



CIRNAC Comments to NIRB

Re: Notice of Screening for University of Guelph's "Arctic Water Solutions: Harnessing Native Northern Plants for Nature-Based Wastewater Treatment in Canada's Arctic" Project Proposal



Nunavut Regional Office
918 Sivumugiaq Street
Iqaluit, NU, X0A 3H0

Your file - Votre référence
26YN041

Our file - Notre référence
GCdocs# 149470338

August 20, 2026

Jordan Takkirug
Impact Assessment Officer
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU, X0B 0C0
via NIRB public registry

Re: Notice of Screening and Comment Request for University of Guelph's "Arctic Water Solutions: Harnessing Native Northern Plants for Nature-Based Wastewater Treatment in Canada's Arctic" Project Proposal

Dear Jordan Takkirug,

On August 4, 2026, the Nunavut Impact Review Board (NIRB) invited parties to comment on University of Guelph's "Arctic Water Solutions: Harnessing Native Northern Plants for Nature-Based Wastewater Treatment in Canada's Arctic" project proposal. Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) appreciates the opportunity to provide comments and offers the responses below as it pertains to the NIRB's request:

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

CIRNAC #1: Freeze-Thaw Containment Integrity and Permafrost Protection

The Project proposes to operate six 210 L outdoor biofilters and associated wastewater-transfer and collection equipment near Canadian High Arctic Research Station from 2027 to 2028. Although wastewater would not be introduced when research personnel are absent, the biofilters may be irrigated with tap water, and the application does not specify how much liquid may remain in the filter media, vessels, piping or collection containers during freezing conditions. It also does not describe winterization, freeze protection, equipment temperature ratings or secondary containment. Freezing of retained liquid could damage vessels, fittings or piping and result in a release to the ground. CIRNAC recommends that the Proponent:

- Implementing measures to prevent freezing and the release of wastewater from biofilters, piping, and collection containers during unattended periods;
- Providing adequate secondary containment to prevent wastewater from entering surrounding lands or waters;
- Inspecting the biofilters, piping, collection containers, and containment areas regularly for leaks or damage; and



- Maintaining appropriate spill-response procedures and cleanup materials at the Project site.

CIRNAC #2: Biochar Media Quality and Substrate Contaminant Management

The Project proposes operating six outdoor biofilters containing layered media composed of sand, gravel and/or biochar. Raw wastewater would be applied to the biofilters, with treated effluent collected and returned to the triplex sewage holding tank. The application does not identify the source or initial quality of the biofilter media or describe how wastewater-affected media would be contained, stored, handled and disposed of (or regenerated) during maintenance and decommissioning. Biofilter media that has contacted wastewater may retain contaminants. Improper handling, storage or disposal of this material could result in contaminants entering surrounding land, surface water or groundwater. CIRNAC recommends that the Proponent consider:

- Conducting pre-deployment laboratory characterization on all biochar media batches such as total elemental analysis for heavy metals, and PAH quantification, etc.;
- Demonstrating that biochar media parameters conform to Canadian Council of Ministers of the Environment Soil Quality Guidelines for Environmental Health prior to field delivery; and
- Utilizing impermeable catchment trays or secondary containment beneath all filter units during operation and media handling.

CIRNAC #3: Native Plant Harvesting and Active-Layer Permafrost Thermal Protection

The Project proposes collecting fewer than 20 native Arctic plants from the Cambridge Bay area for transplantation into the biofilters. The application indicates that collection would occur under an appropriate permit but does not describe how collection sites would be selected or restored. Given the slow growth rates of tundra vegetation (radial stem increments frequently under 0.5 mm/year), additional information regarding non-destructive collection or site restoration practices would help demonstrate how ground stability and permafrost integrity will be preserved. CIRNAC recommends that the Proponent consider:

- Using existing access routes and minimizing disturbance to surrounding vegetation;
- Backfilling and restoring collection areas to a stable condition immediately following plant removal;
- Replacing salvaged surface material and vegetation over disturbed areas, where practical, to promote revegetation and protect the ground surface; and
- Inspecting collection areas following restoration and addressing any erosion, settlement, or other instability resulting from Project activities.

CIRNAC #4: Consultation with Interested Parties

CIRNAC recommends that the Proponent continue engaging with the Hamlet of Cambridge Bay, the Ekaluktutiak Hunters & Trappers Organization, and any other relevant organizations and individuals regarding its project proposal. As part of these consultation activities, several issues should be considered, including but not limited to



- Incorporation of Inuit Qauijimajatuqangit and community knowledge in project activities;
- Mitigation measures to prevent any disturbance to wildlife and the environment;
- Mitigation measures to prevent disturbance to sites of cultural, archaeological, and/or environmental significance;
- The experience of community members who may participate in traditional harvesting activities within or in close proximity to the project area;
- Training and employment opportunities for Inuit and community members;
- Procurement opportunities for local and Inuit-owned businesses; and
- Regular updates on the status of project activities.

CIRNAC appreciates the opportunity to provide comments. Should you have any questions, please contact Muhammad Arslan by e-mail at muhammad.arslan@rcaanc-cirnac.gc.ca or David Abernethy by email at david.abernethy@rcaanc-cirnac.gc.ca.

Sincerely,



Saba Qazi
A/Manager, Impact Assessment

