

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).

As set out under subsection 92(1), upon conclusion of the screening process, the Board must provide its written report the Minister:

- 92. (1) The Board must submit a written report to the responsible Minister containing a description of the project that specifies its scope and indicating that:*
- a) a review of the project is not required;*
 - b) a review of the project is required; or*
 - c) the project should be modified or abandoned.*

After completing a review of all the information received and taking into account the information the Proponent and parties have supplied for the Board’s consideration, it is the opinion of the NIRB that **the project proposal should be modified or abandoned** in accordance with **paragraph 91** of the NuPPAA.

1. Project Description

The proposed “Kahuna Diamond Project – 2016” is located within the Kivalliq region, approximately 54 kilometres (km) northeast of Rankin Inlet and 35 km southwest of Chesterfield Inlet. The Proponent intends to conduct a diamond exploration program on the Kahuna mineral claim, with year-round periodic operations to take place from March 2016 to March 2018.

The Board notes that it has previously screened and recommended approval of mineral exploration activities related to the Kahuna Diamond Project in 2015; the scope of the project included the following undertakings, works or activities:

- Daily transport of up to six personnel to sample sites via helicopter from Rankin Inlet;
- Logistic support and personnel accommodations in Rankin Inlet;
- Collection of rock and soil samples to evaluate geology;
- Document additional information where rock and soil samples collected, specifically outcrop density, proximity to water, topography, plant species and local wildlife;
- Combustible and non-combustible wastes removed daily from project site for disposal in Rankin Inlet; and
- Burial of sewage.

As noted in the Board’s July 15, 2015 screening decision report for the Kahuna Diamond project (NIRB File No. 15EN028), references to future work programs possibly including diamond drilling, bulk sample, overland winter route, and camps were not assessed and specifically excluded from the scope of that assessment.

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

- Prospecting and till sampling;
- Test pit trenching of up to 10 sites/year;
- Ground geophysical surveying (magnetic and gravimetric);
- Diamond drilling with hole depths averaging 75 metres (m) for an estimated drill program of 1,000 m/year to 2,500 m/year;
- Bulk sampling at three (3) sample sites, including blasting, drilling, and excavation, of up to 500 tonnes of sampling material/site for a total bulk sampling program of up to 1,500 tonnes;
- Use of up to 50 cubic metres per day (m³/day) of water for drilling operations with disposal in a sump or natural depression;
- Daily transportation of personnel, equipment, and materials during operational periods via helicopter from Rankin Inlet;
- Development of winter trail to transport personnel, equipment, and materials during winter months using up to four (4) snow machines, a Caterpillar Challenger, Bombardier Sno-Cat, and hauling sleds;
- Use of heavy machinery and equipment, snow machines, and helicopter to support site and exploration operations;
- Transportation, storage, and use of fuel, chemicals (including drill additives), and oil at each site;

- Collection and storage of sewage, non-combustible, and hazardous wastes for transportation and disposal at accredited facilities in Rankin Inlet;
- Incineration of combustible wastes on-site;
- Logistical support, use of facilities and accommodations for up to 22 personnel in Rankin Inlet; and
- Remediation, including capping and re-contouring, of all exploration sample sites.

2. Scoping

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

3. Regulatory Requirements

The NIRB has taken note that the Proponent has applied for, or would require, the following authorizations for this project:

- Class A Land Use Permit – Indigenous and Northern Affairs Canada (N2015C0019 *permit amendment in progress*)
- Type B Water Licence – Nunavut Water Board (*application in progress*)
- Land Use Licence III – Kivalliq Inuit Association (*application in progress*)

In addition, the following legislation and guidelines may apply to the project:

1. The *Canadian Environmental Protection Act* (<http://laws.justice.gc.ca/en/C-15.31/>) lists calcium chloride (CaCl) as a toxic substance. Alternatives to the use of CaCl as a drill additive should be assessed, including biodegradable and non-toxic additives.
2. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
3. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://www.canlii.org/ca/sta/n-28.8/whole.html>).
4. The *Migratory Birds Convention Act and Migratory Birds Regulations* (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
5. The *Species at Risk Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html>). Attached in **Appendix A** is a list of Species at Risk in Nunavut.
6. The *Wildlife Act* (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) which contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.
7. The *Nunavut Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-28.6/>). Proponents must comply with the proposed terms and conditions listed in the attached **Appendix B**.
8. The *Transportation of Dangerous Goods Regulations, Transportation of Dangerous Goods Act* (<http://www.tc.gc.ca/eng/tdg/safety-menu.htm>), and the *Canadian Environmental Protection Act* (<http://laws-lois.justice.gc.ca/eng/acts/C-15.31/>). Proponents must ensure that proper shipping documents accompany all movements of dangerous goods. Proponents must register with the Government of Nunavut,

Department of Environment Manager of Pollution Control and Air Quality at 867-975-7748.

