



SCREENING DECISION REPORT NIRB FILE No.: 17UN025

NPC File No.: 148456

May 16, 2017

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Transport Canada's "Former Iqaluit Metal Dump 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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REGULATORY FRAMEWORK

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

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

These objectives are confirmed under section 23 of the NuPPAA.

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

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

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

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

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

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

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

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

PROJECT REFERRAL

On February 20, 2017 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen Transport Canada’s (TC) “Former Iqaluit Metal Dump Remediation” project proposal from the Nunavut Planning Commission (NPC or Commission), which noted that the project proposal is outside the area of an applicable regional land use plan.

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

and section 87 of the *Nunavut Planning and Project Assessment Act* (NuPPAA), the NIRB commenced screening this project proposal and assigned it file number 17UN025.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Scope

The proposed “Former Iqaluit Metal Dump Remediation” project is located within the Qikiqtani region, approximately 1.7 kilometres (km) southwest of the City of Iqaluit and adjacent to the Sylvia Grinnell Territorial Park. The Proponent intends to remediate the site to improve environmental conditions of the site, enhance the quality of the downstream surface water environment, and confirm effectiveness of remediation activities through post closure monitoring. The project is proposed to take place from May to December 2017 with monitoring until December 2020.

As required under subsection 86(1) of the NuPPAA, the Board accepts the scope of the “Former Iqaluit Metal Dump Remediation” as set out by the TC in the project proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Use of vehicles to transport 15 locally contracted personnel and materials to and from the project site;
- Use of earth moving equipment to support project activities;
- Construction of an access road at the project site;
- Temporary diversion of a drainage feature to access debris and contaminant impacted sites;
- Removal of contaminated soil and sediment for treatment at either the Iqaluit land treatment unit or for disposal at appropriate facilities in the South;
- Removal of debris and landfilling of non-hazardous materials on site;
- Construction of a rip-rap structure in the drainage feature to act as a passive treatment system for contaminants;
- Decommissioning of the landfill with aggregate sourced from Iqaluit and construction of structures to divert water from the landfill slopes;
- Capping, contouring, and revegetation of the site;
- Removal of all vehicles, equipment, and supplies from site on completion of remediation activities;
- Decommissioning of the access road;
- Use of off-site storage facilities in Iqaluit for fuel and chemicals;
- Monitoring the performance of remedial works at the site after decommissioning, including water quality sampling; and
- Use of facilities in Iqaluit for accommodations, contractors, water source, and waste management.

2. Inclusion or Exclusion to Scoping List

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

3. Key Stages of the Screening Process

The following key stages were completed:

| Date | Stage |
|-------------------|--|
| February 20, 2017 | Receipt of project proposal from the NPC |
| February 27, 2017 | Information request(s) |
| March 15, 2017 | Proponent responded to information request(s) |
| March 15, 2017 | Scoping pursuant to subsection 86(1) of the NuPPAA |
| March 21, 2017 | Public engagement and comment request |
| April 11, 2017 | Receipt of public comments |
| April 25, 2017 | Proponent responded to comments/concerns raised by public |
| April 26, 2017 | Ministerial extension requested from the Minister of Indigenous and Northern Affairs, Government of Canada |

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on March 21, 2017 to community organizations in Iqaluit, 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 April 11, 2017 regarding:

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

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

Government of Nunavut (GN)

- Indicated that a detailed rationale for the proposed landfill design is required. Specifically requested rationale for the proposed use of aggregate material and justification for grading as the primary method to prevent infiltration of surface water.
- Noted that no information was provided on the compaction rates or permeability to prevent moisture from entering the landfill.
- Requested information in the Spill Contingency Plan regarding how potential spills during excavation of buried materials and equipment would be managed.

Environment and Climate Change Canada (ECCC)

- Noted that it has no comments on the project proposal at this time.

Indigenous and Northern Affairs Canada (INAC)

- Noted that it has no comments or additional terms and conditions to offer at this time.

