



## SCREENING DECISION REPORT NIRB FILE No.: 11EN016

**NIRB File No.: 11EN016**

NPC File No.: 148487

*Related to KIA File No.: KVL109B97*

**June 15, 2017**

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of NxGold Ltd.'s "Kuulu Project" 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 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) VIEWS OF THE BOARD
- 6) RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS
- 7) OTHER NIRB CONCERNS AND RECOMMENDATIONS
- 8) REGULATORY REQUIREMENTS
- 9) CONCLUSION

### REGULATORY FRAMEWORK

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

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

These objectives are confirmed under section 23 of the NuPPAA.

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

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

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

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

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

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

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

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

#### PROJECT REFERRAL

On April 12, 2017 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen NxGold Ltd.’s “Kuulu Project” proposal from the Nunavut Planning Commission (NPC or Commission), with an accompanying positive conformity determination with the Keewatin Regional Land Use Plan. The NPC noted that the previous conformity determination issued on February 14, 2011 for the activities associated with the current proposal continues to apply and has determined that the project proposal is a significant modification to the project because of the development of a camp and the addition of airborne surveys.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement) and section 87 of the *Nunavut Planning and Project Assessment Act* (NuPPAA), the NIRB commenced screening this project proposal. Due to the proposal containing activities that were sufficiently related to previously assessed activities under NIRB file number **11EN016**, the NIRB viewed this project proposal as an amendment to the previously screened project and assigned this proposal with this previous file number. A summary of the previously screened project activities can be found in **Appendix A**.

## PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

### 1. Project Scope

The proposed “Kuulu Project” is located within the Kivalliq region, approximately 40 kilometres (km) northwest from Rankin Inlet. The Proponent intends to conduct exploration to assess previously identified gold targets at a site also known as Peter Lake Project. The initial program is proposed to take place in the summer of 2017 with seasonal work to occur for up to five (5) years from March to November if the initial exploration program results prove positive. The scope of activities previously approved for this ongoing exploration project (NIRB File No. 11EN016) has been included within **Appendix A**.

As required under subsection 86(1) of the NuPPAA, the Board accepts the scope of the Kuulu Project as set out by NxGold Ltd. in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Airborne electromagnetic and drone magnetic geophysical surveys;
- Ground based geophysical surveys;
- Surface geochemical sampling (boulder and till sampling);
- Geological mapping;
- Staking and prospecting;
- On-land and on-ice drilling with the use of two (2) diamond and/or rotary air-blast/reverse circulation drilling and increase to six (6) drills if the exploration program proves successful;
- Potential construction and operation of a temporary/seasonal camp for up to 20 people. If the exploration program proves successful, a temporary/seasonal camp for up to 60 people would be constructed;
- Mobilization, drill support and access to the property via helicopters and fixed wing aircraft;
- Use of snow machines and boats for access and support of the exploration project;
- Use of all-terrain vehicles for camp support;
- Diesel and jet fuel caches at several locations within the property, and propane cache at the camp site;
- Transportation, storage (caching) and use of 48,400 litres (L) diesel, 3,300 L gasoline, and 33,000 L aviation fuel;
- Staging to occur via Rankin Inlet’s accessible airstrip and/or sea lift;
- Use of Right of Way (ROW) to support winter overland transport for camp and drill support;
- Use of drilling additives and calcium chloride for drilling purposes;

- Use of water for domestic purposes, drill use, ice pad construction needed to support on-ice drilling and dust suppression, as needed;
- Open burn incineration of combustible wastes and incineration of sewage;
- Transportation of hazardous, and non-combustible wastes to approved facilities for disposal;
- Disposal of camp greywater and drill water into sumps;
- Temporary use of available accommodations and support services in Rankin Inlet;
- Archaeological overview and site assessments, where required, and
- Potential use of Meliadine all-weather access road and camp (11MN034) during the exploration project.

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

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

## **3. Key Stages of the Screening Process**

The following key stages were completed:

<b>Date</b>	<b>Stage</b>
April 12, 2017	Receipt of project proposal and positive conformity determination (Keewatin Land Use Plan) from the NPC
April 12, 2017	Scoping pursuant to subsection 86(1) of the NuPPAA
April 25, 2017	Public engagement and comment request
May 16, 2017	Receipt of public comments
May 23, 2017	Proponent provided with an opportunity to address comments/concerns raised by public
May 24, 2017	Proponent responded to comments/concerns raised by public
May 29, 2017	Ministerial extension requested from the Minister of Indigenous and Northern Affairs

## **4. Public Comments and Concerns**

Notice regarding the NIRB's screening of this project proposal was distributed on April 25, 2017 to community organizations in Rankin Inlet, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by May 16, 2017 regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic or socio-economic effects; and if so, why;
- Whether the project proposal is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; if so, why;

- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (please provide any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

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

#### **Kivalliq Inuit Association (KIA)**

- Requested that maps for the following be provided:
  - Location of tentative camp site including shapefiles to ensure consultation on the camp site location can be effective.
  - Locations of target drill sites, including coordinates and shapefiles.
  - Locations of fuel caches including coordinates.
- Lack of information on the amount of fuel barrels to be used, amount of fuel (litres) in each barrel and the type of secondary containment to be use.
- Recommended the Proponent consult with Inuit Heritage Trust to identify any archaeological sites beforehand.
- Recommended that helicopter should not fly lower than 300 metres.
- Recommended the Proponent conduct a community consultation, meet with CLARC and Hunters and Trappers Organization and that the results of NxGold's community meeting(s) in Rankin Inlet be submitted to the NIRB.

#### **Government of Nunavut (GN)**

- Noted that even though no archaeological sites have been recorded within the boundary of the project area, this did not preclude the presence of unidentified sites or cultural features and recommended several mitigation measures to ensure that archaeological sites are not disturbed during the ground activities.
- Noted concerns regarding the monitoring measures proposed by the Proponent for the detection of caribou in proximity to the project site and provided a table that displayed caribou movement based on time of year. Recommended that the proponent redevelop its mitigation protocols to take into account caribou movement rates and amend its shutdown procedures to be able to close the camp in a period of time that does not risk disturbance to caribou.
- Recommendations provided to amend and update the Wildlife Protection Plan to include mitigation measures specific to the presence of cow calf caribou groups, and to include detection methods beyond incidental pilot observations. Further recommended that the proponent incorporate detection measures that would be effective on a year-round basis, and that monitoring and the detection of caribou around the project area be presented in data sets within the project's annual reporting.
- Noted the proposed activities to use both ground and aerial transportation to and from the project site has the potential to cause disturbance to these herds and other wildlife. Recommended the follows:
  - Utilize existing corridors for both land and air traffic and not use the proposed western land and air corridors.
  - Traffic should be routed through the existing Meliadine mine road and continue along the proposed eastern winter access trail.