9. The *Aeronautics Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-2/>).

Other Applicable Guidelines

10. The Fisheries and Oceans Canada (DFO) *Guidelines for the use of Explosives in or near Canadian Fisheries Waters* (<http://publications.gc.ca/site/eng/82558/publication.html>) must be followed and blasting shall not be conducted if wildlife is within sight or hearing distance of the project area.

4. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
January 7, 2016	Receipt of project proposal from the NPC
January 8, 2016	Scoping pursuant to subsection 86(1) of the NuPPAA
January 11, 2016	Information request(s)
January 20, 2016	Proponent responded to information request(s)
January 25, 2016	Public engagement and comment request
February 17, 2016	Receipt of public comments
March 18 & 21, 2016	Proponent responded to comments/concerns raised by public
February 29, 2016	Ministerial extension requested

5. Public Comments and Concerns

From January 25, 2016 to February 17, 2016 the NIRB provided opportunity for the public to provide comments and concerns regarding the project proposal. The following is a summary of the comments and concerns received:

Kivalliq Inuit Association (KIA)

- Noted concerns with the lack of community consultation and lack of incorporation of Inuit Qaujimajatuqangit (IQ) into the project proposal. Recommended that the Proponent conduct community consultation sessions with potentially affected parties;
- Noted the potential for negative impacts to caribou, fish, and other wildlife resulting from the temporal and spatial overlap of project activities with sensitive wildlife areas (e.g., migration routes);
- Noted the potential for negative impacts to traditional land use and harvesting activities resulting from project impacts in the Josephine Lake area;
- Noted concern regarding the lack of environmental remediation of past exploration projects in the area; and
- Recommended that the project not be permitted to proceed at this time.

Government of Nunavut (GN)

- Noted the high potential for the presence of unrecorded archaeological sites within the Josephine River area and the potential for negative impacts on these sites resulting from project ground disturbances;
- Recommended that the Proponent conduct an archaeological overview assessment within the general spatial area of the proposed project, in addition to site-specific surveys in areas of ground disturbance, through a Nunavut Archaeology Permit;
- Recommended that the Proponent develop a wildlife mitigation and monitoring plan for caribou that includes a detailed description of all activities to be undertaken, the identification of impacts that could result from these activities on caribou, and specific measures to mitigate the identified impacts;
- Recommended specific mitigation measures be considered related to aerial disturbances and wildlife areas including caribou, bird, raptor, bear, and furbearer habitats; and
- Requested that an annual wildlife monitoring report be submitted to the GN.

Indigenous and Northern Affairs Canada (INAC)

- Noted its inability to comment on whether the proposed project would arouse significant public concern due to the lack of community consultation conducted by the Proponent. Recommended that the Proponent consult with potentially affected communities prior to the commencement of the proposed project to address general concerns and concerns specific to the location and safety of the proposed winter trail;
- Noted its disagreement with the Proponent's determination that no impacts to wildlife or the environment could result from helicopter transport and support activities; however, noted that impacts from these activities could be limited, reduced, or avoided through stringent mitigation measures; and
- Recommended that the Proponent flag all sample pit boundaries post-remediation should they pose safety hazards after contouring.

Fisheries and Oceans Canada (DFO)

- No concerns regarding the project proposal at this time; and
- Recommended that the Proponent consult the DFO's online guidance documents prior to conducting activities near water.

Natural Resources Canada (NRCAN)

- No concerns regarding the project proposal at this time; and
- Noted that the Proponent may require a license under the *Explosives Act* to store explosives for use in exploration blasting activities.

Transport Canada (TC)

- No concerns regarding the project proposal at this time; and
- Noted that the Proponent should adhere to TC's *Transportation of Dangerous Goods Guidelines* for the transportation and storage of fuel at all times.

Aqigiq Hunters and Trappers Organization (Aqigiq HTO)

- Indicated that the Aqigiq HTO has proposed to the Nunavut Planning Commission (NPC) that the Josephine River and Lake area be designated as protected areas to mitigate

potential impacts from mining, exploration, and associated activities on valued wildlife habitats, traditional activities, and heritage resources;

- Noted that the proposed project has the potential to greatly impact wildlife habitats including caribou migration routes, bird nesting grounds, and fish habitats;
- Indicated that the Josephine River and Lake areas contribute significantly to the historical and cultural identity of the Chesterfield Inlet community, and noted concerns regarding potential negative impacts to traditional land use and harvesting activities in the area resulting from the proposed project;
- Noted concerns regarding the lack of community consultation and recommended that the Proponent conduct public consultation sessions;
- Noted concerns regarding the lack of environmental remediation of past exploration projects in the area;
- Noted general concerns regarding the potential for negative impacts to water, soil, and air quality resulting from the proposed project; and
- Indicated that it does not support the proposed project.