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

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

6. Proponent's Response to Public Comments and Concerns

The following is a summary of the Proponent's response to concerns as received on April 25, 2017:

- In response to a request for detailed rationale for the proposed landfill design, the Proponent indicated that an aggregate material and grading design was selected as the primary method to prevent infiltration of surface water based on the observation of a number of site-specific conditions.
- In response to a request for information on the compaction rates or permeability to prevent moisture from entering the landfill, the Proponent listed measures to be implemented, including the following:
 - Diverting upstream surface water run-off from the site;
 - Providing long-term stability of the landfill mass;
 - Isolating the existing waste mass and the additional wastes to be placed from rainfall, snow melt and the atmosphere to the extent possible;
 - Use of low permeability cover material on the upper plateau of the landfill; and
 - Promote re-vegetation of the upper cap by placing recovered organic soil on the surface.
- In response to a request for information on how potential spills during excavation of buried materials and equipment will be managed, the Proponent indicated that it has revised its Spill Contingency Plan to include a list of potential sources of contamination that may be encountered during the excavation/debris removal activities. The Proponent also presented details of a response procedure for potential spills under an Action Plan table in the revised Spill Contingency Plan.

FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS

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

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

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

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

The proposed remediation activities will occur at the former vehicle dump and community landfill, approximately 1.7 kilometres (km) southwest of the City of Iqaluit and adjacent to the Sylvia Grinnell Territorial Park. The footprint of the proposed remediation activities at the project site will be approximately 72,500 square metres, and will include existing roads for the transport of personnel and materials between Iqaluit and the project site. The proposed activities may take place within habitat for Arctic fox, Arctic hare, various species of fish, non-migratory birds, and upland and coastal migratory birds, including Species at Risk such as Harlequin Duck, as identified by the Proponent, the GN and from mapping sources.

2. *The ecosystemic sensitivity of that area.*

The proposed project would occur in an area with no known ecosystemic sensitivity. However, this area has been identified as having value and priority to Iqaluit for:

- i. Char fishing,
- ii. Clam harvesting, and
- iii. Bird egg collection.

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

Neither the Proponent nor any parties that submitted comments for this project identified any known areas of historical, cultural and archaeological significance associated with the project area. Should the project be approved to proceed, the Proponent would be required to conduct an archaeological assessment of the project area, and contact the Government of Nunavut-Department of Culture and Heritage if any sites of historical, cultural or archaeological significance are encountered.

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

The proposed project would occur at a location approximately 1.7 kilometres from Iqaluit, the nearest community; as such, the project activities are likely to interact with human populations in the community. However, considering that the project site is a disturbed area previously used for the disposal of waste, including scrap metal, the likelihood of community members using the area for traditional pursuits is considered to be low. Nevertheless, it is noted that the project site is adjacent to Sylvia Grinnell Territorial Park, which has been and is currently being used by the community of Iqaluit for recreational purposes. No specific animal populations have been identified as likely to be affected by potential project impacts.

Although no significant public concerns were raised during the public commenting period, the NIRB notes that the proximity of the proposed activities to the community of Iqaluit could potentially contribute to public concern developing. A term and condition has been recommended to direct engagement with the community, hunters and trappers organization

and interested parties, as well as the posting of public notices to ensure residents are aware of the remedial activities being or to be conducted.

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

The “Former Iqaluit Metal Dump Remediation” project would involve remedial activities at a former metal dump site; therefore, the proposed activities will be focused on reducing existing environmental impacts at the site. There is potential for additional impacts as a result of the proposed remediation activities as majority of land disturbance activities associated with the project are to be conducted over a period of 8 months. However, based on past evidence of similar scope of activities, the potential adverse impacts will be short in duration and may be of low magnitude, reversible and mitigable with due care.

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

The proposed project would take place within a 100 km radius of other projects that have been or are being assessed by the Board. These projects include a number of undertakings within the municipal boundaries of Iqaluit such as “Geotechnical and Environmental Baseline Field Studies” (NIRB File No. 16YN041); “Iqaluit Deep Sea Port” (NIRB File No. 17XN021); “Iqaluit Small Craft Harbour” (NIRB File No. 17XN022); “Iqaluit Airport – Approach Lighting Replacement”; and several research projects (NIRB File No. 16YN042; NIRB File No. 16YN044; NIRB File No. 16YN057). This project has been identified to address issues related to containment of previously stored wastes, especially adjacent to a territorial park boundary, as such the benefits would be expected to outweigh the impacts; however, to ensure that the adverse impacts are minimized, the NIRB recommends terms and conditions to mitigate the impacts identified above.