- Air traffic should as much as possible follow the existing Meliadine corridor and not take a direct route over undisturbed habitat.
- Noted that the creation of additional corridors may lead to cumulative effects in the form of increased fragmentation of wildlife and localized depletion of caribou that are utilized by Rankin Inlet and Chesterfield Inlet hunters.
- All helicopter traffic should maintain a minimum altitude of 610 metres during travel to and from site and should not set down in any areas with wildlife present unless for aircraft or human safety. Data on altitude compliance should be included with the projects annual report.
- Lack of information on a spill response plan.
- Camp food and water services need to be reviewed by the Health Department Environmental Health Officer.

#### **Environment and Climate Change Canada (ECCC)**

- Noted that Proponent contact the 24 hour NWT/NU Spill Report Line in case of spill or emergency. Further information on the environmental enforcement and reporting requirements under the *Canadian Environmental Protection Act* and *Fisheries Act* were provided by ECCC.
- Recommended that drilling additives or mud not be used in connection with holes drilled through the lake ice unless they are re-circulated or contained such that they do not enter the water.
- Open burning of combustible waste is not encouraged as a means of disposal due to the production of more smoke and pollutants and recommended that the amount of combustible waste requiring incineration is minimized with a website link to ECCC's Open Burning Brochure provided.
- Noted that if the proponent choose to continue burning solid wastes then the use of an approved incinerator for the disposal of combustible wastes is recommended. A website link on ECCC's technical document for batch waste incineration was provided.
- Recommended that Polar Bear and Red-necked Phalarope be added to Proponent's table that summarizes the Potential Species at Risk in the project area.

#### **Fisheries and Oceans Canada (DFO)**

- Noted that it remains the Proponent's responsibility to ensure it avoids causing serious harm to fish in compliance with the *Fisheries Act*, and that it meets the requirements under the *Species at Risk Act*.
- Noted that it is also the Proponent's *Duty to Notify* DFO if it has caused, or is about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery.
- Noted concern with respect to fish and their habitat as associated with drilling on ice during winter and spring activities, and water withdrawal for ice pad construction, dust suppression, and domestic uses.
- Provided several recommendations on general measures; water withdrawal methods to avoid negative impacts to fish and fish habitat; site access and preparation, work camps, and drilling activities to minimize impacts to vegetation, fish and fish habitat, waterbodies, sediment and erosion control.

### **Indigenous and Northern Affairs Canada (INAC)**

- Unable to offer comments on whether the project is likely to arouse significant public concern since the application does not contain any detailed records of community engagement/consultation activities undertaken with the exception of the planned May 2017 community meeting in Rankin Inlet
- Recommended that the Proponent conduct community consultations prior to submitting the project proposal and at the start of the new activities.
- Recommended the Proponent indicate if and how potential cumulative effects were identified and considered in the assessment of effects.

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

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

#### **Kivalliq Inuit Association (KIA)**

- Noted concerns with respect wildlife and their habitat, and Inuit harvesting activities with the area being identified by community members as a prime hunting area, close to hunting trails, popular area for spring fishing and fall caribou hunting.
- Two cabins have been identified to be within the vicinity of the proposal and the owners should be consulted.

#### **Government of Nunavut (GN)**

- Noted that the Project lies within the ranges of the Qamanirjuaq and Lorillard caribou herds, which serves as an important source of food and income for the communities of the Kivalliq.

### **6. Proponent's Response to Public Comments and Concerns**

The following is a summary of the Proponent's response to concerns as received on May 24, 2017:

- In response to the concern raised regarding lack of maps related to locations of the tentative camp site, target drill sites, and fuel cash sites, the Proponent provided 1:50,000 maps, shapefiles and coordinates.
- In response to lack of information on the amount of fuel barrels and amount of fuel to be used, the Proponent noted that fuel caches will contain fuel stored in 205 litres (L) barrels or drums, with up to 20 barrels stored in each fuel cache.
- Noted that camp food and water services would be available for inspection as required by the Health Department Environmental Health Officer. Further, these services would be provided by experienced and reputable third part service provider that will hold the required certification.
- Reiterated that NxGold Ltd. would avoid flying below 300 metres (m) when wildlife or people may be disturbed; however, noted that helicopter flights below 300 m would occur for a period of one (1) week to conduct a geophysical survey. The survey is planned to occur late May/early June. In addition, as part of the archaeological overview assessment, a low level flight below 300 m would be required over the course of one (1) day.

