



Monitoring Plan for the Liard Ferry Landing Maintenance

Government of the Northwest Territories – Department of Infrastructure



Table of Contents

Introduction 3

Project Description 3

Regulatory Requirements 3

Roles and Responsibilities 4

Monitoring Plan 4

Monitoring Framework..... 4

Monitoring Locations 5

Water Monitoring Frequency and Parameters 5

Soil Monitoring Frequency and Parameters 6

Response Framework..... 6

References 6

Introduction

The Government of the Northwest Territories (GNWT) Department of Infrastructure (INF) is applying for a Type B Water Licence to allow for the removal of in-stream boulders, cobbles, and other sediment from the navigational path of the Liard River Ferry, located at km 457 on Highway 1 near the Village of Fort Simpson, NWT.

This Monitoring Plan (MP) has been developed by INF and will be implemented for all activities undertaken for the life of the Water Licence. The MP describes the mitigation measures used to prevent and reduce the effects on the environment from stockpiling dredged material on site. INF expects that this Monitoring Plan will be adaptive and revised as required.

Project Description

Due to the predicted low water levels for this summer, GNWT-INF will need to undertake work to remove in-stream granular material from the ferry's navigational path, to prevent the ferry from running ashore during its operations. This work is vital to maintain ferry operations. The work will consist of the following:

- Removing 4,000 cubic meters of materials from both landing sites along the shores of the Liard River, for a combined total of 8,000 cubic meters of material to be removed.
- Operation of a long reach excavator from the ferry landing pads to remove material from the Liard River.
- Placing a long reach excavator in stream on the ferry landing pads.
- Stockpiling materials from the Liard River for reuse at the ferry landing pads or transport to a quarry.

Work is proposed to occur between **August 15, 2024 and September 18, 2024** when water levels are at their lowest. This is to reduce the requirement to place equipment in the water on the ferry landing pads to reach the boulders and cobbles. Work is expected to take approximately 20 days.

Regulatory Requirements

There are multiple regulatory bodies, acts, and legislation that regulate the work being undertaken including:

- The Liard River is listed as a scheduled water under the *Canadian Navigable Waters Act*, RSC, 1985, c.N-15, and will require a Minor Works Order.
- The *Fisheries Act*, RSBC 1985, c.F-14, which prohibits the harmful alteration, disruption, or destruction of fish habitat, and prohibits the deposition of

deleterious substances in waters frequented by fish. This project will require a Request for Review from the Department of Fisheries and Oceans Canada.

- Under the *Water Regulations* this project will require a Type B Water Licence for this work.
- Northwest Territories *Waters Act* and *Mackenzie Valley Resource Management Act*.

Roles and Responsibilities

The Contractor is responsible for implementing all monitoring activities identified in this plan as well as conditions and measures identified in the Mackenzie Valley Land and Water Boards (MVLWB) issuance, Fisheries and Oceans Canada's Letter of Advice, and the Minor Works Order issued by Transport Canada. All onsite personnel are responsible for the effectiveness of this MP by maintaining compliance with the mitigations and measures set out by this MP.

Construction activities will follow the mitigations listed in this MP and any mitigations required in any approvals issued by Fisheries and Oceans Canada, the MVLWB, or any other regulatory bodies.

Monitoring Plan

The objectives of this plan are to:

- Determine the soil quality of any sediments removed from the Liard River to determine its suitability for re-use.
- Determine the water quality of any run-off water collected at the temporary stockpile location at the ferry landing site.

Monitoring Framework

Samples collected as part of monitoring efforts will be compared to the following guidelines (CCME 2023):

- Water chemistry will be compared to the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life (WQ PAL).
- Soil chemistry will be compared CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (SG PEHH) and the soil quality

standards in the GNWT Environmental Guideline for Contaminated Site Remediation (2003).

Monitoring Locations

Dredging activities will occur in two locations, the northwestern side of the Liard River, and the southeastern side. The primary area of concern is on the southeastern side of the Liard River, where there are large boulders and cobbles impacting the ferry's navigation. This area will be the primary focus of dredging activities for the 2024 season. One stockpile site will be created on each side of the river, for a total of two stockpile locations. Stockpiles will be 100m from the ordinary high-water mark at the ferry landing site. This location will be provided to the MVLWB and an inspector once determined.

If there is excess water at the stockpile locations, it will be collected and managed using sumps. As part of the Erosion and Sediment Control Plan, the contractor is required to conduct daily site walkthroughs to identify areas needing further mitigations. If the material has a higher water content than expected, the contractor will contain water using sumps. GNWT-INF expects there will be minimal water content of the removed sediment and any de-watering will be minimal.

GNWT-INF does not anticipate that sumps will be required during the 2024 work season. Sumps have been included as a potential contingency should the need arise. In the event GNWT-INF requires sumps, grab sample results will be provided to inspectors for approval prior to any overland disposal. If the water does not meet the Canadian Water Quality Guidelines for the Protection of Aquatic Life criteria, it will be treated on site or contained and trucked for disposal/treatment.

Water Monitoring Frequency and Parameters

Grab samples will be collected weekly in the sumps if water is present, and will be sent to an accredited laboratory and analyzed for:

- General parameters (pH, conductivity, salinity, anions)
- Total and dissolved solids
- Total and dissolved metals
- Polycyclic aromatic hydrocarbons

If any water is present, grab samples will be obtained once weekly.

Soil Monitoring Frequency and Parameters

Soil stockpiles will be sampled when the material is fully dewatered and prior to re-use. Samples will be sent to an accredited laboratory and be analyzed for:

- pH
- Conductivity
- Salinity
- Total metals
- Polycyclic aromatic hydrocarbons
- Moisture content
- Geotechnical characteristics

Response Framework

Soil must meet applicable standards based on reuse guideline requirements before it is considered for reuse. This includes GNWT's Guidelines for Contaminated Sites Remediation (GNWT 2003) for residential or parkland, and commercial land uses, and the CCME SG PEHH. If the soil meets these guidelines it may be re-used on site at the ferry landing. If the material is mostly cobbles/boulders it will not be sampled.

If the soil is found to be contaminated at levels not suitable for commercial re-use, in situ remediation options will be explored, including, using vegetation for phytoremediation, and routine inspection. If contaminated soil does not meet regulatory requirements, it will be transferred to an approved waste handling facility for treatment.

If any water is collected in the sumps, it will be tested and compared to the CCME WG PAL. Water quality monitoring will occur prior to any pump off activities. If exceedances are identified, additional precautions (such as additional protective berms to prevent settling pond breaks or leaks, the use of liners, or treatment options) will be considered based on the magnitude and frequency of the exceedance. If water is found to be in compliance with the CCME WG PAL it will be pumped off into forested areas with inspector approval.

References

Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Water Quality Guidelines for the Protection of Aquatic Life. Available at:

<https://ccme.ca/en/current-activities/canadian-environmental-quality-guidelines>.

Canadian Council of Ministers of the Environment (CCME). 2023. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health. Available at: <https://ccme.ca/en/current-activities/canadian-environmental-quality-guidelines>.

Government of Northwest Territories. 2003. Guidelines for Contaminated Site Remediation. Available at: <https://www.enr.gov.nt.ca/sites/enr/files/guidelines/siteremediation.pdf>.