



## NIRB ASSESSMENT AND DECISION

After a thorough assessment of all material provided to the Board (please see *Procedural History* and *Project Activities* in **Appendix A**), in accordance with the principles identified within Section 12.4.2 of the NLCA, the decision of the Board as per Section 12.4.4 of the NLCA is:

**12.4.4 (a):** the proposal may be processed without a review under Part 5 or 6; NIRB may recommend specific terms and conditions to be attached to any approval, reflecting the primary objectives set out in Section 12.2.5.

### RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS (pursuant to Section 12.4.4 (a) of the NLCA)

The Board is recommending that the following or similar project-specific terms and conditions be imposed upon the Proponent through all relevant legislation:

#### **General**

1. Stantec Consulting Ltd. - Dan McQuinn (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 NIRB (NIRB Part 1 and Part 2 forms, August 12, 2010) and the following documents:
  - a. Fisheries and Oceans Canada – Letter Describing Project and Mitigation - July 13, 2010
  - b. Nunavut Water Board – Type B Water Licence Application – July 16, 2010
  - c. Nunavut Planning Commission – Conformity Determination – July 20, 2010
  - d. Indian and Northern Affairs Canada – Land Use Permit Application – August 4, 2010
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

#### **Water**

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

#### **Waste**

7. The Proponent shall keep all garbage and debris in an organised manner until final disposal appropriately on site or in approved facilities, of which food wastes and hazardous waste shall be kept inaccessible to wildlife at all times.

8. The Proponent shall ensure all waste oil and hazardous materials is transported off site and disposed of at an approved facility.

### **Fuel and Chemical Storage**

9. The Proponent shall store all chemicals in such a manner that they are inaccessible to wildlife.
10. The Proponent shall locate all fuel and other hazardous materials a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent their release into the environment.
11. The Proponent shall use appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) must be readily available during any transfer of fuel or hazardous substances, as well as at the drill site.
12. The Proponent shall inspect and document the condition of the fuel/lubricant/hazardous materials sites on a weekly basis. The Proponent shall examine all fuel and chemical storage containers immediately upon delivery for leaks. All containers must be marked with the Proponent's name. All leaks should be repaired or dealt appropriately with immediately.
13. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site.
14. The Proponent shall report all spills of fuel, or other deleterious materials immediately to the twenty-four (24) hour Spill Line at (867) 920-8130.

### **Wildlife**

15. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
16. The Proponent shall not harass wildlife. This includes persistently worrying or chasing animals, or disturbing large groups of animals. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
17. The Proponent shall not disturb or destroy the nests or eggs of any birds. 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.
18. The Proponent shall cease activities that may interfere with migration or calving of caribou or muskox, until the caribou or muskox have passed or left the area.
19. The Proponent shall ensure all project staff are trained in appropriate bear/carnivore detection and deterrent techniques.

### **Stripping and Trenching**

20. The Proponent shall not conduct any trenching activities within thirty-one (31) metres of the high water mark of any water body.
21. The Proponent shall implement sediment and erosion control measures by employing erosion prevention measures (e.g., berms or silt fence) in the trenching area during the project operation.

22. The Proponent shall stockpile all overburden/topsoil generated during trenching using proper erosion prevention measures. Upon completion of operations, the Proponent shall backfill, reclaim or re-contour and re-vegetate disturbed areas.

### **Drilling on Land**

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

### **Drilling on Ice**

28. The Proponent shall ensure that drill muds and additives are not used in connection with holes drilled through marine ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.
29. The Proponent shall ensure that all drill cuttings are removed from ice surfaces daily.

### **Physical Environment**

30. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. The Proponent shall suspend overland travel of equipment or vehicles if rutting occurs.
31. The Proponent shall ensure that the land use area is kept clean and tidy at all times.

### **Restoration**

32. The Proponent shall remove all garbage, fuel and equipment upon abandonment.
33. The Proponent shall complete all clean-up and restoration of the lands used prior to the expiry date of the permit.

### **Other**

34. The Proponent should, to the extent possible, hire local people and consult with local residents regarding their activities in the region.

## MONITORING AND REPORTING REQUIREMENTS

In addition, the Board is recommending the following:

1. The Proponent shall ensure that the transfer of equipment and lubricant from the barge to the Nanisivik site is supervised and undertaken by trained staff. The protocol for equipment and lubricant delivery and unloading must be included as part of the Spill Contingency and Emergency Response Plan.

## OTHER NIRB CONCERNS AND RECOMMENDATIONS

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

### **Bear and Carnivore Safety**

1. The Proponent review the bear/carnivore detection and deterrent techniques outlined in “Safety in Grizzly and Black Bear Country” which can be down-loaded from this link: <http://www.nwtwildlife.com/Publications/safetyinbearcountry/safety.htm>. Note that some recommendations in this manual are also relevant to polar bears. There is a DVD about polar bears and safety available from Nunavut Parks at the following link <http://www.nunavutparks.com/english/visitor-information/suggested-resources.html> and a “Safety in Polar Bear Country” pamphlet from Parks Canada at the following link <http://www.pc.gc.ca/pn-np/nu/auyuittuq/pdf/PolarBearEnglish2007final.pdf>.
2. The Proponent ensure that any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office.