- In response to concerns regarding the monitoring measures for the detection of caribou in proximity to the project site and the recommendation that the proponent redevelop its mitigation protocols to take into account caribou movement rates and amend its shutdown procedures to be able to close the camp in a period of time that does not risk disturbance to caribou, the Proponent noted that, based on information provided by the GN and in consideration of other documentations and guidelines, caribou is located outside of core calving and post-calving areas and migration corridors and typical interaction between caribou and project activities are expected to occur within seasons considered to be within cautionary and low risk categories.
- Noted that mitigation measures contained within NxGold Ltd.'s Wildlife Protection Plan are based on KIA caribou protection measures and considered suitable for the Kuulu Project. Reiterated that the mitigation measures are implemented to reduce possible disturbance to caribou due to Project related activities and not to completely eliminate any disturbance to caribou regardless of the season.
- Noted that all project related personnel including helicopter pilots would have the responsibility of reporting any caribou within the project area to trigger the recommended mitigation measures.
- In response to the recommendation to utilize existing corridors for both land and air traffic and not use the proposed western land and air corridors to avoid the potential to cause disturbance to these herds and other wildlife, the Proponent indicated that it would use existing overland access corridors approved under the Keewatin Regional Land Use Plan and in concert with existing licensees.
- Reiterated that cumulative effects considerations were addressed through implementing management plans, mitigation measures and the Abandonment and Restoration Plan, and by minimizing the footprint of the camp and helicopter activities.
- In response to concerns and recommendations provided on water withdrawal, site access and preparation, work camps, drilling to minimize impacts to vegetation, fish and fish habitat, waterbodies, sediment and erosion control, the Proponent noted that vegetation disturbance is expected to be minimal and temporary in nature and that a Spill Contingency Plan, an Abandonment and Restoration Plan and an Environment and Heritage Resource Management Plan have been provided that addresses the concerns and recommendations.
- Noted that it would update the table listing of the Species at Risk prior to the start of operations as noted by the concerns.
- Reiterated that a spill contingency plan was provided as part of the application and noted that a digital copy was hand-delivered to the GN staff in Iqaluit in April 2017.
- In response to concerns regarding open burning of combustible wastes, the Proponent noted that it would only open burn clean combustible wastes such as paper, cardboard, and untreated/unpainted wood.
- In response to the recommendation to conduct consultations with the community of Rankin Inlet, the CLARC and Hunters and Trappers Organization in Rankin Inlet, the Proponent provided a copy of the meeting records from meetings held in early May and noted its commitment to conduct further in-person engagement.
- Noted that project archaeologist has engaged with the Territorial Archaeologist at the GN-CH to conduct a site data search with the search results indicating that there are no recorded sites present with the project area.



- Reiterated that an Environment and Heritage Resources Project Plan was submitted as part of the application and a digital version was hand-delivered to the GN in Iqaluit in early April 2017.
- To address concerns with respect to impacts to archaeological sites from overland winter activities, the Proponent indicated that overland winter site access will occur within established transportation corridors. Further, if a winter drill program were to occur, a Standard Operating Procedure would be developed to address archaeological considerations when moving drills overland in winter.

## 7. Time of Report Extension

As a result of the additional time required to complete the Proponent's online application, and to ensure that the Proponent could respond to concerns raised by parties, the NIRB was not able to provide its screening decision report to the responsible Minister within 45 days as required by Article 12, Section 12.4.5 of the Nunavut Agreement and subsection 92(3) of the NuPPAA. Therefore, on May 29, 2017 the NIRB wrote to the Minister of Indigenous and Northern Affairs, Government of Canada, seeking an extension to the 45-day timeline for the provision of the Board's Report.

### FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS

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

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

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

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

The proposed initial exploration activities for gold mineralization will occur in an area approximately 40 kilometres (km) northwest from Rankin Inlet. The total area of the mineral claims to be explored is approximately 502 square kilometres (km<sup>2</sup>) and would potentially include a twenty-person temporary exploration camp. The project footprint also includes helicopter-assisted travel routes and winter right-of-way from Rankin Inlet to prospecting areas and drill sites on the mineral claims. As identified by the Proponent, Government of Nunavut, and NPC mapping sources, the proposed activities may take place within habitat and seasonal ranges for caribou and caribou habitats (specifically Qamanirjuaq and Lorillard caribou herds), migratory and non-migratory birds, far ranging and local wildlife species including muskox, wolves, wolverines, arctic fox, and arctic hare. The project may potentially affect animal migratory patterns.

2. *The ecosystemic sensitivity of that area.*

The proposed project may occur in an area with ecosystemic sensitivity, including the potential for overlap of portions of the project footprint with habitat for caribou and other wildlife. Specifically, the footprint of the proposed project may overlap areas identified as having value and priority to local communities for:

- i. Abundance of caribou, muskox, wolves, and wolverine;
- ii. Caribou migration routes; and
- iii. Arctic char and lake trout.

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

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

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

The proposed project would occur at a location approximately 40 kilometres (km) northwest from Rankin Inlet, the nearest community; as such, human populations are likely to be affected by project impacts. Further, it was noted during the commenting period that there is potential for impact to wildlife, which in turn could result in adverse impacts to traditional pursuits such as caribou hunting, and fishing. Further, during the commenting period it was noted that the area was identified as a prime hunting area, close to hunting trails, popular area for spring fishing and fall caribou hunting.

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 Rankin Inlet and an area used by residents for recreational/traditional pursuits could potentially contribute to public concern developing. A term and condition has been recommended to direct engagement with the community, hunters and trappers organization and interested parties, as well as the posting of public notices to ensure residents are aware of the exploration activities being or to be conducted.

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

As the “Kuulu Project” is a proposed exploration program for gold mineralization involving prospecting, geophysical surveys and use of conventional drilling equipment, the nature of potential impacts is considered to be well-known. Potential adverse impacts are likely to be localized, of medium magnitude, and restricted to the period of project activities. Due to the proximity of portions of the mineral claims to caribou habitat, specific mitigation measures

for the protection of critical life stages of caribou herds in the area may be necessary. Based on past evidence of similar scope of activities, potential adverse impacts will be reversible and mitigable with due care.

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

The proposed project would take place within a 100 kilometre radius to a number of other projects that are currently active, in addition to other projects proposed and currently undergoing assessment by the Board as listed in Table 1 below. However, it is noted that this project is not likely to result in residual or cumulative impacts. The potential for cumulative impacts to terrestrial wildlife and habitat, fish and fish habitat, water quality, cultural and archaeological resources, ground stability, soil quality, and traditional wildlife harvesting pursuits from the proposed mineral exploration project activities and other projects occurring in the region has been identified and considered in the development of the NIRB's recommendations. Terms and conditions recommended for each of these projects are expected to reduce any residual impacts, and as such would limit or eliminate the potential for cumulative effects to occur.

