



NPC File No.: 148322
NRI File No.: 02 023 16R-M

October 11, 2016

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of McGill University's "An Investigation of the Sensitivity of High Arctic Permafrost to Climate Change" is not required pursuant to paragraph 92(1)(a) of the *Nunavut Planning and Project Assessment Act* (NuPPAA).

Subject to the Proponent's compliance with the terms and conditions as set out in below, the NIRB is of the view that the project proposal is not likely to cause significant public concerns, and it is unlikely to result in significant adverse environmental and social impacts. The NIRB therefore recommends that the responsible Minister(s) accepts this Screening Decision Report.

OUTLINE OF SCREENING DECISION REPORT

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

REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Section 12.2.5 of the Nunavut Land Claims Agreement (NLCA) as follows:

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

These objectives are confirmed under section 23 of the NuPPAA.

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

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

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

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

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

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

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

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

PROJECT REFERRAL

On July 7, 2016 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen McGill University’s (the Proponent) “An Investigation of the Sensitivity of High Arctic Permafrost to Climate Change” project from the Nunavut Planning Commission (NPC or Commission) due to significant modification to the original project proposal. The NPC indicated within its screening referral that the previous positive conformity determination to the North Baffin Regional Land Use Plan issued on January 8, 2013 continues to apply for the activities associated with the current project proposal.

1. Project Description

The proposed “An Investigation of the Sensitivity of High Arctic Permafrost to Climate Change” project includes activities located within the Qikiqtani (North Baffin) region, approximately five (5) kilometres (km) northwest of Resolute Bay. In addition to continuing previously approved research activities on Axel Heiberg Island and Ellesmere Island, the Proponent intends to conduct land, vegetation, and permafrost studies and training activities adjacent to Resolute Bay. The additional activities are proposed to take place seasonally from 2016 to 2019 during the months of August and September. The scope of activities previously approved for this ongoing research program (NIRB File No. 07YN019) has been included within **Appendix A**.

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

- Accommodations and use of facilities for up to seven (7) personnel at the Polar Continental Shelf Program (PCSP) facility in Resolute Bay;
- Use of research equipment including surveying levels, ground probes, global positioning systems, and ground-penetrating radars to conduct land, vegetation, and permafrost research studies and training activities;
- Access to local research and training sites on foot or by all-terrain vehicles;
- Transportation and use of fuel to facilitate transportation activities; and
- Collection of wastes during field studies with appropriate disposal at the PCSP facility.

2. Scoping

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

3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
July 7, 2016	Receipt of project proposal from the NPC
July 21, 2016	Information request(s)
August 17, 2016	Proponent responded to information request(s)
August 17, 2016	Scoping pursuant to subsection 86(1) of the NuPPAA
September 1, 2016	Public engagement and comment request
September 12, 2016	Receipt of public comments
September 29, 2016	Ministerial extension requested

4. Public Comments and Concerns

Notice regarding the NIRB’s screening of this project proposal was distributed on September 1, 2016 to community organizations in Resolute Bay, Grise Fiord, and Eureka, 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 the NIRB’s *proposed* project-

specific terms and conditions, and provide the Board with any comments or concerns by September 12, 2016 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 likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; 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.

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

Indigenous and Northern Affairs Canada (INAC)

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

5. Comments and Concerns with respect to Inuit Qaujimaningit

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

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

FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS

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

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

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

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

The original project included previously-approved research operations on Axel Heiberg Island and Ellesmere Island.

The size of the geographic area for the proposed project includes study and training areas around the Polar Continental Shelf Program (PCSP) facility, as well as study and training areas approximately three (3) kilometres (km) north of the PCSP facility near the McMaster River. The proposal would also include transportation to and from the study sites by foot or by all-terrain vehicle. The proposed activities may take place within habitats for many far-ranging wildlife species such as Peary caribou, muskox, wolves, polar bears, migratory birds and Species at Risk as identified by mapping sources, and may potentially affect animal migratory patterns.

2. *The ecosystemic sensitivity of that area.*

The proposed project would occur in an area with no formal designation for wildlife protection or particular identified ecosystemic sensitivity. However, the Resolute Bay area has been identified as having value and priority to the local community for:

- i. Marine species including seal, polar bear, arctic char, cod, narwhal, and beluga; and
- ii. Overall environmental integrity.