Due to the proximity of this project to the City of Iqaluit and other projects noted, there is potential for cumulative effects to air quality from dust and noise associated with project-related road traffic; however, it is noted that this project is not likely to result in significant residual cumulative impacts. The potential for cumulative impacts to terrestrial wildlife and habitat, fish and fish habitat, water quality, soil quality and ground stability, air quality, cultural and archaeological resources, and traditional wildlife harvesting pursuits from the proposed remedial activities and other projects occurring in the region has been identified and considered in the development of the NIRB’s recommendations. Terms and conditions recommended for each of these projects are expected to reduce any residual impacts, and as such would limit or reduce the potential for cumulative effects to occur.

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

No other specific factors have been identified as relevant to the assessment of this project proposal.

Views of the Board

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

Administrative Conditions:

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

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential adverse impacts to terrestrial wildlife and migratory and non-migratory birds from site preparation, excavation, grading, road traffic, and increased noise associated with the remediation project.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impact(s) associated with the proposed land-based activities, such as site preparation, excavation, grading, and on-site road traffic is applicable to an area of approximately 72,500 square metres, which overlaps the natural ranges of several terrestrial wildlife species including Arctic fox, Arctic hare, and migratory and non-migratory birds. The potential impacts to terrestrial wildlife and migratory and non-migratory birds are associated with disturbance and disruption of movement from project-related noise, mortality from collisions with land-based vehicles, destruction of existing areas on the site that may be used as wildlife refuge, and exposure of wildlife to unearthed contaminants. To mitigate potential impacts to wildlife, the Proponent has committed to avoiding areas of known wildlife colonies or bird nests. The potential impacts to terrestrial wildlife and birds are considered to be of low magnitude, short duration, infrequent, and reversible.

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

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to 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. The Board recommends the following terms and conditions to mitigate the potential adverse impacts to terrestrial wildlife and migratory birds: 6, 11 through 16, and 19.

Issue 2: Potential adverse impacts to fish and fish habitat, and freshwater and marine water quality, from potential spill events, site preparation, excavation, and landfilling associated with the project.

Board views: The project may adversely impact fish and fish habitat, including freshwater quality, from fuel and hazardous material spills, erosion and deposition of contaminated soil into or in proximity to the aquatic environment, including fish-bearing waterbodies, during site preparation, excavation, and landfilling activities. However, the likelihood of such spill events or dispersion of hazardous material is considered to be low as the Proponent has committed to establishing structures to divert precipitation and melt water away from the landfill slopes, and constructing berms and silt fences to prevent sediment from entering waterbodies. The Proponent has also committed to refuel project vehicles offsite and to implementing a Spill Contingency Plan to manage any material spill incidents. As a result, the potential adverse impacts to fish and fish habitat, including freshwater and marine water quality, are considered to be of low magnitude, infrequent and reversible.

The Proponent would require a water licence from the Nunavut Water Board for the waste disposal activities associated with the project. In addition, the Proponent would also be required to follow the *Fisheries Act*, the *Transportation of Dangerous Goods Regulations*, *Transportation of Dangerous Goods Act* and the *Canadian Environmental Protection Act* (see *Regulatory Requirements* section).

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to ensure that any use of water, including constructing or disturbing any stream, lakebed or the banks of any definable water course, is not carried out unless approved by the Nunavut Water Board. The Board recommends the following terms and conditions to mitigate the potential adverse impacts to fish and fish habitat, including water quality: 5, 8, 18 and 20.

Issue 3: Potential adverse impacts to ground stability, soil quality, terrain, and permafrost from site preparation, excavation, grading, landfill activities and transport activities associated with the project.

Board Views: The activities proposed for the project, including site preparation, excavation, grading, and on-site transport, may result in adverse impacts to soil quality from erosion and the redistribution of contaminated soil. Such project activities may also adversely impact terrain and permafrost as a result of grade changes to the land and exposure of the active zone in soils. However, the potential for impacts is limited to the project footprint, and the probability of long term impacts occurring is considered to be low. To mitigate potential impacts, the Proponent has committed to minimizing land surface of exposed permafrost or active zone, and conducting post-construction monitoring to confirm the integrity of the site. The potential adverse impacts to soil quality, terrain, and permafrost are considered to be of low magnitude and reversible.

