



Waste Management Plan for NWT Highway 3&4 Operations and Maintenance Land Use Permit Version 2.0

Government of the Northwest Territories – Department of Infrastructure



Waste Management Plan Document History

Revision #	Section(s) Revised	Description of Revision	Issue Date
1	Identification of Waste Type, Management of Waste Type	Revised to address MVLWB public register comments	April 26, 2024

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Introduction

The Government of the Northwest Territories, Department of Infrastructure (INF) has received a renewal land use permit for the operations and maintenance of NWT Highway 3&4, previously issued under MV2017X0008 and now issued under MV2024E0003.

This Waste Management Plan (WMP) has been developed by INF and will be implemented for all activities undertaken for the life of the Land use permit. The purpose of this WMP is to provide a guide to all site personnel on the waste management goals, objectives and procedures to be used during permitted operations and maintenance activities.

This WMP has been developed in accordance with the Guidelines for Developing a Waste Management Plan, prepared by the Mackenzie Valley Land and Water Board (2011). INF is cognizant of the need to ensure components of the environment, including air, water, land, vegetation, wildlife and fish are not negatively affected by permitted activities. INF has developed this WMP to ensure aesthetic and land use values of the permitted alignment remain intact following expiry of the permit and, ensure INF and its Contractors will comply with all applicable acts, regulations, and conditions outlined in the applicable land use permit and water license for this project.

Project / Site Description

The operation and maintenance of the highway will consist of the following:

The continuous and ongoing operation and maintenance of the existing NWT Public Highway system within the permit corridor along the Yellowknife Highway (NWT No.3) between kilometer 124 and kilometer 338.8 (end of highway #4) and along the Ingraham Trail (NWT No.4) between kilometer 0 (intersection with the Yellowknife Highway at km 337.3) and km 69.2 (Tibbitt Lake – the end of the highway) and includes the Community Access Roads for Behchokè and Dettah and other minor roads along the Yellowknife Highway – Ingraham Trail Corridor and as listed under the Public highways Act and Commissions Land for the Government of the NWT and includes all highways, roadways and other transportation infrastructure (i.e. roadway embankment maintenance, rehabilitation and reconstruction; bridge structures maintenance and replacement; culvert maintenance and replacement; establishment and maintenance of drainage channels, winter roads construction and maintenance; etc.). All operations and maintenance activities will be undertaken following the standards for highway maintenance as outlined in the Highway Maintenance Standards Manual, normal

construction practices and in accordance with the various regulatory agencies, as applicable:

- The Permit area will be two (2) kilometer in width, one (1) kilometer on each side of the existing public highway/roadway centerline through the entire length of the permit corridor including access and minor roads as listed in the Public Highways Act;
- To access existing or future quarry areas within and outside the two (2) kilometer corridor;
- To develop new or further develop existing borrow areas to obtain granular borrow materials, common materials, blast rock (including use of explosives). rip-rap, clay, sand and gravel, from areas outside the existing 60 metre wide Public Highway corridors through applications to GNWT-ECC for Quarrying Permits;
- To carry out geotechnical investigations in the search for gravels and rock and for gathering preliminary engineering information for the design of foundations for roadways, bridges and other structures {as required};
- To place and maintain granular stockpiles at existing or approved quarry sites for the purpose of ongoing operations and maintenance of the public highway system within the permit corridor;
- To place temporary construction/work camps at existing quarries or previously developed sites within the permit corridor for the purpose of carrying out operations and maintenance of the public highway system and other roadways within the permit corridor;
- To temporarily store construction, operations and maintenance equipment at the various existing quarries or other previously developed sites within the permit corridor while carrying out these activities in the area;
- To access water sources for the ongoing operations and maintenance of the public highway system within the permit corridor:
- To have right of access to one kilometre (1 000 metres) on each side (left and right) to the public highway/roadway center line for the purpose of carrying out granular and geotechnical investigations, quarry pit development. drainage channel construction, stockpiling granular and other construction materials and placement of temporary construction/work camps;
- To construct and maintain sand and sand/salt storage facilities at strategic locations along the designated highway corridor; and,
- To construct, operate and maintain pullouts/rest areas at strategic locations along the designated highway corridor.

