (NIRB File No. 03DN117 dated October 14, 2003<sup>1</sup> and NIRB File No. 04DN015 dated October 18, 2004<sup>2</sup>), all terms and conditions remain applicable to the project remediation activities, while the additional impacts identified for the new components of the addition of the testing and release of berm water from fuel storage facility and the construction of a landfarm facility for remediation of contaminated soils warrant mitigation measures as justified below.

1 [www.nirb.ca/project/123350](http://www.nirb.ca/project/123350) Document ID No.: 248013

2 [www.nirb.ca/project/123482](http://www.nirb.ca/project/123482) Document ID No.: 249176

### **Ecosystem, wildlife habitat and Inuit harvesting activities:**

- The potential negative impacts from the proposed project would be restricted to a small geographical area in a previously disturbed area. However, it is noted that the project activities overall is considered positive as the construction of the landfarm facility would allow remediation of hydrocarbon impacted soil.
- Potential negative impacts to terrestrial wildlife species such as caribou, muskox, wolves, wolverine, in addition to migratory and non-migratory birds and small mammals due to ground disturbance, noise, and hazardous waste materials generated from construction activities and facility operations. In order to mitigate the potential impacts of the project the Proponent would be required to follow all Acts and Regulations applicable to the project proposal (see Regulatory Requirements section). Previously recommended terms and conditions continue to apply to the current project proposal and also new terms and conditions 13 through 21.
- Potential negative impacts to soil and vegetation due to ground-based activities such as construction, vehicular movement, hazardous waste, and facility operations. The Proponent has committed to cleaning the equipment used in the landfarming operation, undertaking environmental monitoring of the proposed site, and disposal of hazardous waste materials at a waste HAZMAT disposal facility offsite. Previously recommended terms and conditions continue to apply and also new terms and conditions 4 through 12. In addition, the Proponent would be required to follow specific Acts and Regulations (see Regulatory Requirements section) relevant to the proposed project.
- Potential negative impacts to water and aquatic biota from contaminated runoff from the landfarm facility or the discharge from the bermed fuel containment facility. The Proponent will require a water licence from the Nunavut Water Board (see Regulatory Requirements section) and has submitted a Spill Contingency Plan. Further, the Proponent committed to ensuring all contact water around the landfarm and within the bermed fuel storage facility would be collected and tested prior to discharge. Previously recommended terms and conditions continue to apply and also new terms and conditions 4, 5, 9 and10.

### **Socio-economic effects on northerners:**

- Potential negative impact to archeological sites in the area. The Proponent is required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section) and would be required to contact the Government of Nunavut – Department of Culture and Heritage if any historical sites are encountered. The Board recommends, terms and conditions 22 and 23 to ensure that available Inuit Qaujimaningit can inform project activities and reduce the potential for negative impacts occurring to any additional historical sites.

### **Significant public concern:**

- No significant public concern was expressed during the public commenting period for this file. Follow up consultation and involvement of local community members has been recommended (see terms and conditions 22 and 24).

**Technological innovations for which the effects are unknown:**

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

**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 NIRB recommends the following project-specific terms and conditions:1-3.

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**

Terms and conditions that were previously issued by the NIRB for File No. 03DN117 on October 14, 2003 and for NIRB File No. 04DN105 on October 18, 2004, **continue to apply to the CAM-3 Shepard Bay Water Licence Renewal project.**

**In addition to the previously issued terms and conditions, the Board recommends the following project-specific terms and conditions:**

1. Department of National Defence (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.
2. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (NPC File No.: 148955) and the NIRB (Online Application Form, October 31, 2018, and correspondence received November 19, 2018).
3. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and guidelines.

**Landfarm Operations**

4. 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.
5. 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).
6. 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.
7. The Proponent shall take appropriate dust suppression measures when conducting soil turning and removal.

8. 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**

9. The Proponent shall dispose of non-hazardous materials only at the landfill and shall limit this disposal to those materials listed as acceptable for disposal. Hazardous materials, materials listed as unacceptable for disposal at the landfill, or materials that contain asbestos, fluorescent tubes or ozone depleting substances are not to be disposed of in the landfill and must be disposed of at an authorized facility.
10. The Proponent shall ensure that it meets the standards and/or limits as set out in the Nunavut Water Board Water Licence and any other permits as required for this project.
11. The Proponent shall take appropriate dust suppression measures when conducting soil topping of landfill materials, or landfill capping activities.
12. All operations personnel shall be adequately trained prior to commencement of landfill operations, and shall be made aware of all operational guidelines and Proponent commitments relating to the Project.