Chesterfield Inlet Community Liaison Officer (CLO)

- Noted concerns with the lack of community consultation sessions and limited transparency with community organizations;
- Noted concerns regarding the lack of environmental remediation of past exploration projects in the area and the resulting contamination of soils and water;
- Noted general concerns regarding potential negative impacts to terrestrial, marine, and freshwater wildlife habitats; and
- Indicated that it did not support the project proposal until the environmental impacts of past exploration projects are addressed.

6. Comments and Concerns with respect to Inuit Qaujimaningit

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

Kivalliq Inuit Association (KIA)

- Noted that the proposed activities are located in an area that would overlap spatially and temporally with caribou and fish migration, and potential resulting impacts to wildlife would affect traditional land use activities in the area;
- Noted that existing traditional land use areas have been contaminated by past projects that have not been remediated properly; and
- Indicated that community consultations should be conducted to address community concerns and to incorporate Inuit Qaujimajatuqangit into the Proponent's considerations.

Government of Nunavut (GN)

- Noted that a section of the proposed project in the Josephine River area is located along a natural transitory corridor and that likely-occurring undiscovered archaeological sites could be negatively impacted.

Aqigiq Hunters and Trappers Organization (Aqigiq HTO)

- Indicated that the proposed project is located in an area of high cultural and ecological importance;
- Noted concerns regarding potential impacts to wildlife and the overall environmental integrity of the area which could impact traditional land use activities and harvesting;
 - Noted that the Josephine River and Lake areas are essential for the community of Chesterfield Inlet to harvest country food and to participate in traditional land use activities that are an integral part of local traditional culture and identity;
 - Indicated that Kakivak fishing, commonly practiced and taught in the area, is a source of cultural pride for youth and an important part of traditional culture passed down between generations;
 - Noted that the harvesting of caribou from the Qamanirjuaq herd during the July and August migration is a valued traditional activity;
 - Indicated that cultural pride generated from traditional activities is essential for community building and is a means of dealing with impacts from residential schooling and assimilation and that impacts to traditional activities must recognize the potential for effects on these community building aspects of cultural pride.
- Noted that the abandonment and lingering contamination of past projects in the area have tarnished the community's opinion of mineral exploration;
- Highlighted that the proposal submitted to the NPC to designate the Josephine River and Lake areas as protected areas represents the community's vision for the region's future.

7. Proponent's Response to Public Comments and Concerns

The following is a summary of the Proponent's response to concerns as received on March 18, and March 21, 2016:

- Apologized that consultation sessions were not conducted during the development of the project proposal and noted that meetings with the Hamlet of Chesterfield Inlet, the Community Land and Resource Committee (CLARC), the KIA, and the Aqigiq HTO will be arranged for the week of April 12, 2016;
- Provided a draft Wildlife and Environmental Mitigation Plan (WEMP) and noted its intention to develop the WEMP in consultation with concerned parties;
- Acknowledged comments received from INAC regarding proposed activities. The Proponent noted that sample pit boundaries would be flagged and indicated that it would discuss helicopter operational guidelines with the Hamlet of Chesterfield Inlet and with the Aqigiq HTO. The Proponent further noted that helicopter operational guidelines would be included in its WEMP if guidelines could be agreed upon during consultation;
- Acknowledged the DFO's recommendation and committed to following the DFO's guidelines when conducting operations near water;
- Acknowledged the GN's recommendation that an archaeological assessment be conducted and noted that it would undertake a literature review to determine if any previous exploration projects have conducted archaeological studies in the area. The Proponent indicated that drill sites would only be selected following preliminary till sampling, and further indicated that once the drill locations were selected, it would

consult with the GN – Department of Culture and Heritage to confirm whether an archaeological overview would be required;

- Acknowledged NRCAN's comments regarding the potential need for an explosives storage permit;
- Noted that wildlife harassment by employees or contractors would not be tolerated and that it would employ a strict no drug or alcohol policy.