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

The project Proponent has indicated that there are no known areas of historical, cultural and archaeological significance associated with the amended project area, and parties did not identify any significant resources in the area or note any specific additional concerns of impacts from project activities. Should the project be approved to proceed, the Proponent would be required to contact the Government of Nunavut – Department of Culture and Heritage, follow applicable legislation, and conduct the appropriate archaeological studies with certified personnel should historical, cultural, or archaeological sites be encountered.

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

The proposed project would occur approximately five (5) km northwest of Resolute Bay, the nearest community, and would be based out of the PCSP facility. As such, project activities and personnel have the potential to interact with human and animal populations. As a result of the project being located within the habitats of several far ranging species noted above, the identified animal populations in proximity to the proposed project activities could be disturbed, displaced, or attracted to the site by the research activities. Impacts to the animal populations noted above would affect traditional land use activities, Inuit harvesting, and the cultural identity of the region.

The NIRB notes that the proposed project is in close proximity to the community of Resolute Bay (5 km northeast) and the adjacent areas may occasionally be used by residents for recreational/traditional pursuits and/or Inuit wildlife harvesting. Therefore, additional mitigation measures should be considered to reduce potential impacts by encouraging further engagement of the community and Hunters and Trappers Organization.

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

As the “An Investigation of the Sensitivity of High Arctic Permafrost to Climate Change” project is a proposed research project, the nature of potential impacts is considered to be well-known, with potential for infrequent, localized impacts to the biophysical environment that are temporary in nature, reversible and mitigable with due care.

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

The additional proposed activities would take place in proximity of 100 km to other active projects that have been or are currently being assessed by the Board. This includes the University of Toronto’s “Lake Ice in the Canadian High Arctic” project (NIRB File No. 16YN002) and Environment Canada’s “Upper Air Building Laboratory, Resolute Bay” project (NIRB File No. 13YN010). Potential for cumulative impacts to human populations, local wildlife, soil, and water resulting from research activities has been identified and considered in development of the recommended mitigation measures set out in the following section. This proposal could induce additional research activities in the area.

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

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

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

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

Administrative Conditions:

To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the Board has previously recommended terms and conditions 1 through 3 which continue to apply to the

current project proposal. The Board is also recommending terms and conditions 20 and 21 to ensure complete reference to applicable regulatory requirements.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential adverse impacts to migratory birds, wildlife, and wildlife habitat from additional research activities and transportation operations.

Board Views: As discussed above in the assessment of factors relevant to this project amendment proposal, potential impacts are limited to a small geographic area and are unlikely due to the low magnitude of the proposed additional activities and the anticipated effectiveness of the recommended mitigation measures. It is expected that should interaction with wildlife occur throughout project operations, potential impacts would be temporary only.

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

Recommended Mitigation Measures: It is expected that potential adverse impacts to migratory birds, wildlife, and wildlife habitat may be mitigated by avoidance of migratory birds, seasonal restrictions, and wildlife awareness training. The Board previously issued terms and conditions to reduce potential impacts to migratory birds, wildlife, and wildlife habitat from research activities, specifically terms and conditions 11, 12, and 14 through 16, which continue to apply to the current project proposal. In addition, the Board also recommends the following additional terms and conditions to mitigate the potential adverse impacts: 23 through 25.

Issue 2: Potential adverse impacts to soil and water quality from research activities and from the storage of wastes and use of fuel for the additional research activities and transportation operations.

Board Views: As discussed above in the assessment of factors relevant to this project amendment proposal, potential adverse impacts are focused to a small geographic area and are unlikely due to the limited volumes of fuel and wastes to be stored and transported as part of research operations. With the application of mitigation measures by the Proponent, the probability of impacts occurring is considered to be low, and the potential impacts are considered reversible. In addition, the Proponent has committed to using existing roads and trails during all-terrain vehicle operations. The proposed study and training areas are accessible by existing roads and project-related traffic would not be expected to impact existing conditions in the region.

Recommended Mitigation Measures: The Board previously issued terms and conditions to reduce adverse impacts from fuel/chemical spill hazards resulting from research activities by issuing terms and conditions 4 through 9 which continue to apply to the project. In addition, the following terms and conditions are recommended to mitigate potential impacts from fuel use, storage and transportation, to ensure that proper spill

response equipment and procedures are maintained throughout project operations, and that the Proponent employs proper overland travel precautions and ensures that existing roads or trails are used when possible: 22, 26 and 27

Issue 3: Potential adverse impacts to public and traditional land use activities in the area due to transportation and research operations.