### **Wildlife**

13. 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**

14. 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.
15. The Proponent shall minimize activities during periods when birds are particularly sensitive to disturbance such as migration, nesting and moulting.

### **Aircraft Flight Restrictions**

16. The Proponent shall not alter flight paths to approach wildlife, and shall avoid flying directly over animals.
17. The Proponent shall restrict aircraft/helicopter activity related to the project to a minimum flight altitude of 610 metres above ground level except during landing, take-off or if there is a specific requirement for low-level flying, which does not disturb wildlife or migratory birds.
18. 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.

19. The Proponent shall ensure that aircraft/helicopter do not, unless for emergency, touch-down in areas where wildlife are present.
20. The Proponent shall advise all pilots of relevant flight restrictions and enforce their application over the project area, including flight paths to/from the project area.

### **Caribou and Muskox Disturbance**

21. 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.

### **Other**

22. 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.
23. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
24. The Proponent should, to the extent possible, hire local people and access local services where possible.

### **MONITORING AND REPORTING REQUIREMENTS**

*The Board has previously recommended the following on October 18, 2004.*

### **Monitoring**

25. The Permittee shall maintain all site signs and notices at the PCB storage facility.

### **OTHER NIRB CONCERNS AND RECOMMENDATIONS**

*In addition to the project-specific terms and conditions, the Board has previously recommended the following on October 18, 2004:*

### **Recommendations**

1. NIRB would like to encourage the proponent to hire local people and services, to the extent possible
2. NIRB advises all proponents that they should consult with the local residents regarding their activities in the region.
3. Any amendment requests deemed by NIRB to be outside the original scope of the project will be considered a new project.

4. The Permittee shall notify NIRB, Environment Canada and the NWB of any changes or plans in operating conditions associated with this land use activity.

***The Board is currently also recommending the following:***

### **Change in Project Scope**

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

### **Copy of licences, etc. to the Board and Commission**

2. As per s. 137(4) of the *NuPPAA*, responsible authorities are required to submit a copy of each licence, permit or other authorization issued for the Project to the Nunavut Planning Commission and the NIRB. Please forward a copy of the licences, permits and/or other authorizations to the NIRB directly at [info@nirb.ca](mailto:info@nirb.ca) or upload a copy to the NIRB's online registry at [www.nirb.ca](http://www.nirb.ca).

### **Bear and Carnivore Safety**

3. 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](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](http://www.enr.gov.nt.ca/sites/default/files/web_pdf_wd_bear_safety_brochure_1_may_2015.pdf).
4. 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](http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx).
5. 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 Taloyoak, phone: 867-561-6231).

### **Species at Risk**

6. 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](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**

7. 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.
8. 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/>.

## **Transport of Dangerous Goods and Waste Management**

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

## **REGULATORY REQUIREMENTS**

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

### **Acts and Regulations**

1. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-28.8/>).
3. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
4. The *Species at Risk Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html>). Attached in **Appendix B** is a list of Species at Risk in Nunavut.
5. The *Wildlife Act (Nunavut)* and its corresponding regulations (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>).
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 C**.
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/>).

### **Other Applicable Guidelines**

8. The *Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils* (Science Applications International Corporation Canada, March 2006) provide information as it relates to the future operations of the landfarming activities.
9. Solid Waste Management for Northern and Remote Communities (Environment and Climate Change Canada, 2017) guidance document for best practices of hazardous waste management. <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html>.
10. Environmental Guideline for the Management of Contaminated Sites, Department of Environment, Government of Nunavut, Revised December 2014 ([https://www.gov.nu.ca/sites/default/files/contaminated\\_sites\\_remediation\\_2014.pdf](https://www.gov.nu.ca/sites/default/files/contaminated_sites_remediation_2014.pdf)).
11. Environmental Guideline for Contaminated Site Remediation, Department of Environment, Government of Nunavut; Revised March 2009 (<https://www.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Remediation.pdf>).
12. Environmental Guideline for the General Management of Hazardous Waste, Government of Nunavut, Revised October 2010 ([https://www.gov.nu.ca/sites/default/files/Guideline%20-%20General%20Management%20of%20Hazardous%20Waste%20%28revised%20Oct%2010%29\\_0.pdf](https://www.gov.nu.ca/sites/default/files/Guideline%20-%20General%20Management%20of%20Hazardous%20Waste%20%28revised%20Oct%202010%29_0.pdf)).