8. Proponent's Commitments

The Proponent committed to the following within the various documents that comprise this project proposal:

- Complying with the Code of Good Conduct for Land Users and DIAND Caribou Protection Measures (Keewatin Regional Land Use Plan);
- Adhering to the Spill Prevention and Response Plan (January 7, 2016) which includes storage measures, spill response measures, equipment requirements, and overall handling procedures for the management of fuel and chemicals;
- Conducting progressive, seasonal, and final abandonment and restoration operations as detailed within the Abandonment and Restoration Plan (January 7, 2016) for all proposed project activities;
- Undertaking restoration activities should ground surface damage occur as a result of cat train operations as detailed in the Overland Winter Access Trail Permit Application;
- Utilizing rivers and lakes, as best as possible, for the winter trail avoid disturbing frozen ground;
- Conducting community consultation sessions in Rankin Inlet and Chesterfield Inlet to address community concerns and to incorporate Traditional Knowledge into the project;
- Adhering to the Environment and Wildlife Management Plan (January 7, 2016) which includes mitigation, monitoring, and reporting measures for the protection of the environment, archaeological sites, and wildlife during proposed project activities;
- Properly storing and disposing all sewage, non-combustible, and hazardous wastes at appropriate facilities in Rankin Inlet; and
- Purchasing local goods and services whenever possible (2015 Community Consultation and Service Providers).

The Proponent made the following additional commitments in its response to comments submitted to the NIRB on March 18 and March 21, 2016:

- Conducting community consultations with the Hamlet of Chesterfield Inlet, the CLARC, the KIA, the Aqigiq HTO, and in Rankin Inlet to address issues and concerns related to the proposed project;
- Incorporating community input and Traditional Knowledge from consultation sessions into the project and the WEMP (submitted in draft form as part of its response to comments);
- Flagging test pit boundaries as necessary following re-contouring operations in response to comments received from INAC;
- Adhering to DFO's guidance documents when conducting operations near water;

- Undertaking a literature review to determine whether past archaeological studies have been conducted in the project area. The Proponent further committed to consult with the GN – Department of Culture and Heritage to determine whether an archaeological assessment of the proposed project area would be required when drill locations are confirmed;
- Enforcing strict policies against wildlife harassment, drug use, and alcohol use for all employees and contractors.

FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS

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

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

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

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

The proposed exploration project would occur within a geographic area of approximately 26 square kilometres (km²) and during the winter months would include a winter trail connecting the project to the community of Rankin Inlet. The proposed project would not establish an exploration camp due to its proximity to Rankin Inlet, but would include helicopter-assisted transportation and use of snow machines and a cat-train. In addition to these areas, the geographic area likely affected by impacts would also include zones of influence around project activities and components. The proposed activities would take place within habitats for many local and far-ranging wildlife species, including the winter and summer core ranges of the Lorillard and Qamanirjuaq caribou herds, bird nesting grounds, and fish habitats.

2. *The ecosystemic sensitivity of that area.*

The proposed project would occur in an area with no formal designation for wildlife protection; however, the Aqigiq HTO and the KIA (including the Community and Lands Resources Committee) noted that important wildlife habitats occur within the spatial and temporal boundaries of the proposed project. Important wildlife habitats identified within, or adjacent to, the proposed project area include:

- Caribou habitats (summer and winter core ranges);
- Fish and fish habitats (including Arctic Char);
- Bird nesting grounds; and
- General wildlife habitats.

The proposed project would also occur in an area identified by the Aqigiq HTO, the KIA, and the Chesterfield Inlet CLO as being contaminated by a past exploration project (Shear Diamond's "Churchill Diamond Project", NIRB File No. 07EN023) that has not been remediated properly and continues to contaminate the surroundings, impacting the overall ecosystemic integrity of the area.

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

The Proponent indicated that there are no known sites of archaeological significance associated with the project area; however, the Proponent acknowledged the cultural significance of the Josephine Lake and River areas for fish habitats and community land use activities.

During the commenting period, the GN noted that a portion of the proposed project would overlap spatially with a natural transitory corridor within the Josephine River area. Although no archaeological sites have been recorded within the proposed boundaries of the project, an archaeological survey of this area has yet to be conducted and the potential for the presence of archaeological sites is high. The KIA and the Aqigiq HTO identified the Josephine River and Lake areas as being vital to the cultural identity of nearby communities for traditional land use and harvesting activities. Traditional harvesting practices passed down between generations, such as Kakivak fishing and caribou harvesting, are taught and practiced in the area and contribute significantly to the cultural identity of the region.

This area has been identified by the KIA and the Aqigiq HTO, (including the CLARC) as having value and priority to local communities for:

- i. Caribou;
- ii. Fish and fish habitat;
- iii. General wildlife; and
- iv. Traditional hunting and fishing.

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

The proposed project would occur approximately 54 km northeast of Rankin Inlet and 35 km southwest of Chesterfield Inlet, the nearest communities. Caribou habitats, fish habitats, and bird nesting grounds identified within, and adjacent to, the project area may be impacted by exploration activities. Additionally, intermittent helicopter, snow machine, and cat-train transportation originating from Rankin Inlet could contribute to increased human and wildlife noise disturbances in the area. Impacts to the valued ecosystemic components noted above have been identified for their potential to also affect traditional land use activities, Inuit harvesting, and the cultural identity of the region.