Board Views: The Proponent indicated that the proposed additional activities would occur near the community of Resolute Bay. As such, interaction with local residents is likely and disturbance to traditional land use activities is possible. Terms and conditions have been recommended to encourage consultation with the local community to proactively address any potential impacts to traditional land use activities, and further to ensure that impacts are mitigated if interference is identified.

Recommended Mitigation Measures: The Board previously issued terms and conditions 11, 12, and 14 through 16 to minimize potential interference with the movement of birds and wildlife; these conditions continue to apply to the current project proposal. In addition, the Board also recommends term and condition 28 to ensure that the affected community and its organizations are informed about the project proposal and term and condition 30 to ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities in the area.

Socio-economic effects on northerners:

Issue 4: Potential adverse impacts to historical, cultural, and archaeological sites from transportation and research activities.

Board Views: Due to the proximity of the proposed activities to the PCSP facility and the community of Resolute Bay, discovery of unrecorded sites of historical, cultural or archaeological significance is unlikely, however, possible. The Proponent would be required to abide by laws related to the protection of archaeological and palaeontological resources and would be required to contact the Government of Nunavut – Department of Culture and Heritage if it encountered any historical sites (see Regulatory Requirements section).

The Proponent is required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section).

Recommended Mitigation Measures: The Board previously issued term and condition 19 to address adverse impacts to historical, cultural, and archaeological sites from the research activities, which continues to apply to the current project proposal. In addition, term and condition 28 is recommended to ensure that available Inuit Qaujimaningit can inform project activities and reduce the potential for negative impacts occurring to any additional historical sites.

Issue 5: Potential benefit to the local economy as the Proponent may require access to local services and goods for project activities.

Board Views: Throughout project operations the Proponent may require services and goods that could provide a seasonal stimulus to the local economy of Resolute Bay. It is expected that through proactive consultation, community capacity and purchase planning concerns would be addressed.

Recommended Mitigation Measures: New term and condition 28 is recommended to ensure that the Proponent consults with the local community regarding the proposed activities and new term and condition 29 is recommended to ensure that the Proponent considers the hiring of local residents when possible.

Significant public concern:

Issue 6: No significant public concern was expressed during the public commenting period for this file.

Board Views: Follow up consultation and involvement of local community members is expected to mitigate any potential for public concern resulting from project activities. In addition, it is recommended that the Proponent considers hiring local people for the project activities.

Recommended Mitigation Measures: New term and condition 28 is recommended to ensure that the affected community and organizations are informed about the project activities, and to provide the Proponent with an opportunity to proactively address or mitigate concerns that may arise from project findings. New term and condition 29 is recommended ensure that the Proponent provide community members with information to ensure a successful local hiring opportunity.

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 which were previously issued by the NIRB for File No. **07YN019** in the Screening Decision Report(s) ***and continue to apply to the "An Investigation of the Sensitivity of High Arctic Permafrost to Climate Change" project:***

General

1. Wayne Pollard (the Permittee) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.

2. The Permittee shall forward copies of all permits to the NIRB obtained and required for this project prior to the commencement of the project.
3. The NIRB shall be notified of any changes in operating plans or conditions associated with this project prior to any such change.

Fuel and Wastes Storage

4. The Permittee shall not deposit, nor permit the deposit of any fuel, chemicals, wastes or sediment into any water body.
5. The Permittee shall locate, if applicable, all sumps, pits, spill basins and fuel caches and other hazardous materials a minimum of thirty (30) metres away from the high water mark of any water body and in such a manner as to prevent the contents from entering any water body frequented by fish.
6. The Permittee shall not store materials on the surface ice of lakes or streams, except that which is for immediate use.
7. The Permittee shall ensure that any non-combustible and hazardous waste, including waste oil, is disposed appropriately off site at an approved facility.
8. The Permittee is required to use secondary containment with impervious linens for storage of all barreled fuel rather than relying on natural depressions to contain spills.
9. All spills of harmful substances should be documented and reported to the 24-hour spill line at (867) 920-8130, regardless the quantity of release.
10. The Permittee shall ensure that any temporary camps are restored to their natural state after the completion of project activities.