### **Species at Risk**

3. The Proponent re view Environment Canada’s “Environmental Assessment Best Practice Guide for *Wildlife at Risk in Canada*”, available at the following link: [http://www.cws-scf.ec.gc.ca/publications/eval/index\\_e.cfm](http://www.cws-scf.ec.gc.ca/publications/eval/index_e.cfm). 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.

### **Waste**

4. A waste manifest must accompany the shipment of all waste oil and the Proponent must register with the GN-DoE. The Proponent should contact the Manager of Pollution Control and Air Quality at (867) 975-7748 to obtain a manifest if hazardous waste is generated during project activities.

### **Change in Project Scope**

5. The Proponent shall submit to the NIRB for screening any activity related to this application, and outside the original scope of the project as described in the application. As well, all

Authorizing Agencies shall notify the NIRB of any changes in operating plans or conditions associated with this project prior to any such change.

#### REGULATORY REQUIREMENTS

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

1. The *Fisheries Act* (<http://laws.justice.gc.ca/en/showtdm/cs/F-14///en>).
2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://www.canlii.org/ca/sta/n-28.8/whole.html>).
3. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (<http://laws.justice.gc.ca/en/showtdm/cs/M-7.01>).
4. The *Species at Risk Act* (<http://laws.justice.gc.ca/en/showtdm/cs/S-15.3>). Attached in **Appendix B** is a list of Species at Risk in Nunavut.
5. The *Nunavut Wildlife Act* which contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.
6. The *Nunavut Act* (<http://laws.justice.gc.ca/en/showtdm/cs/N-28.6>). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix C**.
7. The *Navigable Waters Protection Act (NWPA)* (<http://laws.justice.gc.ca/en/N-22/index.html>).

## **Validity of Land Claims Agreement**

### *Section 2.12.2*

Where there is any inconsistency or conflict between any federal, territorial and local government laws, and the Agreement, the Agreement shall prevail to the extent of the inconsistency or conflict.

Dated September 3, 2010 at Sanikiluaq, NU.



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Lucassie Arragutainaq, Chairperson

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

## Appendix A

### Procedural History and Project Activities

#### ***Procedural History***

On August 3, 2010 the Nunavut Impact Review Board (NIRB or Board) received a positive conformity determination (North Baffin Regional Land Use Plan) from the Nunavut Planning Commission for Stantec Consulting Ltd's (Stantec) "Geotechnical Investigation for the Nanisivik Naval Facility" project proposal. On August 4, 2010 Stantec's project proposal was referred to the NIRB for screening from Indian and Northern Affairs Canada (INAC) and the NIRB assigned the project proposal file number 10DN055.

Following the receipt of the original project proposal, the NIRB conducted a preliminary completeness check and determined that the project proposal did not contain sufficient information for the NIRB to permit proper screening. On August 9, 2010 the NIRB requested submission of the required information from Stantec, which was subsequently submitted to the Board on August 12, 2010.

This project proposal was distributed to community organizations in Arctic Bay and Pond Inlet as well as to relevant federal and territorial government agencies and Inuit organizations. The NIRB requested that interested parties review the proposal and the NIRB's *proposed* project-specific terms and conditions, and provide the Board with any comments or concerns by August 30, 2010 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 and socio-economic effects; and if so, why;
- Whether the project is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (providing any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

On or before August 30, 2010 the NIRB received comments from the following interested parties:

- **Government of Nunavut – Culture Language Elders and Youth (GN-CLEY)**
- **Government of Nunavut – Department of Environment (GN-DoE)**
- **Environment Canada (EC)**

All comments provided to NIRB regarding this project proposal can be viewed on NIRB's ftp-site, at the following location: <http://ftp.nirb.ca/SCREENINGS/COMPLETED%20SCREENINGS/>



## ***Project Activities***

This proposed geotechnical drilling program is located in the Qikiqtaaluk region, approximately thirty-three (33) kilometres (km) northeast of Arctic Bay. Stantec has been hired by Defence Construction Canada to complete a geotechnical drilling program at the existing mine port facility at Nanisivik, in support of the proposed Nanisivik Naval Facility Project. Information collected during this survey would enable designers and project managers to assess the stability of the wharf, design and construction of foundations for new infrastructure, and/or repairs/rehabilitation of the existing infrastructure components (e.g. existing tank farms, heliport, base structures and mechanical facilities). A test pitting program would also be completed at potential borrow areas near the port facility. The proposed project would take place for approximately fourteen (14) days during the period of August 23 and November 30, 2010.

Marine based, on-ice geotechnical drilling may also be required in the area of the existing wharf; this would be determined following evaluation of data collected from the land based drilling. Marine based drilling would take place in either late May or June of 2011 if required.

