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CIDMS # 897303

March 13, 2015

Solomon Amuno
Technical Advisor
Nunavut Impact Review Board
PO Box 1360
Cambridge Bay, NU, X0B 0C0
Via electronic mail to: info@nirb.ca

Re: Notice of Part 4 Screening for City of Iqaluit's "Northwest Granular Deposit Road and Quarry Development" Project;

Dear Mr. Solomon Amuno,

On February 26, 2015, the Nunavut Impact Review Board (NIRB) invited parties to comment on the potential exemption under Section 12.4.3 of the *Nunavut Land Claims Agreement* (NLCA) for the City of Iqaluit's "Northwest Granular Deposit Road and Quarry Development" project submitted by the Government of Nunavut – Community and Government Services' (GN-CGS). Aboriginal Affairs and Northern Development Canada (AANDC) appreciates the opportunity to provide comments and offers the responses below as it pertains to the NIRB's request:

Whether the project proposal is likely to arouse significant public concern; and if so, why:

The proponent stated that the majority of the proposed 5km all-weather road "will generally follow the alignment of an existing and well-used ATV trail". AANDC is of the opinion that the alignment of the proposed all-weather road with the ATV trail could potentially generate public concern.

Whether the project proposal is likely to cause significant adverse eco-systemic and socio-economic effects; and if so, why:

AANDC believes that with appropriate management and mitigation, the proposed activities are not likely to lead to significant environmental or socio-economic impacts. However, after reviewing the project proposal and provided plans, some information gaps (described below) have been noted which should be addressed prior to undertaking the proposed activities.

The proponent states in their application that there will be no waste generated from this project and therefore a waste management plan wasn't required. AANDC recommends requesting clarification on whether there will be sewage produced when workers are working on the road, which is outside of town and away from any facilities for the workers. If the workers are unable to leave the work site at anytime throughout the day, it may be beneficial to place a porta-pottie on site.

The proponent included a Spill Response and Erosion and Sediment Control Plan with their application, but this did not include any dust suppression procedures. AANDC suggests that the proponent should



amend their plan to include dust suppression or create a stand-alone document to ensure that they're prepared to manage this potential impact.

AANDC noticed that it was not stated whether the road to Trail Area Deposit will remain open to the public, and whether the public will have access to and past the proposed Northwest Aggregate Deposit Access Road during and post construction.

In the proponents Nunavut Water Board (NWB) Non-Technical Summary they stated:

“Culverts will be installed at these two stream locations to allow unrestricted stream flow. In addition, culverts will also be installed at a number of other locations along the roadway to promote drainage during freshet and during significant precipitation events”.

AANDC recommends requesting updates from the proponent prior to installing any culverts that are in addition to the two described in this application.

Whether the project is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (please provide any recommended mitigation measures):

AANDC is confident that the potential impacts from the proposed project can be limited, reduced or avoided through stringent implementation of the accompanying NIRB project-specific terms and conditions. AANDC is recommending that the proponent become familiar with applicable portions of AANDC's Northern Land Use Guidelines – Access: Roads and Trails, while ensuring they are in compliance with any permit or licensing requirements. While the project is not located on Crown Land, this document offers some best management practices. Portions pertaining to culverts have been pulled out of the aforementioned guidelines and included in Appendix A.

AANDC views dust as a potential impact from this project, but if the proponent implements mitigation measures if/when required, it is a mitigable impact. It could be dealt with using vehicle speed restrictions, including public and recreation vehicles if permitted to use the road. Dust suppressants should only be used with the approval of the appropriate land use regulator, territorial environment department and AANDC resource management officer. Where possible, water should be used as a dust suppressant and may have to be included in the proponent's current water licence application. Proponents may be required to notify the public and property owners in the area. A water truck configured with spray bar could be considered. For more information on dust suppression techniques, review the Government of Nunavut's *Environmental Guideline for Dust Suppression*.

Any matter of importance to the Party related to the project proposal.

During AANDC's review of this Part 4 Screening, it was noted that the coordinates provided in the NIRB Part 1 Form are different than those provided in the NWB application. AANDC suggests requesting clarification on the location, including the placement of the culverts.

AANDC looks forward to working further with the NIRB and the City of Iqaluit on the review of this project. Should you have any questions, please contact Laura Harris at (867) 975-4567 or by e-mail at laura.harris@aandc-aadnc.gc.ca.

Sincerely,

[Original signed by]

James Neary
Manager, Impact Assessment



Appendix A

Culverts

Culverts are the most common stream crossing method for smaller streams. Professional engineering advice should be sought for installation of culverts to ensure that they are sized to accommodate the entire stream channel width and the highest annual flows. This will require a good understanding of local hydrology.

Culverts should be buried into the bed of the stream channel to a minimum of 20 percent of the culvert diameter at both the upstream and downstream ends. This will promote the deposit of natural stream bed materials on the bottom of the culvert to maintain fish habitat and ensure that the water depth inside the culvert will be level with the water depth in the stream. Culvert alignment should approximate the existing stream channel alignment to mimic the natural stream flow, which will prevent bank erosion and channel scour. Culverts should extend a short distance beyond the toe of road fill material to prevent blockage at the end of the culvert by eroded soil. Granular material should be placed on top of the culvert to a minimum thickness of half the diameter of the culvert to prevent damage from vehicles travelling over.

In permafrost terrain, warm air circulating through culverts during summer may lead to thawing of permafrost in the roadbed and ground instability. To prevent thawing of permafrost, insulation can be placed around culverts during installation or flexible covers can be placed on the ends of large culverts to reduce the circulation of warm air. These covers should be removed in early winter to accommodate high water levels in the spring.

In areas of ice-rich permafrost, flowing water can lead to rapid thawing and erosion of the ground so water should be channelled under a road through cross drains rather than cross ditches on the surface. Cross drains can be stacked on top of each other to maintain drainage in the event that the lower cross drain freezes.

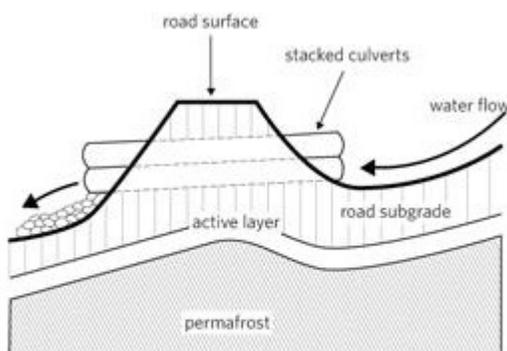


FIGURE 19. Stacked culverts can be used in permafrost terrain to ensure continuous drainage even if the bottom culvert becomes frozen. (modified from Hardy Associates (1978) Ltd., 1984)



Drainage Icings

In cold weather, drainage control structures, particularly on slopes and at stream crossings, are prone to blockage by ice. Icings can also occur in flat terrain where areas of uneven snow removal or shading cause variable freezing of the active layer, forcing groundwater to the surface where it spreads and freezes. Pressure caused by icings can damage engineered structures and the build-up of ice on roads is a safety concern. If icings are observed, attempt to keep small channels thawed to promote continuous water movement.

Cross drains are particularly prone to icing. Methods to moderate this problem include:

- using open-ditch drainage;
- insulating cross drains;
- creating a frozen area above cross drains to block the winter flow of groundwater; and,
- installing a steam-circulating or electric-wire circuit in the cross drain to prevent freezing.