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 proposed “Kahuna Diamond Project – 2016” is a diamond exploration project, the nature of potential impacts is considered to be well known. The probability for the impacts to occur is considered to be high, while the frequency of impacts is considered to be intermittent and limited to operational periods. With due care, impacts to the biophysical environment could be reversible and mitigable.

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.*

As illustrated in the attached project location report, two (2) past and three (3) current mineral development or exploration projects are located within a 100-kilometre radius of the proposed “Kahuna Diamond Project – 2016”. Although the past projects identified (Shear Diamond’s “Churchill Diamond Project”, NIRB File No.07EN023 and Canada Nickel Corporation’s “Peter Lake” project, NIRB File No. 11EN016) are not currently operational, the proposed project could contribute cumulatively to ongoing soil and water contamination experienced in the area as a result of the incomplete remediation of Shear Diamond’s past exploration camp.

Of the three (3) current projects identified in the area, two (2) projects (North Arrow Minerals Inc.’s “Luxe Exploration” project, NIRB File No. 15EN052 and Agnico Eagle Mines Ltd.’s “Peter, Fox and Parker Lakes” project, NIRB File No. 15EN049) are currently undertaking multi-year exploration activities and one (1) project (Agnico Eagle Mines Ltd.’s “Meliadine Gold Mine Project”, NIRB File No. 11MN034) is currently awaiting licensing to conduct mining operations as approved under NIRB Project Certificate No. 006. The potential for cumulative impacts to caribou habitats, fish habitats, general wildlife, traditional land use activities, Inuit harvesting, and overall environmental integrity resulting from exploration activities (noise and presence of people and equipment), and the transportation of equipment, fuel, and personnel to the proposed project area has been identified and considered in the development of the NIRB’s recommendations.

Further, it has also been identified that this project proposal could induce additional exploration activities in the area.

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

The proposed project would occur in an area that has been proposed to the Nunavut Planning Commission (NPC) to be designated as a protected area for its environmental sensitivity and cultural significance under the NPC’s *Draft Nunavut Land Use Plan*. The Aqigiq HTO has recommended that a 10 km buffer be drawn around Josephine River and Lake to designate the area as a “no development” zone for all mining and exploration activities. Given that the Proponent would be conducting diamond exploration activities in these areas, the proposed project has been identified as conflicting with the local community’s vision for the future of

the Josephine River and Lake areas and potentially deterring from the environmental and cultural protection measures that are being recommended for the region.

VIEWS OF THE BOARD

In considering the factors as set out above in the screening of this 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.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential negative impacts to caribou and caribou habitats (Qamanirjuaq and Lorillard herds) from diamond exploration activities and transportation of personnel and equipment to project sites by helicopter, snow machine, and cat-train.

Board Views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impacts is applicable to a 26 km² exploration area, helicopter flights paths, a winter trail, in addition to zones of influence surrounding areas of project activities and components. The proposed timing of the potential impacts is considered to be intermittent, but consistent during periods of operation, based on the proposal of both winter and summer operations. The Aqigiq HTO and the KIA (including the CLARC) identified that Qamanirjuaq herd caribou occur within this area during July and August migration, as confirmed by GN caribou data, which also identifies that this area is within the summer and winter core ranges of the Qamanirjuaq and Lorillard caribou herds. Further, annual project reports from as recently as 2011 (Shear Diamond's "Churchill Diamond Project", NIRB File No.07EN023) identified the presence of caribou in the area during monitoring activities. The harvesting of caribou was identified as a valued traditional land use activity and impacts to caribou and caribou habitats could in turn impact the cultural identity of the area.

In addition, as previously discussed, the proposed activities may have the potential to contribute cumulatively to impacts on caribou and caribou habitats with other projects that have taken place and are taking place, and the project could induce additional exploration activities in the region.

The Proponent submitted an Environment and Wildlife Management Plan (January 7, 2016) that acknowledged the presence of the Qamanirjuaq herd in the project area and the potential for wildlife attraction, habitat disturbances, and unintentional disturbances from the proposed project. Within this original plan, caribou mitigation measures were detailed including work-stop measures, minimum flight altitude and drilling boundary measures, and wildlife monitoring measures. In its response to comments received, the Proponent submitted a revised draft WEMP (March 18, 2016) and noted its intention to further develop the WEMP during its upcoming community consultation sessions to address outstanding community concerns related to caribou and other wildlife. Additionally, the Proponent has committed to adhering to the Keewatin Regional Land Use Plan caribou protection measures.