**Table 1: Project List**

<b>NIRB Project #</b>	<b>Project Title</b>	<b>Project Type</b>
<b><i>Active Projects</i></b>		
07EN021	Committee Bay Project	Fuel ( <i>seasonal</i> )
11MN034	Meliadine Gold	Gold Mine ( <i>year round</i> )
15EN028	Kahuna Diamond Project	Exploration ( <i>seasonal</i> )
15EN049	Peter Lake, Fox Lake and Parker Lake Exploration Project	Exploration, Winter Access and Camp ( <i>seasonal</i> )
16EN035	Huckleberry Claim	Exploration ( <i>seasonal</i> )
16YN040	Western Hudson Bay Geoscience for Infrastructure	Research ( <i>seasonal</i> )
16YN067	Synthesis of Glacial History and Dynamics in the Rae Geological Province	Research
16QN071	Itivia quarry	Quarry
17EN029	Gibson-MacQuoid Project	Exploration ( <i>seasonal</i> )
<b><i>Past Projects</i></b>		
16DN031	Operation Nanook 2016	Military Operation

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

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

## Views of the Board

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

### **Administrative Conditions:**

To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the Board has previously recommended terms and conditions 1 through 3 and 5, which continue to apply to the current project proposal. The Board is also recommending terms and conditions 55 and 56 to ensure complete reference to applicable regulatory requirements.

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

**Issue 1:** Potential adverse impacts to caribou and caribou habitat from noise and traffic generated by the proposed prospecting, exploration drilling, and associated overland travel and flights to/from the temporary camp and exploration sites, on-site buildup of waste and use of a drone for geophysical surveys.

**Board views:** The activities associated with the project involve operation of a temporary camp, helicopter-assisted travel, and/or overland travel to conduct prospecting and exploration drilling activities. Although some components of proposed project activities may be in proximity to habitat of importance to caribou (including migration routes and calving grounds), the potential impacts caribou are considered to be restricted to the duration of project activities (a total of 100 days from 2017 to 2021). The Proponent has committed to implementing a Wildlife Protection Plan, including protocols for the suspension of field activities to avoid impacts to caribou and to avoid flying lower than 610 metres if groups of more than 30 caribou are present in the area. As a result of the mitigation measures presented by the Proponent, the adverse impacts to caribou and caribou habitat are considered to be infrequent and reversible.

The Proponent would also be required to follow the *Wildlife Act (Nunavut)* (see Regulatory Requirements section).

**Noted Inuit Qaujimaningit, traditional or community knowledge:** The Kivalliq Inuit Association indicated that the proposed project area is in proximity to caribou fall hunting grounds and that the Proponent should mitigate potential impacts to wildlife and hunting practices in the area.

**Recommended Mitigation Measures:** It is recommended that the potential adverse impacts to caribou may be mitigated by measures such as requiring the Proponent to cease activities that may interfere with the migration or calving of caribou until the caribou have left the area. The Board has previously recommended terms and conditions to

mitigate potential adverse impacts to caribou and caribou habitat, specifically: 23 through 30, which continue to apply to the current project proposal.

**Issue 2:** Potential adverse impacts to terrestrial wildlife, including birds, from noise associated with geophysical surveys, transport of personnel to and from the camp and exploration drill sites, disturbance to nests, air pollution from the incineration of wastes, and use of a drone for geophysical surveys as well as unplanned fuel spills or leaks.

**Board views:** There is potential for disturbance of terrestrial wildlife, including muskox, wolves, wolverines, arctic fox, and arctic hare and migratory and non-migratory birds from air and on-land transport of field personnel, and drilling and waste disposal activities. However, the potential adverse impact(s) of the project to terrestrial wildlife and birds is considered to be of medium magnitude due to the scale and duration (a total of 100 days from 2017 to 2021) of the exploration program. The Proponent has committed to implementing a Wildlife Protection Plan, including protocols for suspension of field activities to avoid impacts to wildlife, field surveys to identify nesting bird sites prior commencement of drilling activities, to avoid flying below 300 m when wildlife or people may be disturbed and establishing “no activity buffers” around active dens. As a result of the mitigation measures proposed by the Proponent, the adverse impacts to terrestrial wildlife, including muskox and birds are considered to be of medium magnitude and reversible.

The Proponent would be required to follow the *Wildlife Act (Nunavut)*, the *Migratory Birds Convention Act*, *Transportation of Dangerous Goods Act* and the *Canadian Environmental Protection Act* (see Regulatory Requirements section).

**Noted Inuit Qaujimaningit, traditional or community knowledge:** The Kivalliq Inuit Association indicated that the proposed project area is in proximity to prime hunting areas and hunting trails, while the Government of Nunavut noted that project lies within the ranges of the Qamanirjuaq and Lorillard caribou herds, which serves as an important source of food and income for the communities of the Kivalliq

**Recommended Mitigation Measures:** It is recommended that the potential adverse impacts to terrestrial wildlife and birds may be mitigated by measures such as minimizing activities when birds are particularly sensitive to disturbance especially during migration, nesting and moulting. The Board has previously recommended terms and conditions to mitigate potential adverse impacts to terrestrial wildlife, specifically: 4, 8, 13, and 19 through 29, which continue to apply to the current project proposal.

**Issue 3:** Potential adverse impacts on fish and fish habitat, including water quality and quantity, from exploration activities, including water withdrawal for camp operations, drilling activities with the use of drill salts and deposition of drill cuttings, as well as possible accidents or malfunctions resulting in fuel, salts, or chemical spills.

**Board views:** The project may adversely affect water quality and quantity, and fish and fish habitat from water withdrawal, fuel and hazardous material spills, erosion, and

deposition of contaminated soil into or in proximity to the aquatic environment, including fish-bearing waterbodies. However, the potential for adverse impacts on fish and fish habitat, including water quality and quantity from drilling, deposition of drill cuttings, and water withdrawal are likely to be limited to the footprint of the proposed temporary camp and locations for exploration drilling. The Proponent has committed to implementing a Spill Contingency Plan and an Abandonment and Restoration Plan for the project and to storing all fuel storage containers in secondary containment structures to prevent the spread of any fuel spill incidents. As a result, the potential adverse impacts to water quality, fish and fish habitat are considered to be of low magnitude and reversible.

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

**Recommended Mitigation Measures:** It is recommended that the potential adverse impacts to surface water quality and quantity, fish and fish habitat may be mitigated by measures such as requiring the Proponent to ensure drilling wastes do not spread to surrounding waterbodies, ensure drill additives are not used in connection with holes drilled through lake ice, ensure all project personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response and waste management. The Board previously recommended the following terms and conditions to mitigate potential impacts to surface water quality and fish and fish habitat: 6, 7, 11-12, 14-16, 18, 30 through 34, 36, 37, and 39 through 50, which continue to apply to the current project proposal. In addition, the NIRB also recommends the following terms and conditions to mitigate potential adverse impacts to surface water quality and quantity, fish and fish habitat from the proposed on-ice drilling activities: 57 through 59.