### **CONCLUSION**

The foregoing constitutes the Board's screening decision with respect to the Department of National Defence's "CAM-3, Shepherd Bay Water Licence Renewal". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated December 21, 2018 at Whale Cove, NU.



Elizabeth Copland, Chairperson

Attachments: Appendix A: Previously-Screened Project Proposals  
Appendix B: Species at Risk in Nunavut  
Appendix C: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

## APPENDIX A: PREVIOUSLY-SCREENED PROJECT PROPOSALS

*Please note that the files for original project proposals received by the Nunavut Impact Review Board (NIRB or Board) were incomplete. The file history and scope of previously assessed activities were reconstructed from multiple sources including the NIRB files, Nunavut Water Board files, and from the Proponent.*

### **NIRB File No. 03DN117:**

The original project proposal, “Water Licence for CAM-3, Shepard Bay” (NIRB File No.:03DN117), was received by the NIRB from the Nunavut Water Board (NWB). The project proposal was screened by the Board in accordance with Part 4, Article 12 of the *Nunavut Agreement*. On October 14, 2003 the NIRB issued a *Nunavut Agreement* 12.4.4 (a) screening decision to the Chair of the NWB which indicated that the proposed project could proceed subject to the NIRB’s recommended project-specific terms and conditions.

The North Warning Systems Office’s original “Water Licence for CAM-3, Shepard Bay” project was located in the Kitikmeot region, approximately 82 km south from Taloyoak and 100 km east of Gjoa Haven. The Proponent indicated that it needed a water licence for water use and waste disposal.

According to the previously screened project proposal, the scope of the project included the following undertakings, works or activities:

- Use of approximately 16,000 litres of water per year from Water Lake;
- Use of a temporary camp for four (4) persons annually for maintenance of site;
- Leachate monitoring in proposed outfall area; and
- Treatment and disposal of wastes as follows:
  - Sewage – incinolets
  - Solid Waste – burn bin and landfill
  - Hazardous Waste – retrograde to licenced disposal facility
  - Bulk Items / Scrap Metal – stockpile and retrograde
  - Waste Oil – retrograde to licenced disposal facility
  - Greywater – controlled discharge a designated location(s) on site

### **Associated File NIRB File No. 04DN105:**

The NIRB received an application for Defense Construction Canada’s “CAM-3, Shepard Bay DEW Line Site Clean-up” project proposal (NIRB File No.:04DN105), from the Nunavut Water Board (NWB) for the remediation and clean up of the DEW-Line site. The project proposal was screened by the Board in accordance with Part 4, Article 12 of the *Nunavut Agreement*. On October 18, 2004 the NIRB issued a *Nunavut Agreement* 12.4.4 (a) screening decision to the Chair of the NWB which indicated that the proposed project could proceed subject to the NIRB’s recommended project-specific terms and conditions.

According to the previously screened project proposal, the scope of the project included the following undertakings, works or activities:

- Demolition and removal of existing facilities not required for the operation of the North Warning System;
- Disposal of contaminated soils in engineered landfill facilities;
- Establishment and of Hydrocarbon Soil Treatment Facility;
- Collection and testing of contact water; if it does not meet discharge criteria, the contaminated water is to be shipped offsite as hazardous material and disposed of in a licenced waste disposal facility;
- Installation and removal of groundwater monitoring well;
- Removal of hazardous materials;
- Remediation of existing landfills;
- Clean-up of surface debris;
- Physical restoration of the site as to as natural state as possible;
- Use of a lagoon for the treatment of sewage and greywater;
- Establishment of a quarry; and
- Use of a 50-60 person camp

Additional authorization, extension and amendment requests associated with the “CAM-3, Sheppard Bay DEW Line Site Clean-up” project have also been reviewed by the NIRB following screening of the original project proposals. In each instance where the NIRB received applications up to and including August 30, 2007, the NIRB confirmed that the applications were exempt from the requirement for further screening pursuant to Section 12.4.3 of the *Nunavut Agreement* and that the activities therein remained subject to the terms and conditions recommended in the original October 18, 2004 Screening Decision Report.