Noted Traditional Knowledge or Inuit Qaujimaningit: The Aqigiq HTO and the KIA indicated that caribou are known to migrate through this area in July and August and further noted the cultural and historical importance of hunting and traditional land use activities.

Board Recommendation: It is recommended that the Proponent further develop its WEMP in consultation with local communities to address outstanding concerns that currently remain unaddressed in the existing proposal regarding the Project's potential impacts to caribou and caribou habitats in the proposed project area.

Issue 2: Potential negative impacts to fish, birds, denning animals, and their respective habitats, from diamond exploration activities and transportation of personnel and equipment to project sites by helicopter, snow machine, and cat-train.

Board Views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impacts is applicable to a 26 km² exploration area, helicopter flights paths, a winter trail, in addition to zones of influence surrounding areas of project activities and components. The timing of the potential impacts is considered to be intermittent, but consistent during periods of operation, based on the proposal of both winter and summer operations. The Aqigiq HTO and the KIA identified this area as a migration route and habitat for Arctic Char, and a habitat for other fish species such as Lake Trout, Whitefish, and Ling. In addition, the area was also noted to contain nesting grounds for migratory birds and raptors. Residual impacts, and cumulative impacts, from the proposed project on fish, birds, and denning animals, and their respective habitats, could in-turn impact traditional land use activities, Inuit harvesting, and the overall environmental integrity of the area.

The Proponent submitted an Environment and Wildlife Management Plan (January 7, 2016) that acknowledged the potential for wildlife attraction, habitat disturbance, and unintentional disturbance from the proposed project. Within this original plan, drilling operation measures, wildlife habitat avoidance and deterrence measures, as well as minimum flight altitude and drilling boundary measures were provided to mitigate potential project impacts on wildlife. In its response to comments received, the Proponent submitted a revised draft WEMP (March 18, 2016) and noted its intention to further develop the WEMP during its upcoming community consultation sessions to address outstanding community concerns related to wildlife.

Noted Traditional Knowledge or Inuit Qaujimaningit: Community concerns noted that Arctic Char and other fish habitat occurs within the project area and contribute significantly to the cultural identity of the region. Further, bird nesting grounds were also noted to exist with the proposed project area.

Board Recommendation: It is recommended that the Proponent further develop its WEMP in consultation with local communities to address outstanding concerns that remain unaddressed in the project proposal before the NIRB regarding the Project's potential impacts on fish, birds, denning animals, and their respective habitats in the proposed

project area and also provides a discussion of specific mitigation measures that may be required to mitigate such impacts.

Issue 3: Potential negative impacts to soil, surface, and ground water quality from transportation activities, exploration activities, and the storage and use of fuel and chemicals.

Board Views: The potential for impacts is applicable to the spatial boundaries of proposed exploration area (26 km²), transportation routes, and storage areas. The probability of impacts occurring is considered to be low, with potential adverse effects anticipated to be low in magnitude, infrequent in occurrence, and reversible with due care. However, should impacts occur, the potential for impacts to contribute cumulatively to possible existing soil and water contamination in the area is considered to be high. As previously discussed, the project would occur in an area currently identified as contaminated by Shear Diamond's former exploration camp which has not been remediated properly and the former camp continues to pose risk to the surroundings, potentially impacting the overall ecosystemic integrity of the area.

Being unable to ascertain the degree of potential contamination to the surrounding area, the Board has concerns for any adverse impacts arising from this project proposal contributing cumulatively with adverse impacts to the surrounding area from the former Shear Diamonds exploration camp. Additional engagement with community members and site investigation might be necessary to identify sources and degree of existing contamination in the vicinity of the proposed project.

The Proponent provided a Spill Contingency Plan (January 7, 2016), an Abandonment and Restoration Plan (January 7, 2016), and its KIA Overland Winter Access Trail Application (January 5, 2016) which includes details regarding mitigation and measures to be taken for the development of the proposed winter trail. Within the respective plans, the Proponent provided mitigation and management measures for the protection of the local area including: progressive, seasonal, and final abandonment and restoration measures, exploration operational measures, fuel and chemical storage procedures, spill response measures, spill equipment requirements, and overall handling procedures for the management of fuel and chemicals (see Proponent Commitments).

The Proponent will require a water license from the Nunavut Water Board (see Regulatory Requirements).

Noted Traditional Knowledge or Inuit Qaujimaningit: Community concerns regarding the potential for impacts to soil and water quality were noted during the commenting period, in addition to the potential for impacts to contribute cumulatively to existing sources of contamination in the area from Shear Diamond's abandoned exploration camp.