**Issue 4:** Potential adverse impacts to ground stability and soil quality from the establishment of a temporary camp, and fuel caches, and from exploration drilling activities.

**Board Views:** The activities proposed for the project, including establishment of temporary camp and fuel caches, and the exploration drilling activities, may result in degradation of permafrost which would negatively affect ground stability. In addition, buildup of waste from field operations on site may have adverse impacts to soil quality. However, the potential for impacts is limited to the footprint of drill sites, temporary camp area, and fuel caches, which are also temporary in nature. To mitigate potential impacts to soil quality and ground stability, the Proponent has committed to use overland winter site access within established transportation corridors. The Proponent has also committed to implementing an Abandonment and Restoration Plan and removing all materials brought to the site upon demobilization. The potential adverse impacts to ground stability and soil quality are considered to be of low magnitude, short-term and reversible.

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

**Recommended Mitigation Measures:** It is recommended that potential adverse impacts to ground stability and soil quality be mitigated by such measures as requiring the Proponent to not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. The Board has previously recommended the following terms and conditions to mitigate potential impacts to ground stability and soil quality: 11, 15 through 18, 30, 33, 35, 38, 43, 50 through 53, which continue to apply to the current project proposal. In addition, the NIRB also recommends the following terms and conditions to mitigate potential adverse impacts to ground stability and soil quality from the establishment of a temporary camp activities: 60 and 61.

**Issue 5:** Potential adverse impacts to air quality from the transportation activities, mineral exploration operations, use of heavy equipment, and incineration of combustible wastes.

**Board views:** There is potential for adverse impacts to air quality from site preparation, use of heavy equipment and machinery, drilling activities associated with the project, and incineration of select combustible wastes which would be limited to within the project footprint with a low probability of extending beyond the geographic area. The potential adverse impacts to air quality are considered to be of low magnitude, short-term, and reversible.

**Recommended Mitigation Measures:** It is recommended that the potential adverse impacts may be mitigated by measures such as ensuring that the Proponent review the Canadian Council of Ministers of the Environment guidance document for open-air burning. The Board has previously recommended the following terms and conditions to mitigate potential adverse impacts to air quality: 9 and 10.

**Issue 6:** Potential adverse impacts to public and traditional land use activities in the area due to noise associated with transportation of personnel and equipment to the temporary camp and drill sites.

**Board Views:** The Proponent is proposing to work in an area in proximity to caribou habitat for migration, and calving and post-calving. There is potential for disruption of these critical caribou events as a result of noise generated from activities associated with the project proposal, which may reduce local caribou populations and availability of caribou as country food. The Proponent has committed to holding additional public meetings with potentially impacted communities regarding its exploration projects in the region to seek further community input. As a result of concerns raised during the public commenting period regarding disturbance to caribou habitat and caribou movement, the NIRB has included recommendations that the Proponent conduct the operations outside of May 15 to July 15 in project areas in proximity to natural ranges for caribou calving and post-calving. In addition, terms and conditions have been recommended to plan

operations to avoid disturbance to key wildlife, birds, and humans, and to minimize negative impacts to traditional land use activities by ensuring ongoing consultation with the community and community organizations.

Noted Inuit Qaujimaningit, traditional or community knowledge: The Kivalliq Inuit Association noted that the area has been identified by community members as a prime hunting area, close to hunting trails, popular area for spring fishing and fall caribou hunting.

Recommended Mitigation Measures: The Board previously issued term and condition 19 through 29 to minimize potential interference with the movement of birds and wildlife and term and condition 54 to consult with local residents regarding the activities, which continue to apply to the current project proposal. In addition, the NIRB is recommending terms and conditions 62 and 63 to ensure that affected communities and organizations are informed about the project proposal, to ensure that available Inuit Qaujimaningit can inform project activities and to mitigate impacts to public and traditional land use activities from project activities. In addition, term and condition 64 has been recommended 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 7:** Potential adverse impacts to historical, cultural and archaeological sites from land disturbance as a result of the exploration activities and the establishment of the temporary camp.

Board Views: The Proponent has not identified sites of historical, cultural and archaeological importance in the proposed project area. The probability of impacts to historical, cultural and archaeological sites is considered to be low due to the anticipated minimal land disturbance from the proposed exploration activities. However, the Kivalliq Inuit Association recommended the Proponent consult with Inuit Heritage Trust to identify any archaeological sites before conducting the project activities and the Government of Nunavut recommended several mitigation measures to ensure that archaeological sites are not disturbed during the ground based activities. The Proponent has committed to conduct an archaeological overview assessment prior to the commencement of ground based activities.

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

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such requiring the Proponent to solicit available Inuit Qaujimaningit from local residents. The Board recommends the following term and condition to mitigate the potential adverse impacts to historical, cultural, and archaeological resources: 62.



**Issue 8:** Potential benefit to the local community from the initial sourcing of accommodations within the community for personnel prior to the establishment of the temporary camp and purchasing of local goods and services.

**Board Views:** It is noted that the Proponent has committed to continue to consult with Rankin Inlet on the exploration project and has committed to establish the temporary camp site as soon as possible to avoid negative effects to the limited resources and accommodations facilities in Rankin Inlet.

**Recommended Mitigation Measures:** Term and condition 54 was previously recommended to ensure the Proponent continues to inform the community of the exploration activities and findings as well as provide community members with information to ensure a successful local hiring opportunity.

**Significant public concern:**

**Issue 9:** No significant public concern was expressed during the public commenting period for this file.

**Board Views:** It is noted that there is potential for public concern developing due to the location of the proposed activities in proximity to areas that may be used for traditional activities, such as hunting and camping, by communities in the Kivalliq region. Follow up consultation and involvement of the local communities in the Kivalliq region, including Rankin Inlet, is expected to mitigate any potential for public concern resulting from project activities. The Proponent has committed to holding additional public meetings with potentially impacted community regarding its exploration projects in the region to seek further community input.