The Proponent would also be required to follow the *Transportation of Dangerous Goods Regulations*, *Transportation of Dangerous Goods Act*, and the *Canadian Environmental Protection Act*.

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to 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. The Board recommends the following terms and conditions to mitigate the potential adverse impacts to ground stability, soil quality, terrain, and permafrost: 7, 10, 11, 17, and 21.

Issue 4: Potential adverse impacts to air quality from project activities, including dust and emissions generated by the use of heavy equipment for site preparation, excavation, grading, and on-land transport of waste.

Board views: There is potential for adverse impacts to air quality from dust and vehicle emissions during site preparation, excavation, grading, and transport of waste materials on and off site. The Proponent has committed to implementing dust control measures, and temporarily suspending work if conditions of high dust generation cannot be controlled. The Proponent has also committed to limiting vehicle speed on project site roads to 15 kilometres per hour and avoiding unnecessary idling of vehicles. The potential adverse impacts to air quality are considered to be of low magnitude, short-term, and reversible.

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to take appropriate dust suppression measures when conducting soil topping of landfill materials, or landfill capping activities, and ensuring that engine idling is minimized. The Board recommends the following terms and conditions to mitigate the potential adverse impacts to air quality: 9 and 19.

Issue 5: Potential adverse impacts to traditional land use activities in the area from noise and movement disruptions associated with the remedial activities and transportation operations.

Board Views: There is potential for the proposed land-based activities, such as mobilization, site preparation, excavation, and offsite transport of waste material, to disrupt the movement of residents in Iqaluit to areas for traditional land use pursuits. In addition, noise generated from remediation activities may be a nuisance to community members and may disperse wildlife in the surrounding areas resulting in a reduction in hunting success. Although the proposed project would include temporary activities that would have limited potential for long-term interaction with traditional land use activities, short-term impacts are possible. The Proponent has committed to implementing a health and safety plan to mitigate risks associated with noise, and to limiting vehicle speed on project site roads to 15 kilometres per hour. Terms and conditions have also

been recommended to ensure that potential impacts to traditional land use activities are minimized should they be observed.

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to engage with local residents regarding planned activities in the area and soliciting available Inuit Qaujimaningit and information regarding current recreational and traditional usage of the project area. The Board recommends the following terms and conditions to mitigate the potential adverse impacts to traditional land use activities: 22 and 24.

Socio-economic effects on northerners:

Issue 6: Potential adverse impacts to historical, cultural and archaeological sites from land disturbance activities associated with the project.

Board Views: The Proponent has not identified sites of historical, cultural and archaeological importance in the proposed project area. The probability of impacts to historical, cultural and archaeological sites is considered to be low as the project is to be located in an existing landfill area in proximity to the City of Iqaluit. However, it is recommended that the Proponent consult with community members in Iqaluit prior to executing the project.

The Proponent is also required to follow the *Nunavut Act* (as recommended in the Regulatory Requirements section) and would be required to contact the Government of Nunavut-Department of Culture and Heritage if sites of historical, cultural and archaeological importance are encountered.

Recommended Mitigation Measures: The Board recommends term and condition 22 to ensure that the affected communities and organizations are informed about the project proposal and that available Inuit Qaujimaningit can inform project activities and reduce the potential for adverse impacts occurring to any historical, cultural, and archaeological sites.

Issue 7: Potential benefits to the local community from the improvement of site conditions adjacent to the Sylvia Grinnell Territorial Park and from the purchasing of local goods and services to support the project.

Board Views: The project will improve site conditions at the former waste dump site adjacent the Sylvia Grinnell Territorial Park. It is also noted that the Proponent has committed to procuring local labour and services to support the execution of the project, which is likely to benefit the local economy.

Recommended Mitigation Measures: Terms and conditions 22 and 23 are recommended to ensure the Proponent continues to inform the community of the remediation activities and findings, as well as provide community members with information to ensure a successful local hiring opportunity.

Significant public concern:

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

Board Views: It is noted that there is potential for public concern developing due to the proximity of the proposed activities to the City of Iqaluit. Follow up consultation and involvement of the local community in Iqaluit is expected to mitigate any potential for public concern resulting from project activities.

Recommended Mitigation Measures: The Board recommends term and condition 22 to ensure that the affected community and organizations are informed about the proposed project and that the Proponent is able to proactively address or mitigate any concerns that may arise from the project activities.