Board Recommendation: It is recommended that the Proponent supplement its existing management and mitigation plans with input generated from site investigations and

community consultation sessions to address concerns related to water and soil quality, as well as the proposed location of the winter trail.

Socio-economic effects on northerners:

Issue 4: Potential negative impacts to historical, cultural, and archaeological sites in the project area.

Board Views: The Proponent is proposing to work in an area of known historical and cultural significance as identified by the Aqigiq HTO, the KIA, and the GN. The Josephine River area has been identified as a transitory corridor, and the potential for the presence of undocumented archaeological sites is high.

The Proponent provided an Environment and Wildlife Management Plan (January 7, 2016) which contains measures to stop all work in areas containing known archaeological sites, procedures for recording sites encountered during project activities, and reporting commitments to the GN, INAC, and the KIA. The Proponent acknowledged in its KIA Overland Winter Access Trail Application (January 5, 2016) that unknown archaeological, cultural or historic sites may occur along the proposed route, and noted that if a site was encountered, the trail would be re-routed and the site would be documented and reported (see Proponent Commitments). In its response to comments received, the Proponent further committed to undertaking a literature review to determine whether past archaeological studies have been conducted in the project area and to consult with the GN – Department of Culture and Heritage to determine whether an archaeological assessment of the project area would be required when drill locations are confirmed.

Noted Traditional Knowledge or Inuit Qaujimaningit: Community concerns identified the historical and cultural significance of the Josephine River and Lake areas and highlighted the community’s vision for the areas to be protected under the NPC’s Draft Nunavut Land Use Plan as “no development” zones for mineral exploration.

Board Recommendation: It is recommended that the Proponent conduct community consultation sessions to address outstanding issues that remain unaddressed in the current project proposal related to potential impacts to areas identified as being historically and/or culturally significant. It is further recommended that the Proponent conduct an approved archaeological survey through a Nunavut Archaeology Permit in consultation with the GN – Department of Culture and Heritage and interested parties prior to any ground disturbance in areas proposed for testing, trenching, drilling, sampling, storage, transportation or vehicle movements and any laydown areas associated with the proposed activities. Findings from the archaeological surveys should be used for project planning purposes, including locating a suitable transportation corridor and to supplement existing management and mitigation plans. The Board recognizes that the proposed exploration activities may not be reconcilable with the cultural significance of the project area, and therefore support from the local communities and regional Inuit organization should be clearly demonstrated in a modified project proposal.

Issue 5: Potential negative impacts to hunting areas and traditional land use areas from noise and disturbance generated by bulk sampling activities, blasting, and transport of personnel and equipment.

Board Views: The areas identified for exploration and transportation operations are known for hunting and traditional land use activities. The Josephine River and Lake areas have been identified as areas of significant cultural importance for traditional land use activities, Inuit harvesting, and community building; impacts to wildlife and the ecosystemic integrity of these areas would in turn affect the social and cultural activities practiced in the region.

As previously noted, the Proponent provided an Environment and Wildlife Management Plan (January 7, 2016), a Spill Contingency Plan (January 7, 2016), an Abandonment and Restoration Plan (January 7, 2016), and its KIA Overland Winter Access Trail Application (January 5, 2016) which detail measures to be taken for the protection of wildlife, soil, and water within the area.

Noted Traditional Knowledge or Inuit Qaujimaningit: Community concerns identified the potential for negative impacts to hunting and traditional land use activities from the proposed project operations.

Board Recommendation: It is recommended that the Proponent conduct community consultation sessions to address issues related to the project's potential impacts on hunting areas and areas of traditional land use and for impacts that are identified, that community consultations include a discussion of any mitigation measures that may be effective and would be considered acceptable to members of the community. Findings from the consultations sessions should be used to amend existing management plans in consultation with the Aqigiq HTO.

Issue 6: Potential positive impacts as the Proponent has committed to hiring local community members, as well as sourcing accommodations for project personnel and goods, within the community of Rankin Inlet.

Board Views: It is noted that the Proponent would continue to hire local community members and purchase goods from local businesses to support project operations which would continue to benefit the local community overall. The Proponent submitted its 2015 Community Consultation and Service Provider (January 7, 2016) summary report document detailing Inuit owned service and supply companies previously accessed for goods and services.

While the NIRB acknowledges the limited positive impacts the project may have on the local economies of Rankin Inlet and/or Chesterfield Inlet, the NIRB does not consider the project as currently proposed to be in the regional or national interest.

Board Recommendation: It is recommended that the Proponent continue to include the potential sourcing of goods and services from local businesses in subsequent applications.

Significant public concern:

Issue 7: Significant public concern was expressed during the public commenting period for this file.