The proposed project activities include:

- Eight (8) Stantec personnel to be based out of Arctic Bay with daily transport by truck to Nanisivik;
- Test pitting at proposed borrow sites using backhoe or excavator;
- Geotechnical drilling using a skid-mounted drill with flight augers;
- Transportation of heavy equipment and drilling additives to project site by ship or marine barge; transportation of fuel from Arctic Bay to Nanisivik via truck haul;
- Storage of fuel and lubricants at Nanisivik;
- Collection of soil and rock samples for laboratory analysis;
- Installation of inclinometer tubing thermocouple thermistors; and,
- Potential marine-based geotechnical drilling in 2011.

## Appendix B

### Species At Risk in Nunavut

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

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

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

Updated: August 4, 2009

Species at Risk	COSEWIC Designation	Schedule of SARA	Government Organization with Lead Management Responsibility <sup>1</sup>
Eskimo Curlew	Endangered	Schedule 1	EC
Ivory Gull	Endangered	Schedule 1	EC
Ross's Gull	Threatened	Schedule 1	EC
Harlequin Duck (Eastern population)	Special Concern	Schedule 1	EC
Rusty Blackbird	Special Concern	Schedule 1	Government of Nunavut
Felt-leaf Willow	Special Concern	Schedule 1	Government of Nunavut
Peregrine Falcon ( <i>anatum-tundrius</i> complex)	Special Concern	Schedule 1 ( <i>anatum</i> ) Schedule 3 ( <i>tundrius</i> )	Government of Nunavut
Short-eared Owl	Special Concern	Schedule 3	Government of Nunavut
Peary Caribou	Endangered	Pending	Government of Nunavut
Beluga Whale (Eastern Hudson Bay population)	Endangered	Pending	DFO
Red Knot ( <i>rufa</i> subspecies)	Endangered	Pending	EC

Beluga Whale (Cumberland Sound population)	Threatened	Pending	DFO
Atlantic Cod (Arctic population)	Special Concern	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
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Porsild's Bryum	Threatened	Pending	Government of Nunavut
Atlantic Walrus	Special Concern	Pending	DFO
Narwhal	Special Concern	Pending	DFO
Red Knot ( <i>islandica</i> subspecies)	Special Concern	Pending	EC
Horned Grebe (Western population)	Special Concern	Pending	EC
Barren-ground Caribou (Dolphin and Union population)	Special Concern	Pending	Government of Nunavut
Grizzly Bear	Special Concern	Pending	Government of Nunavut
Polar Bear	Special Concern	Pending	Government of Nunavut
Wolverine (Western Population)	Special Concern	Pending	Government of Nunavut

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

**Appendix C**  
Archaeological and Palaeontological Resources Terms and Conditions  
for Land Use Permit Holders



INTRODUCTION

The Department of Culture, Language, Elders and Youth (CLEY) routinely reviews land use applications sent to the Nunavut Water Board, Nunavut Impact Review Board and the Department of Indian 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. CLEY is authorized by way of the *Nunavut and Archaeological and Palaeontological Site Regulations*<sup>1</sup> to issue such permits.

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<sup>1</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 CLEY 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 CLEY.
- 6) The permittee/proponent shall follow the direction of CLEY 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 INAC's directions will also be followed.
- 7) The permittee/proponent shall provide all information requested by CLEY 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 CLEY as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.
- 10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

#### LEGAL FRAMEWORK

As stated in Article 33 of the *Nunavut Land Claims Agreement*:

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

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

## Palaeontology and Archaeology

Under the *Nunavut Act*<sup>2</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>3</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 Nunavut Land Claims Agreement.*

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

*“fossil” includes:*

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

*(a) natural casts;*

*(b) preserved tracks, coprolites and plant remains; and*

*(c) the preserved shells and exoskeletons of invertebrates and the preserved eggs, teeth and bones of vertebrates*

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<sup>2</sup> s. 51(1)

<sup>3</sup> P.C. 2001-1111 14 June, 2001

## **GUIDELINES FOR DEVELOPERS FOR THE PROTECTION OF ARCHAEOLOGICAL RESOURCES IN THE NUNAVUT TERRITORY**

(NOTE: Partial document only, complete document at: <http://gov.nu.ca/cley/english/arch.html>)

### **Introduction**

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

CLEY is the Nunavut Government agency which oversees the protection and management of heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and the federal government. Its role in mitigating impacts of developments on heritage resources is as follows: to identify the need for an impact assessment and make recommendations to the appropriate regulatory agency; set the terms of reference for the study depending upon the scope of the development; suggest the names of qualified individuals prepared to undertake the study to the developer; issue an archaeologist or palaeontologist permit authorizing field work; assess the completeness of the study and its recommendations; and ensure that the developer complies with the recommendations.

The primary regulatory agencies that CLEY provides information and assistance to are the Nunavut Impact Review Board, for development activities proposed for Inuit Owned Lands (as defined in Section 1.1.1 of the Nunavut Land Claims Agreement), and the Department of Indian and Northern Affairs, 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, Language, Elders and Youth. 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.