Technological innovations for which the effects are unknown:

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

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

RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS

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

General

1. Transport 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, February 20, 2017), and the NIRB (Online Application Form, March 15, 2017; and the Proponent's supplementary application information, April 25, 2017).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Water Use

5. The Proponent shall not use water, including constructing or disturbing any stream, lakebed or the banks of any definable water course unless approved by the Nunavut Water Board.

Waste Disposal

6. 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.

Landfill Operations

7. 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.
8. 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.
9. The Proponent shall take appropriate dust suppression measures when conducting soil topping of landfill materials, or landfill capping activities.
10. 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 - General

11. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
12. The Proponent shall not harass wildlife. This includes persistently circling, chasing, hovering over pursuing or in any other way harass wildlife, or disturbing large groups of animals.
13. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
14. 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

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

Ground Disturbance

17. 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.

18. The Proponent shall implement suitable erosion and sediment suppression measures on all areas before, during and after conducting activities in order to prevent sediment from entering any waterbody.
19. All construction and road vehicles must be fitted with standard and well-maintained noise suppression devices and engine idling is to be minimized.
20. The Proponent shall ensure that no disturbance of the stream bed or banks of any definable watercourse be permitted, except where deemed necessary for maintaining project-specific operational commitments or by a responsible authority in cases of spill management.

Restoration of Disturbed Areas

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

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

MONITORING AND REPORTING REQUIREMENTS

In addition, the Board is recommending the following:

Final Report

1. The Proponent shall submit a final report to the Nunavut Impact Review Board by March 31, 2018 detailing, but not limited to, the following information:
 - a) A summary of activities undertaken, including:
 - a map showing the location of completed and ongoing remediation activities;
 - a description of local hires, contracting opportunities and initiatives;
 - site photos;
 - b) A work plan for post-closure monitoring;
 - c) A summary of community consultations undertaken throughout the year, providing copy of materials presented to community members, a description of issues and concerns raised, discussions with community members and advice offered to the company as well as any follow-up actions that were required or taken to resolve any concerns expressed about the project proposal;
 - d) A discussion of issues related to wildlife and environmental monitoring, including the number of cease-work orders required as a result of proximity to wildlife;
 - e) An analysis of the effectiveness of mitigation measures for wildlife;

- f) Summary of any heritage sites encountered during the remediation activities, any follow-up action or reporting required as a result and how project activities were modified to mitigate impacts on the heritage sites;
- g) Summary of its knowledge of Inuit land use in/near the project area and explain how project activities were modified to mitigate impacts on Inuit land use; and
- h) A summary of how the Proponent has complied with conditions contained within this Screening Decision, and all conditions as required by other authorizations associated with the project proposal.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

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

Change in Project Scope

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

Bear and Carnivore Safety

2. The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf. Further information on bear/carnivore detection and deterrent techniques can be found in the "Safety in Grizzly and Black Bear Country" pamphlet, which can be downloaded from this link: http://www.enr.gov.nt.ca/sites/default/files/web_pdf_wd_bear_safety_brochure_1_may_2015.pdf.
3. There are polar bear and grizzly bear safety resources available from the Bear Smart Society with videos on polar bear safety available in English, French and Inuktitut at <http://www.bearsmart.com/play/safety-in-polar-bear-country/>. Information can also be obtained from Parks Canada's website on bear safety at the following link: <http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx> or in reviewing the "Safety in Polar Bear Country" pamphlet, which can be downloaded from the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/_media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx.
4. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Iqaluit, phone: (867) 924-6235).

Species at Risk

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

Migratory Birds

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

Transport of Dangerous Goods and Waste Management

8. Environment and Climate Change Canada recommends that all hazardous wastes, including waste oil, receive proper treatment and disposal at an approved facility.
9. 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.
10. The Proponent shall provide an authorization or letter of conformation of disposal be obtained from the owner/operator of the landfill to be used for disposal of project-related wastes.

Nunavut Water Board

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

REGULATORY REQUIREMENTS

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

Acts and Regulations

1. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-28.8/>).

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

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to Transport Canada's "Former Iqaluit Metal Dump Remediation". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated May 16, 2017 at Whale Cove, NU.