Board Views: As previously noted, significant public concern was expressed during the public commenting period for this file from the Aqigiq HTO, the Chesterfield Inlet CLO, and the KIA (including the CLARC) (see Public Comments and Concerns).

Public concerns identified through the commenting period, which took place from January 25 to February 15, 2016, related to:

- The lack of community consultation and further lack of incorporation of Inuit Qaujimagatuqangit into the project proposal;
- The proposed project's spatial and temporal overlap with sensitive wildlife habitats including caribou, bird, and freshwater species and the potential overall impacts to wildlife caused by exploration operations;
- The potential impacts to the Josephine River and Lake areas, their traditional land use sites, and suspected archaeological sites;
- The potential impacts to traditional land use activities and Inuit harvesting;
- The lack of environmental remediation of past exploration projects in the area; and
- The potential overall impacts to air quality, water quality, soil quality, wildlife, and heritage resources which resulted in a noted lack of support for the project proposal from the Aqigiq HTO, the KIA, and the Chesterfield Inlet CLO.

Board Recommendation: It has been identified that Proponent's response to comments (submitted March 18 and March 21, 2016) did not sufficiently address the concerns raised during the public commenting period and it is therefore recommended that community consultation sessions take place to address outstanding community concerns related to the project proposal.

Technological innovations for which the effects are unknown:

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

As illustrated above, the NIRB is of the opinion that the potential for negative impacts to the identified ecosystemic and socio-economic components qualifies the determination that the proposed project be modified or abandoned. Should the Proponent choose to modify the proposed project, the above recommendations should be carefully considered prior to subsequent resubmission of a modified project proposal.

NIRB DETERMINATION

After completing a review of all the information received and taking into account the information the Proponent and parties have supplied for the Board's consideration, it is the determination of the NIRB that **the project proposal should be modified or abandoned** in accordance with **paragraph 91** of the NuPPAA.

In making this recommendation, the NIRB was guided by the objectives and considerations as required under Article 12, Part 4 and pursuant to section 91 of the NuPPAA and drew the following conclusions:

1. The project will cause significant public concern, and
2. The project has the potential to result in unacceptable adverse ecosystemic and socio-economic impacts.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to Dunnedin Ventures Inc.'s "Kahuna Diamond Project – 2016" proposal. The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated April 4, 2016 at Arviat, NU.



Elizabeth Copland, Chairperson

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

Appendix A: Species at Risk in Nunavut

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

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

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

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

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

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

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

Updated: June 2015

Species at Risk ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Eskimo Curlew	Endangered	Schedule 1	Environment and Climate Change Canada (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	Government of Nunavut (GN)
Peregrine Falcon	Special Concern (<i>anatum-tundrius</i> complex ³)	Schedule 1 - Threatened (<i>anatum</i>) Schedule 3 – Special Concern (<i>tundrius</i>)	GN
Short-eared Owl	Special Concern	Schedule 3	GN
Red Knot (<i>rufa</i> subspecies)	Endangered	Schedule 1	ECCC
Red Knot (<i>islandica</i> subspecies)	Special Concern	Schedule 1	ECCC
Horned Grebe (Western population)	Special Concern	Pending	ECCC
Red-necked Phalarope	Special concern	Pending	ECCC
Buff-breasted Sandpiper	Special concern	Pending	ECCC
Felt-leaf Willow	Special Concern	Schedule 1	GN
Porsild's Bryum	Threatened	Schedule 1	GN
Peary Caribou	Endangered	Schedule 1	GN
Barren-ground Caribou (Dolphin and Union population)	Special Concern	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	GN/Fisheries and Oceans Canada (DFO)
Grizzly Bear	Special Concern	Pending	GN
Wolverine	Special Concern	Pending	GN
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Atlantic Walrus	Special Concern	Pending	DFO
Beluga Whale (Cumberland Sound population)	Threatened	Schedule 2	DFO
Beluga Whale (Eastern Hudson Bay population)	Endangered	Pending	DFO
Beluga Whale (Western Hudson Bay population)	Special Concern	Pending	DFO
Beluga Whale (Eastern High Arctic – Baffin Bay population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Canada – West Greenland population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Arctic population)		Schedule 2	DFO

Species at Risk ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Narwhal	Special Concern	Pending	DFO

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

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

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

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



INTRODUCTION

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

TERMS AND CONDITIONS

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

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

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

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

¹P.C. 2001-1111 14 June, 2001

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

Legal Framework

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

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

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

Palaeontology and Archaeology

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

² s. 51(1)

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

Definitions

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

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

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

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

“fossil” includes:

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

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

³ P.C. 2001-1111 14 June, 2001

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

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

Introduction

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

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

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

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

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

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.