**Recommended Mitigation Measures:** The Board previously recommended term and condition 54 to ensure that the affected communities and organizations are informed about the project proposal and to provide the Proponent with an opportunity to proactively address or mitigate any concerns that may arise from the project activities. This term and condition continues to apply to the current project proposal. Further, the NIRB is recommending term and condition 62 to ensure the Proponent solicit available Inuit Qaujimaningit from local residents.

**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 following terms and conditions were previously issued by the NIRB in the May 18, 2011 Screening Decision Report(s) for File No. **11EN016**, *and continue to apply to the “Kuulu Project”*:

### General

1. Canada Nickel Corp. (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 form, April 4, 2011), the Kivalliq Inuit Association (Application to Access Inuit Owned Lands and Water Use, February 11, 2011) and the Nunavut Planning Commission (Application to determine Conformity with the Keewatin Regional Land Use Plan, February 14, 2011).
4. Prior to conducting the project, the Proponent shall submit a Spill Contingency Plan to the NIRB and Environment Canada.
5. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

### Water Use

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

### Waste Disposal

8. The Proponent shall keep all garbage and debris in bags placed in a covered metal container or equivalent until disposed of at an approved facility. All such wastes shall be kept inaccessible to wildlife at all times.
9. The Proponent shall ensure that the incineration of combustible camp wastes comply with the Canadian Wide Standards for Dioxins and Furans, and the Canadian Wide Standards for Mercury.
10. The Proponent shall ensure that no waste oil/grease is incinerated on site.

### Fuel and Chemical Storage

11. The Proponent shall locate all fuel, calcium chloride and other hazardous materials a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent their release into the environment.

12. The Proponent shall ensure that re-fuelling of all equipment occurs a minimum of thirty-one (31) metres away from the high water mark of any water body.
13. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
14. The Proponent shall use adequate secondary containment or a surface liner (e.g. self-supporting insta-berms and fold-a-tanks), when storing barrelled fuel and chemicals at all locations.
15. The Proponent shall use adequate secondary containment or a surface liner (e.g. self-supporting insta-berms and fold-a-tanks) at all refuelling stations. Appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) must be readily available during any transfer of fuel or hazardous substances, as well as at vehicle-maintenance areas and at drill sites.
16. The Proponent shall inspect and document the condition of all fuel drums on a weekly basis. All fuel and chemical storage containers must be clearly marked with the Proponent's name and examined for leaks immediately upon delivery.
17. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.
18. The Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures. All spills of fuel or other deleterious materials of any amount must be reported immediately to the 24 hour Spill Line at (867) 920-8130.

#### **Wildlife - General**

19. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
20. 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.
21. The Proponent shall ensure that all project personnel are made aware of the measures to protect wildlife and are provided with training and/or advice on how to implement these measures.

#### **Migratory Birds and Raptors Disturbance**

22. The Proponent shall not disturb or destroy the nests or eggs of any birds. If nests are encountered and/or identified, the Proponent shall take precaution to avoid further interaction and or disturbance (e.g., a 100 metre buffer around the nests). If active nests of any birds are discovered (i.e. with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have left the nest.

#### **Aircraft Flight Restrictions**

23. The Proponent shall restrict aircraft/helicopter activity related to the project to a minimum altitude of 610 metres above ground level unless there is a specific requirement for low-level flying, which does not disturb wildlife and migratory birds.

24. The Proponent shall ensure that aircraft maintain a vertical distance of 1000 metres and a horizontal distance of 1500 metres from any observed groups (colonies) of migratory birds. Aircraft should avoid critical and sensitive wildlife areas at all times by choosing alternate flight corridors.
25. The Proponent shall ensure that aircraft/helicopter do not, unless for emergency, touch-down in areas where wildlife are present.
26. The Proponent shall advise all pilots of relevant flight restrictions and enforce their application over the project area, including flight paths to/from the project area.

#### **Caribou and Muskoxen Disturbance**

27. 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.
28. The Proponent shall not block or cause any diversion to caribou migration, and shall cease activities likely to interfere with migration such as airborne geophysics surveys, drilling or movement of equipment or personnel until such time as the caribou have passed.
29. During the period of May 15 to July 15, when caribou are observed within 1 km of project operations, the Proponent shall suspend all operations, including low-level over flights. Following July 15, if caribou cows or calves are observed within 1 km of project operations, the Proponent shall also suspend all operations in the vicinity, including low-level over flights, until caribou are no longer in the immediate area.

#### **Ground Disturbance**

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. Overland travel of equipment or vehicles must be suspended if rutting occurs.
31. The Proponent shall implement suitable erosion and sediment suppression measures on disturbed areas before, during and after construction in order to prevent sediment from entering any waterbody.

#### **Drilling on Land**

32. The Proponent shall not conduct any land based drilling or mechanized clearing within thirty-one (31) metres of the normal high water mark of a water body.
33. The Proponent shall not allow any drilling wastes to spread to the surrounding lands or water bodies.
34. If an artesian flow is encountered, the Proponent shall ensure the drill hole is immediately plugged and permanently sealed.
35. The Proponent shall ensure that all drill areas are constructed to facilitate minimizing the environmental footprint of the project area. Drill areas should be kept orderly with garbage removed daily to an approved disposal site.
36. The Proponent shall ensure that all sump/depression capacities are sufficient to accommodate the volume of waste water and any fines that are produced. The sumps shall only be used for inert drilling fluids, and not any other materials or substances.

37. The Proponent shall not locate any sump within thirty-one (31) metres of the normal high water mark of any water body unless otherwise authorized by the Nunavut Water Board. 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.
38. 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.