Identification of Waste Types

Over the course of the project, a number of types of waste may be generated by equipment and crews working within the area. The primary type of waste will include non-mineral wastes; however, some hazardous wastes could be generated.

All potential waste types are listed below with further descriptions provided:

Waste Stream	Description	Handling Method	Disposal Method
Domestic wastes (organic and non-organic)	Organic and non-organic waste including garbage, rubbish or food scraps.	Place in odour proof secure waste containers.	Combustible domestic nonhazardous waste will be incinerated. Noncombustible waste will be progressively removed from site to approved facilities.
Construction materials	Pieces of material such as metals.	Collect and store in bins at designated area on site.	Construction waste will be progressively removed from site to an approved facility
Cleared vegetation	Slashed trees and shrubs with possible grubbing.	Set aside trees with butt size larger than 12 centimetres (cm) in diameter for use by others. Follow approved methods in the Northern Land Use Guidelines: Roads and Trails (GNWT-Lands 2014b).	Cleared vegetation will most likely be disposed by way of burning, but in all cases will follow the approved methods outlined in the Northern Land Use Guidelines: Roads and Trails (GNWT-Lands 2014b).
Contaminated soils and snow	Soil or snow contaminated with either diesel, oil or other spill materials.	Pick up contaminated soils or snow and place in drum.	Soils or liquid residue will be placed in drums and removed by registered hazardous waste carrier to an approved facility.
Sewage/Greywater	All human excreta and associated products, including greywater	Transportation of sewage waste to the local municipal site and/or directed to sumps for infiltration	Sewage waste generated from camp facilities and onsite portable washrooms will be hauled to the

			City of Yellowknife and/or disposed of in sumps. Greywater will be disposed of in sumps.
Ash or incinerator residue	Incinerator	Place in odour proof secure containers	This waste stream must undergo analytical testing for leachable metals as well as dioxins and furans to confirm the absence of contaminants (Schedule I and II of the Guideline for Hazardous Waste Management details the parameters to be sampled) prior to disposal in solid waste facilities in the NWT. Ash which exceeds these thresholds must be disposed of in an approved facility
Waste oils	Used engine oils from vehicle and equipment maintenance	Store in “Lube cubes” provided by the petrochemical products supplier or dedicated waste oil tank	Removed by vacuum truck for offsite disposal/recycling at acceptable facilities.
Used filters	Used filters from vehicle and equipment maintenance (glycol, dips, water)	Store in filter containers in a temporary storage located in a designated lined facility on site.	Disposed of with approved methods at acceptable facilities.
Used hydrocarbon containers and absorbents	Containers used to store hydrocarbons and absorbent materials used for spill cleanup.	Place in steel drums in a temporary storage located in a designated lined facility on site.	Disposed of with approved methods at acceptable facilities.
Waste antifreeze	From engines possibly contaminated with heavy metals.	Place into empty containers in a temporary storage located in a designated lined facility on site.	Disposed of with approved methods at acceptable facilities.
Waste solvents	Solvents used to remove grease and oil from engine components and other machinery	Place into empty containers in a temporary storage located in a designated lined facility on site.	Disposed of with approved methods at acceptable facilities.

Explosives	Explosive materials used for blasting.	Explosive material to only be handled and maintained by licenced explosives contractor.	Licenced explosives contractor responsible for disposal.
Animal carcasses	Dead or decomposing animal parts.	No storage of animal carcasses will be allowed.	If encountered, animal carcasses will be removed from site through discussions with the GNWT-ECC
Lead acid batteries and alkaline batteries	From personnel and equipment.	Place into empty containers in a temporary storage located in a designated lined facility on site	Disposed of with approved methods at acceptable facilities.