Wildlife

11. The Permittee is required to ensure that there is minimal disturbance to any nesting birds and wildlife in the area.
12. The Permittee shall not disturb or destroy the nests or eggs of migratory birds. If active nests are encountered during project activities, the nesting area should be avoided to prevent disturbance (i.e. the young have left the vicinity of the nest).
13. The Permittee is required ensure that camp waste be made inaccessible to wildlife at all times.
14. The Permittee shall follow procedures outlined in the "Territorial Safety in Bear Country Manual", and should contact the Regional Biologist or the Wildlife manager for information and advice on measures which should be taken to minimize the possibility of conflicts/interactions with bears. Consideration should be given to setting up an electric fence around the camp.
15. In the event of a defense kill of a Polar Bear, the Permittee shall be aware of section 5.6.52 and 5.6.55 of Nunavut Land Claims Agreement (NLCA.) and shall contract nearest government of Nunavut wildlife office immediately for further direction.
16. (updated) Any observations of Ivory Gulls should be reported to the Canadian Wildlife Service at ec.enviroinfo.ec@canada.ca.

Aircraft Operations

17. The Permittee shall ensure that aircraft do not, unless for emergency, touch-down in areas where concentrations of wildlife are present. And raptor nesting sites and concentrations of nesting or molting waterfowl should be avoided by aircraft.
18. If the disturbance cannot be avoided, it is recommended that aircraft used in conducting project activities maintain a flight altitude of at least 610 m and a horizontal distance of 2 km during horizontal (point to point) flight from any known colonies of Ivory Gulls and any other observed groups (colonies) of Ivory Gulls during the nesting season.

Archaeological

19. The Permittee should be aware of the law regarding disturbance of archaeological and palaeontological sites and the removal of artifacts found. If a site is found it should remain undisturbed and its location should be reported to the Government of Nunavut Department of Culture, Language, Elders and Youth.

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

General

20. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (Application to Determine Conformity, July 7, 2016), and the NIRB (Online Application Form, July 11 and August 17, 2016); Project Map and Translated NIRB Part 1 Form, August 17, 2016).
21. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Fuel and Chemical Storage

22. The Proponent shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available during any transfer of fuel or hazardous substances. Further, the Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures.

Wildlife - General

23. 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.
24. 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.

Caribou and Muskoxen Disturbance

25. The Proponent shall cease activities that may interfere with the migration or calving of caribou or muskox, until the caribou or muskox have passed or left the area.

Ground Disturbance

26. 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.
27. The Proponent should, where possible, use existing roads or trails while travelling overland.

Other

28. 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.
29. The Proponent should, to the extent possible, hire local people.
30. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.

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 Resolute Bay, phone: (867) 252-3879).

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/>.

Caribou Management

8. Territorial and federal government agencies in Nunavut should work together with Regional Inuit Associations, co-management boards and industry to develop an action plan to identify and mitigate potential cumulative effects of human land use activities, including mineral exploration, on barren-ground caribou. This assessment of cumulative effects should occur at a regional scale (i.e., larger than individual project areas).
9. The NPC should be aware of the public concerns regarding a perceived lack of protection for caribou and caribou habitat within the Qikiqtani region of Nunavut. In developing a Nunavut-wide land use plan, the NPC may wish to consider formalized protection of important caribou habitat, and seasonal restrictions on potentially disruptive activities in these areas to minimize disturbance to caribou lifecycles and Inuit harvesting activities.

REGULATORY REQUIREMENTS

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

1. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).

2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-28.8/>).
3. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
4. The *Species at Risk Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html>). Attached in **Appendix B** is a list of Species at Risk in Nunavut.
5. The *Wildlife Act* (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) which contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.
6. The *Nunavut Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-28.6/>). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix C**.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the McGill University's "An Investigation of the Sensitivity of High Arctic Permafrost to Climate Change".

Dated October 11, 2016 at Arviat, NU.