### **Winter Road/Trail**

39. The Proponent shall select a winter route that maximizes the use of frozen water bodies.
40. The Proponent shall not erect camps or store materials on the surface ice of lakes or streams, except that which is for immediate use.
41. The Proponent shall ensure that no disturbance of the stream bed or banks of any definable watercourse be permitted.
42. The Proponent shall not move any equipment or vehicles without prior testing the thickness of the ice to ensure the lake is in a state capable of fully supporting the equipment or vehicles.
43. 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.
44. The Proponent shall suspend overland travel of equipment or vehicles if rutting occurs. Likewise, upon spring break up, or at such a time as the shorelines of frozen water bodies begin to thaw, the Proponent shall suspend all travel over water bodies if disturbance to the banks or shorelines of any definable water body occurs.
45. The Proponent shall ensure that winter lake/stream crossings are located to minimize approach grades and constructed entirely of ice and snow materials. Ice or snow free of sediment should be the only materials used to construct temporary crossings over any ice-covered watercourse.
46. The Proponent shall ensure that bank disturbances are avoided, and no mechanized clearing carried out immediately adjacent to any watercourse.
47. The Proponent shall ensure that stream crossings and/or temporary crossings constructed from ice and snow, which may cause jams, flooding or impede fish passage and or water flow, are removed or notched prior to spring break-up.
48. The Proponent shall avoid disturbance on slopes prone to natural erosion, and alternative locations shall be utilized.
49. The Proponent shall implement sediment and erosion control measures prior to, and during operations to prevent sediment entry into the water during the spring thaw. This includes ensuring that a sufficient thickness of snow and ice is present on the winter road to prevent unnecessary erosion of the underlying ground surface and impact on underneath vegetation.
50. The Proponent shall implement a clean-up and reclamation stabilization plan which should include, but is not limited to, re-vegetation and/or stabilization of exposed soil in road bed.

### **Restoration of Disturbed Areas**

51. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state as practical as possible upon completion of field work.
52. The Proponent shall remove all garbage, fuel and equipment upon abandonment.
53. The Proponent shall complete all clean-up and restoration of the lands used prior to the end of each field season and/or upon abandonment of site.

### **Other**

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

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

#### **General**

55. NxGold Ltd. (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.
56. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (Application to Determine Conformity, April 12, 2017), and the NIRB (Online Application Form, March 30, 2017; Project Description, March 21, 2017, Wildlife Protection Plan, Spill Contingency Plan, an Abandonment and Restoration Plan and an Environment and Heritage Resource Management Plan, Mar 30, 2017).

#### **Drilling on Ice**

57. If drilling is conducted on lake ice, the Proponent shall ensure that any return water is non-toxic, and will not result in an increase in total suspended solids in the immediate receiving waters above the Canadian Council of Ministers for the Environment (CCME) Guidelines for the Protection of Freshwater Aquatic Life.
58. The Proponent shall ensure that drill muds and additives are not used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.
59. The Proponent shall ensure that all drill cuttings are removed from ice surfaces daily.

#### **Temporary Camps**

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

### **Other**

63. 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.

64. 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 has previously recommended the following on May 18, 2011:*

#### **Bear and Carnivore Safety**

1. (updated) The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: [http://gov.nu.ca/sites/default/files/bear\\_safety\\_-\\_reducing\\_bear-people\\_conflicts\\_in\\_nunavut.pdf](http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf). Further information on bear/carnivore detection and deterrent techniques can be found in the "Safety in Grizzly and Black Bear Country" pamphlet, which can be downloaded from this link: [http://www.enr.gov.nt.ca/sites/default/files/web\\_pdf\\_wd\\_bear\\_safety\\_brochure\\_1\\_may\\_2015.pdf](http://www.enr.gov.nt.ca/sites/default/files/web_pdf_wd_bear_safety_brochure_1_may_2015.pdf).

There are polar bear and grizzly bear safety resources available from the Bear Smart Society with videos on polar bear safety available in English, French and Inuktitut at <http://www.bearsmart.com/play/safety-in-polar-bear-country/>. Information can also be obtained from Parks Canada's website on bear safety at the following link: <http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx> or in reviewing the "Safety in Polar Bear Country" pamphlet, which can be downloaded from the following link: [http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/\\_media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety\\_English.ashx](http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/_media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx).

2. The Proponent ensure that any problem wildlife or any interaction with carnivores is reported immediately to the local Government of Nunavut, Department of Environment Conservation Office in Rankin Inlet.

#### **Species at Risk**

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

#### **Change in Project Scope**

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

#### **Wildlife Log/Record of Observations**

5. The Proponent shall maintain a record of wildlife observations while operating within the project area. The reports should include locations (i.e., latitude and longitude), species,

number of animals, a description of the animal activity, and a description of the gender and age of animals if possible. Prior to conducting project activities, the Proponent should map the location of any sensitive wildlife sites such as denning sites, calving areas, caribou crossing sites, and raptor nests in the project area, and identify the timing of critical life history events (i.e., calving, mating, denning and nesting). Additionally, the Proponent should indicate potential impacts from the project, and ensure that operational activities are managed and modified to avoid impacts on wildlife and sensitive sites.

A copy of this wildlife record or report should be submitted annually at the end of the operational season to the following Government of Nunavut – Department of Environment.

### **Transport of Waste/Dangerous Goods**

6. The Proponent shall ensure that a waste manifest accompanies the shipment of all waste oil/grease and is registered with the Government of Nunavut Department of Environment (GN-DoE). Contact the Manager of Pollution Control and Air Quality at (867) 975-7748 to obtain a manifest if hazardous waste will be generated during project activities.
7. The Proponent shall ensure that an export manifest or the appropriate transportation of dangerous goods (TDG) documentation accompany all potential hazardous samples and/or materials that are transported off site.

### **Kivalliq Inuit Association**

8. The Kivalliq Inuit Association (KIA) impose strict mitigation measures and/or conditions upon the Proponent pursuant to the Inuit Owned Lands License with regard to fuel and chemical storage, drilling, water conditions, ground disturbance and wildlife on Inuit owned land.

### **Nunavut Water Board**

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

### **INAC – Water Resources Division**

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

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

### **Unmanned Air Vehicles (UAV)**

1. The Proponent should review Transport Canada's site on Drone Safety which can be found at the following link: <https://www.tc.gc.ca/eng/civilaviation/drone-safety.html>
2. The Proponent should review Transport Canada's "Do I have permission to fly my drone?" which can be downloaded from which can be downloaded from this link:



[https://www.tc.gc.ca/media/documents/ca-opssvs/Infographic-Do I need permission to fly my drone.pdf](https://www.tc.gc.ca/media/documents/ca-opssvs/Infographic-Do_I_need_permission_to_fly_my_drone.pdf).