## APPENDIX B: SPECIES AT RISK IN NUNAVUT

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

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

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

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

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

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

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

Updated: November 2018

Terrestrial Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Migratory Birds			
Buff-breasted Sandpiper	Special Concern	Schedule 1	Environment and Climate Change Canada (ECCC)
Common Nighthawk	Threatened	Schedule 1	ECCC
Eskimo Curlew	Endangered	Schedule 1	ECCC
Harlequin Duck	Special Concern	Schedule 1	ECCC
Harris's Sparrow	Special Concern	Schedule 1	ECCC
Horned Grebe	Special Concern	Schedule 1	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Olive-sided Flycatcher	Special Concern	Schedule 1	ECCC
Red Knot Islandica Subspecies	Special Concern	Schedule 1	ECCC
Red Knot Rufa Subspecies	Endangered	Schedule 1	ECCC
Red-necked Phalarope	Special Concern	No Schedule	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	ECCC
Short-eared Owl	Special Concern	Schedule 1	ECCC
Vegetation			
Porsild's Bryum	Threatened	Schedule 1	Government of Nunavut (GN)
Arthropods			
Transverse Lady Beetle	Special Concern	No Schedule	GN
Terrestrial Wildlife			
Caribou (Dolphin and Union Population)	Endangered	Schedule 1	GN
Caribou (Barren-ground Population)	Threatened	No Schedule	GN
Caribou (Torgat Mountains Population)	Endangered	No Schedule	GN
Grizzly Bear (Western Population)	Special Concern	Schedule 1	GN
Peary Caribou	Threatened	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	GN
Wolverine	Special Concern	Schedule 1	GN
Marine Wildlife			
Atlantic Walrus (High Arctic Population)	Special Concern	No Schedule	Fisheries and Oceans Canada (DFO)
Atlantic Walrus (Central/Low Arctic Population)	Special Concern	No Schedule	DFO
Beluga Whale (Cumberland Sound Population)	Threatened	Schedule 1	DFO
Beluga Whale (Eastern Hudson Bay Population)	Endangered	No Schedule	DFO
Beluga Whale (Eastern High Arctic-Baffin Bay Population)	Special Concern	No Schedule	DFO
Beluga Whale (Western Hudson Bay Population)	Special Concern	No Schedule	DFO
Fish			
Atlantic Cod (Arctic Lakes Population)	Special Concern	No Schedule	DFO
Fourhorn Sculpin (Freshwater Form)	Data Deficient	Schedule 3	DFO
Lumpfish	Threatened	No Schedule	DFO
Thorny Skate	Special Concern	No Schedule	DFO

<sup>1</sup> The Department of Fisheries and Oceans has responsibility for aquatic species.

<sup>2</sup> 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.

## APPENDIX C: 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:

	<b>Types of Development</b> (See Guidelines below)	<b>Function</b> (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*<sup>3</sup> to issue such permits.

<sup>3</sup>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 Indigenous and Northern Affairs Canada directions will also be followed.
- 7) The permittee/proponent shall provide all information requested by CH concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.
- 8) The permittee/proponent shall make best efforts to ensure that all persons working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.
- 9) If a list of recorded archaeological and/or palaeontological sites is provided to the permittee/proponent by CH as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.
- 10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

### **Legal Framework**

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

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

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

## **Palaeontology and Archaeology**

Under the *Nunavut Act*<sup>4</sup>, 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*<sup>5</sup>, it is illegal to alter or disturb any palaeontological or archaeological site in Nunavut unless permission is first granted through the permitting process.

### **Definitions**

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

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

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

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

*“fossil” includes:*

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

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

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

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

### **Introduction**

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

CH is the Nunavut Government agency which oversees the protection and management of heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and

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<sup>4</sup>s. 51(1)

<sup>5</sup>P.C. 2001-1111 14 June, 2001

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 *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)*), and the Indigenous and Northern Affairs Canada, for development activities proposed for federal Crown Lands.

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

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

### **Types of Development**

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

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*
- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*

- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*
- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources.*

### **Types of Studies Undertaken to Preserve Heritage Resources**

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

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

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

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

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

**Assessment:** At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

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

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

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

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