Elizabeth Copland, Chairperson

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

APPENDIX A: PREVIOUSLY-SCREENED PROJECT PROPOSAL

As previously screened by the NIRB under File No. 07YN019, McGill University's High Arctic research project (consisting of two (2) separate research studies entitled the "Investigation of the Sensitivity of High Arctic Permafrost to Climate Change" project and the "Nature and Significance of Perennial Springs in the Canadian High Arctic" project) were located within the Qikiqtaaluk region, ranging from 300 to 400 kilometres (km) northwest of Grise Fiord. In its applications the Proponent indicated that it intended to complete various research field work activities that would study each of the topics to examine components of climate change and permafrost.

The activities and components associated with the original proposal screened under the original file no. 07YN019 included:

- Field work activities including the mapping of permafrost, groundwater and group ice;
- The establishment of small, temporary camps on Axel Heiberg Island; and
- Other research activities located at the Environment Canada station at Eureka.

The June 16, 2008 extension requests for Indian and Northern Affairs Canada's (INAC, now Indigenous and Northern Affairs Canada) Land Use Permit N2006N0028 involved activities in support of continued research activities for an additional one (1) year to allow for scientific research to continue.

The May 18, 2010 amendment request for INAC's Land Use Permit N2006N0028 involved activities to allow the establishment of a temporary camp (for 28-36 person days) on the Fosheim Peninsula to support continued research activities. The activities and components associated with this amendment included:

- Initially based out of the Eureka Weather Station and then will set up temporary camp on Fosheim Peninsula south Slidre Fjord;
- Conduct a survey using ground penetrating radar to detect and map massive ground ice;
- Transportation by helicopter;
- Four (4) persons at the site for seven (7) to nine (9) days;
- Four (4) small expedition tents and 1 Mt. Logan tent;
- Withdrawing water for domestic usage;
- Running a small generator to charge batteries;
- All wastes and garbage to be flown out; and
- Five (5) gallons of gas and a 20 pound cylinder of propane stored at the camp.

The July 16, 2010 extension request for INAC's Land Use Permit (N2006N0028) involved activities in support of continued research activities for an additional one (1) year to allow for scientific research to be based out of the existing camp.

The July 19, 2011 extension requests for Aboriginal Affairs and Northern Development's (now Indigenous and Northern Affairs Canada) Land Use Permit N2006N0028 involved activities in

support of continued research activities for an additional one (1) year to allow for scientific research to be based out of the existing camp.

Appendix B: **Species at Risk in Nunavut**

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

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

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

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

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

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

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

Updated: June 2015

Species at Risk ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Eskimo Curlew	Endangered	Schedule 1	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	GN
Peregrine Falcon	Special Concern (<i>anatum-tundrius</i> complex ³)	Schedule 1 - Threatened (<i>anatum</i>) Schedule 3 – Special Concern (<i>tundrius</i>)	GN
Short-eared Owl	Special Concern	Schedule 3	GN
Red Knot (<i>rufa</i> subspecies)	Endangered	Schedule 1	EC
Red Knot (<i>islandica</i> subspecies)	Special Concern	Schedule 1	EC
Horned Grebe (Western population)	Special Concern	Pending	EC
Red-necked Phalarope	Special concern	Pending	EC
Buff-breasted Sandpiper	Special concern	Pending	EC
Felt-leaf Willow	Special Concern	Schedule 1	GN
Porsild's Bryum	Threatened	Schedule 1	GN
Peary Caribou	Endangered	Schedule 1	GN
Barren-ground Caribou (Dolphin and Union population)	Special Concern	Schedule 1	GN
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	Schedule 2	DFO
Beluga Whale (Eastern Hudson Bay population)	Endangered	Pending	DFO
Beluga Whale (Western Hudson Bay population)	Special Concern	Pending	DFO
Beluga Whale (Eastern High Arctic – Baffin Bay population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Canada – West Greenland population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Arctic population)		Schedule 2	DFO
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Narwhal	Special Concern	Pending	DFO

Note: DFO: Fisheries and Oceans Canada; EC: Environment Canada; GN: Government of Nunavut

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

² Environment Canada (EC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.

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

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



INTRODUCTION

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

TERMS AND CONDITIONS

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

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

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

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

¹ P.C. 2001-1111 14 June, 2001

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

Legal Framework

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

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

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

Palaeontology and Archaeology

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

² s. 51(1)

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

Definitions

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

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

“archaeological artifact” means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Nunavut Land Claims Agreement.

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

“fossil” includes:

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

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

³ P.C. 2001-1111 14 June, 2001

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

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

Introduction

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

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

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

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

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

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.