The document provides information on whether or not a Special Flight Operations Certificate (SFOC) would be required or whether the operator of an unmanned air vehicle qualifies to operate under one of the exemptions to conduct lower risk operation in more remote areas without the need to apply for an SFOC.

## REGULATORY REQUIREMENTS

*The Board previously recommended in the May 18, 2011 Screening Decision Report(s) for the “Kuulu Project” (previously known as Canada Nickel Corp.’s “Peter Lake”) project the following legislation, which continues to apply to the current proposal:*

### **Acts and Regulations**

1. (updated) The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
2. (updated) The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-28.8/>).
3. (updated) The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
4. (updated) 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. (updated) The *Wildlife Act (Nunavut)* and its corresponding regulations (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.
6. (updated) The *Nunavut Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-28.6/>). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix C**.
7. (updated) The *Transportation of Dangerous Goods Regulations* (<http://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm>), *Transportation of Dangerous Goods Act* (<http://laws-lois.justice.gc.ca/eng/acts/t-19.01/>), and the *Canadian Environmental Protection Act* (<http://laws-lois.justice.gc.ca/eng/acts/C-15.31/>). The Proponent must ensure that proper shipping documents accompany all movements of dangerous goods. The Proponent must register with the GN-DOE Manager of Pollution Control and Air Quality at 867-975-7748.
8. (updated) The *Aeronautics Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-2/>).

## CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the NxGold Ltd.'s "Kuulu Project". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated June 15, 2017 at Cambridge Bay, NU.



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Elizabeth Copland, Chairperson

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

## APPENDIX A: PREVIOUSLY-SCREENED PROJECT PROPOSALS

The original project proposal NIRB (File No. 11EN016), was received by the NIRB from the Nunavut Planning Commission on February 14, 2011 and was screened by the Board in accordance with Part 4, Article 12 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement). On May 18, 2011 the NIRB issued a Nunavut Agreement 12.4.4(a) screening decision to the Interim President of the Kivalliq Inuit Association which indicated that the proposed project could proceed subject to the NIRB's recommended project-specific terms and conditions.

The Canada Nickel Corp.'s (Proponent) original "Peter Lake" project was located in the Kivalliq region, approximately 40 kilometres (km) northwest from Rankin Inlet. The Proponent indicated that it intended to conduct diamond drill program to test gold targets that have been previously identified. The program was proposed to take place from May 15 and July 15, 2011.

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

- Drill and equipment to be mobilized by helicopter;
- Diesel fuel and jet fuel to be cached at several locations;
- Crew to be based in Rankin Inlet and flown by helicopter to and from site daily;
- Drill rig and crew movement between sites to be supported by helicopter;
- Tent to be erected at site for core logging and as a safety shelter; and,
- Prospecting, geological mapping, diamond drilling, and sampling.

Additional authorization and extension requests associated with the "Peter Lake" project have also been reviewed by the NIRB following screening of the original project proposal (File No. 11EN016). In each instance the NIRB confirmed that the applications were exempt from the requirement for further screening pursuant to Section 12.4.3 of the Nunavut Agreement and the activities therein remained subject to the terms and conditions recommended in the original May 18, 2011 Screening Decision Report. A summary of the additional applications associated with NIRB File No. 11EN016 is presented below:

The scope associated with the previous May 2, 2012 Application to Access to Inuit Owned Land (Right of Way permit) with the KIA in support of its "Peter Lake" project included:

- Transportation of its drill and associated equipment from Rankin Inlet to the Peter Lake exploration site via cat-train over Inuit Owned Land.

## **Appendix B**

### **Species at Risk in Nunavut**

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

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

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

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

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

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

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

Updated: October 2016

Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Migratory Birds			
Eskimo Curlew	Endangered	Schedule 1	ECCC
Buff-breasted Sandpiper	Special concern	Pending	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Harlequin Duck (Eastern population)	Special Concern	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	GN
Peregrine Falcon	Special Concern ( <i>anatum-tundrius</i> complex <sup>3</sup> )	Schedule 1 - Threatened ( <i>anatum</i> ) Schedule 3 – Special Concern ( <i>tundrius</i> )	GN
Short-eared Owl	Special Concern	Schedule 3	GN
Red Knot ( <i>rufa</i> subspecies)	Endangered	Schedule 1	ECCC
Red Knot ( <i>islandica</i> subspecies)	Special Concern	Schedule 1	ECCC
Horned Grebe (Western population)	Special Concern	Pending	ECCC
Red-necked Phalarope	Special concern	Pending	ECCC
Vegetation			
Felt-leaf Willow	Special Concern	Schedule 1	GN
Blanket-leafed Willow	Special Concern	Schedule 1	GN
Porsild's Bryum	Threatened	Schedule 1	GN
Terrestrial Wildlife			
Peary Caribou	Endangered	Schedule 1	GN
Peary Caribou (High Arctic Population)	Endangered	Schedule 2	GN
Peary Caribou (Low Arctic Population)	Threatened	Schedule 2	GN
Barren-ground Caribou (Dolphin and Union population)	Special Concern	Schedule 1	GN
Marine Wildlife			
Polar Bear	Special Concern	Schedule 1	GN/DFO
Grizzly Bear	Special Concern	Pending	GN
Wolverine	Special Concern	Pending	GN
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Atlantic Walrus	Special Concern	Pending	DFO
Beluga Whale (Cumberland Sound population)	Threatened	Pending	DFO
Beluga Whale (Eastern Hudson Bay population)	Endangered	Pending	DFO
Beluga Whale (Western Hudson Bay population)	Special Concern	Pending	DFO
Beluga Whale (Eastern High Arctic – Baffin Bay population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Canada – West Greenland population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Arctic population)	Special Concern	Schedule 2	DFO
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Grey Whale (Eastern North Pacific population)	Special Concern	Schedule 1	DFO

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

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

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

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

<sup>3</sup>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:

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

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

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

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<sup>1</sup> P.C. 2001-1111 14 June, 2001

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

### **Legal Framework**

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

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

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

### **Palaeontology and Archaeology**

Under the *Nunavut Act*<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

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



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 Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement).*

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

*“fossil” includes:*

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

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

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

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

## **Introduction**

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

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

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

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

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

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

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

### **Types of Development**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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