Elizabeth Copland, Chairperson

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

Appendix A

Species at Risk in Nunavut

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

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

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

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

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

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

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

Updated: October 2016

| Species at Risk ¹ | COSEWIC Designation | Schedule of SARA | Government Organization with Primary Management Responsibility ² |
|--|---|---|---|
| Migratory Birds | | | |
| Eskimo Curlew | Endangered | Schedule 1 | ECCC |
| Buff-breasted Sandpiper | Special concern | Pending | ECCC |
| Ivory Gull | Endangered | Schedule 1 | ECCC |
| Ross's Gull | Threatened | Schedule 1 | ECCC |
| Harlequin Duck (Eastern population) | Special Concern | Schedule 1 | ECCC |
| Rusty Blackbird | Special Concern | Schedule 1 | 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 | ECCC |
| Red Knot (<i>islandica</i> subspecies) | Special Concern | Schedule 1 | ECCC |
| Horned Grebe (Western population) | Special Concern | Pending | ECCC |
| Red-necked Phalarope | Special concern | Pending | ECCC |
| Vegetation | | | |
| Felt-leaf Willow | Special Concern | Schedule 1 | GN |
| Blanket-leafed Willow | Special Concern | Schedule 1 | GN |
| Porsild's Bryum | Threatened | Schedule 1 | GN |
| Terrestrial Wildlife | | | |
| Peary Caribou | Endangered | Schedule 1 | GN |
| Peary Caribou (High Arctic Population) | Endangered | Schedule 2 | GN |
| Peary Caribou (Low Arctic Population) | Threatened | Schedule 2 | GN |
| Barren-ground Caribou (Dolphin and Union population) | Special Concern | Schedule 1 | GN |
| Marine Wildlife | | | |
| Polar Bear | Special Concern | Schedule 1 | GN/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 | Pending | DFO |
| Beluga Whale (Eastern Hudson Bay population) | Endangered | Pending | DFO |
| Beluga Whale (Western Hudson Bay population) | Special Concern | Pending | DFO |
| Beluga Whale (Eastern High Arctic – Baffin Bay population) | Special Concern | Pending | DFO |
| Bowhead Whale (Eastern Canada – West Greenland population) | Special Concern | Pending | DFO |
| Bowhead Whale (Eastern Arctic population) | Special Concern | Schedule 2 | DFO |
| Killer Whale (Northwest Atlantic / Eastern Arctic populations) | Special Concern | Pending | DFO |
| Grey Whale (Eastern North Pacific population) | Special Concern | Schedule 1 | DFO |

| Species at Risk ¹ | COSEWIC Designation | Schedule of SARA | Government Organization with Primary Management Responsibility ² |
|--|---------------------|------------------|---|
| Humpback Whale (Western North Atlantic population) | Special Concern | Schedule 3 | DFO |
| Narwhal | Special Concern | Pending | DFO |
| Fish | | | |
| Northern Wolffish | Threatened | Schedule 1 | DFO |
| Atlantic Wolffish | Special Concern | Schedule 1 | DFO |
| Bering Wolffish | Special Concern | Schedule 3 | DFO |
| Fourhorn Sculpin | Special Concern | Schedule 3 | DFO |
| Roundnose Grenadier | Endangered | Pending | DFO |
| Spotted Wolffish | Threatened | Schedule 1 | DFO |
| Thorny Skate | Special Concern | Pending | DFO |
| Atlantic Cod, Arctic Lakes | Special Concern | Pending | DFO |
| Blackline Prickleback | Special Concern | Schedule 3 | DFO |

Notes: DFO: Fisheries and Oceans Canada; ECCC: Environment and Climate Change Canada; GN: Government of Nunavut

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

²Environment and Climate Change Canada 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.

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

Appendix B

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



INTRODUCTION

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

TERMS AND CONDITIONS

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

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

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

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

¹ P.C. 2001-1111 14 June, 2001

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

Legal Framework

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

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

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

Palaeontology and Archaeology

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

² s. 51(1)

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

Definitions

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

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

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

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

“fossil” includes:

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

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

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

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

Introduction

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

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

³ P.C. 2001-1111 14 June, 2001

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

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

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

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

Types of Development

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

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

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

Types of Studies Undertaken to Preserve Heritage Resources

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

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

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

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

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

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

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

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

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

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

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