Cape Krusenstern Remediation Project

Erosion, Sediment, and Drainage Control Plan

Public Services and Procurement Canada
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SILA REMEDIATION

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1 Introduction

Erosion is a process whereby material (soil or rock) is transported from one location to another by natural means such as wind, water flow or ice. Human activities can greatly increase the natural rate of erosion with the potential to cause damage to the environment. If not properly mitigated, many of the activities that will be performed during the Cape Krusenstern Remediation Project have the potential to increase the natural erosion rate.

Erosion caused by water run-off poses the greatest risk during this project. Activities such as the excavation and screening of contaminated soil and production of granular material pose potential erosion risks. This form of erosion can increase siltation in waterways and present dangers to local fish populations such as respiratory problems and smothering of spawning beds.

The goal of this plan is to identify at-risk work activities and outline procedures that will minimize or eliminate erosion where possible.

2 Mitigation Measures

2.1 Excavation

2.1.1 Site Inspection

Prior to any excavation or grading activities in a designated sector, the Site Superintendent will inspect the area and define the mitigation measures to be undertaken to prevent water run-off and erosion.

2.1.2 Pre-Excavation

Mitigation measures may take the form of earthworks or engineered controls; prior to commencing the excavation a mitigation plan will be developed and implemented which may include any of the following measures where appropriate:

- Redirection of the surface waters from the surrounding areas by:
  - Grading the area to promote drainage away from the excavation.
  - Construction of a berm to prevent the infiltration of water into the excavation.
- The installation of engineered erosion controls such as:
  - Silt fences and curtains in adjacent waterways.
  - Installation of silt fences within the excavation if it is impossible to redirect natural water flow.
  - Installation of fish exclusion netting as needed.

Due to the coarse material found on site at the location of the excavation, erosion mitigation measures are not deemed necessary at this point. Adjustments will be made in the field if necessary.

2.1.3 During Excavation

During excavation, the following mitigation measures will be implemented as needed:

- Slope stabilization:
  - Walls of the excavation should be properly sloped and levelled with the back of the bucket to prevent loose material from falling into the excavation.
  - Water for dust suppression will be carefully used and frequent low volume applications will be preferred. If required, slopes will be covered with humidified tarps or geotextile sheets.
  - Areas of exposed erodible soil will be stabilized by “back-blading”, grading and/or compacting to meet engineered slope requirements.
  - Installation of additional engineered controls as deemed necessary.

2.1.4 Post-Excavation

Post-excavation mitigation measures may be needed if dewatering of the excavation is necessary. The following mitigation measures will be followed as needed:

- Dewatering procedures:
  - If especially silty, the water may be filtered or allowed to settle prior to discharge.
  - Pumping of water from sumps should be done in such a manner as to avoid pumping of silt accumulated on the bottom.
  - Discharge should be done on a vegetated area, on an area covered with a geotextile, or into a silt trap to prevent erosion caused by water force exiting the conduit.
  - Water should be pumped to the land and must be 30 m from natural drainage courses with no direct channeling to water bodies and 100 m from fish-bearing water bodies.
  - Excavations will be backfilled as soon as possible to prevent accumulation of water from precipitation events or run-off.

It should be noted that every effort will be made by Sila to prevent occurrences of contact water resulting from soil excavations at the Cape Krusenstern site. Based on the type of material present at the site, we do not anticipate any issues with groundwater at the depth of excavation planned for this project. However, some contact water could be unavoidable as a result of the natural water table, soil saturation, weather events or the presence of standing water within the confines of the excavation.

2.2 Screening of Contaminated Soil

An excavator will be used to screen the contaminated soil excavated from the 2 burn pit areas on site. Excavation will be carried out by one excavator who will stockpile the material to be screened within the footprint of the excavation. The second excavator will be used to put the material in the screener.

Material rejected from the screener (larger than 9.5mm) will be used as backfill for the excavation and contaminated material (smaller than 9.5mm) will be placed in bags directly at the screener.

This activity may generate dust and Sila will not undertake screening operations on high wind days. In order to limit the spreading of contaminants, screening will be carried out at a reasonable pace and speed adjusted as the screening occurs.

Mitigation measures may include the installation of a silt fence around the screening area.

Once the excavation and screening work is completed, the depth of the excavated area will be measured for payment purposes and upon approval from the PSPC Construction Representative (PCR), the excavation will be backfilled with the excavator, which will reshape the area to fit the local topography and prevent standing water.

2.3 Debris Removal from the Pond

The removal of debris from the pond will be performed manually by the hazmat specialist. Prior to the start of the work, an inspection will be carried out to confirm the presence of fish. If fish are encountered, efforts will be made to salvage fish wherever possible. Areas of concern (spawning beds or places of fish congregation) will be identified with the help of Inuit employees familiar with the area. Engineering controls may be used such as fish exclusion nets to prevent fish from entering work areas. If necessary, fish will be captured and relocated with the use of nets by experienced Inuit staff members.

2.4 Work Sequencing to Minimize Disturbance to Fish Habitat

The only in-water work that may disturb fish habitat at the site is the removal of one (1) submerged metal barrel and lid from the pond. As previously mentioned, an inspection will be done before work starts to confirm whether fish are present. Access time to the pond for removal of this debris is expected to be very short. No other in-water work is expected for this project.

3 Erosion, Sediment and Drainage Control Supplies

A list of erosion control equipment to be available on-site is detailed in the table below*:

Erosion, Sediment, and Drainage Control Supplies	
Description	**Quantity**
Silt Fencing 36” x 100’*	200 m
Spill kits, including sorbent pads and booms (200-mm diameter, 60 m or as required)	2
Pumps*	2
Hoses*	Min of 30 m
Geotextile*	50 m^2
Fish exclusion net*	1
Fish nets*	2

** These supplies will be reusable throughout the project.*

4 Monitoring

Daily inspection of the areas of concern will be conducted by the Site Superintendent. The inspection will focus on the implemented mitigation measures, their application, integrity, effectiveness, and to determine if maintenance work is required.

Should the inspection reveal improper capture of sediment, then the mitigation plan will be amended or corrective works will be performed in a timely manner. The PCR will be consulted in the process of review/approval prior to implementing any corrective measures.

Sediment pools and silt fencing will be maintained daily to ensure their effectiveness.

It should be noted that all temporary engineering controls such as silt fences will be removed once all works are completed and demobilized from the site.

5 Reporting

Specific reporting with regard to environmental protection includes spill reporting in the case of a bag failure while transporting project waste. Please refer to the Spill Contingency Plan as part of the Site-Specific Health and Safety Plan for spill reporting procedures in this regard.

No water license has been issued for this project; however, Sila will track daily water usage at the site and will include the information in the daily/weekly reporting to the PCR.