Non-Hazardous Non-Mineral Waste

Non-hazardous, non-mineral wastes generated will primarily include domestic and sanitary wastes, construction materials and vegetation from clearing operations. Domestic wastes will be brought to the site with project personnel in their lunches, crew vehicles, etc., while sanitary wastes will be generated on-site.

Minimal vegetation clearing is expected as maintenance and operations will occur within the already established highway alignment. If clearing is required for quarry operations it will be undertaken as described in the quarry permit application. Felled trees and shrubs will be cleared off the alignment progressively as clearing proceeds and will follow approved methods described in the Northern Land Use Guidelines: Roads and Trails (GNWTLands 2014b).

The potential environmental effects arising from unmanaged non-hazardous, non-mineral wastes include increased wildlife attractants, potential for sanitary spills or leaks, and possible degradation of water quality, and wildlife and fish habitat quality.

Hazardous Wastes

Potential hazardous wastes generated on-site include waste oil, fuel, lubricants, oil filters, solvents, etc., from use and maintenance of heavy equipment. Other potential

hazardous wastes may include contaminated soil, snow or water should a spill occur during ongoing maintenance and construction activities.

The possible environmental effects arising from unmanaged hazardous wastes include degradation of soil quality, degradation of water quality, and wildlife and fish habitat quality, and harm to on-site personnel.

Management of Waste Types

Non-Hazardous Non-Mineral Wastes

Within the alignment of the NWT Highway 3&4 the non-hazardous, non-mineral wastes will be temporarily stored in previously cleared areas within the ROW as required. The following management and mitigation techniques may be implemented to reduce the potential for environmental effects associated with non-hazardous, non-mineral wastes:

Domestic wastes:

- On-site, domestic wastes will be stored in clearly marked containers with tight-fitting lids (i.e., garbage cans).
- All combustible garbage will be burned on site in an approved container as determined by the inspector. Any non-combustible waste will be transported back with site personnel and disposed of at the local Solid Waste Facility.
- Ensuring work crews inspect work areas and collect and properly dispose of any waste that may have been discarded.
- Closed containers for domestic waste.

Cleared vegetation:

Minimal vegetation clearing is anticipated; however in the event that some clearing is required the following practices will be employed:

- Trees will be felled away from water sources to minimize the amount of vegetation material that could enter the aquatic environment.
- If clearing trees or packing snow with a dozer blade, mushroom or smear blades will be used and the uprooting of the trees will be avoided. Small trees and shrubs will be cleared by hand, or with the dozer blade to “walk down”

the vegetation, with the blade set at a fixed height. The blade will push small trees and shrubs down and the weight of the machine will compress felled vegetation. The ground cover and surface organic layer will be left in place.

- Burning of brush may be required. If determined necessary, brush piles will be burned away from other vegetation to minimize the risk of fire spreading.

Construction materials:

- On-site, waste construction materials will be stored in clearly marked containers with lids. These waste materials will be transported back to a community, if/when necessary, and disposed of at an approved Solid Waste Facility. These containers will be inspected daily.

Hazardous Wastes

Hazardous wastes generated during the permitted operations and maintenance activities will be stored at the designated fueling and contaminant storage area within the project area. This area will be greater than 100 m from a water source and approved by an inspector; this will prevent potential spills or leaks from entering the creek.

Any hazardous wastes will be stored in clearly marked containers (noting content and date of generation) with lids (i.e., drums) and in clearly marked areas (e.g., signs and flagging). Containers will be kept clear of debris and snow to facilitate route inspections for leaks.

Any hazardous wastes will be removed from the designated storage area a minimum of bi-weekly, if necessary. The contaminated soil/snow wastes will be transported to an approved waste facility for treatment. If other contaminated materials require disposal (i.e., spill pads), these will be disposed of through a licensed facility. For this transport and disposal, the Contractor or INF will complete the appropriate waste manifest form.

Sewage, including greywater, management will be such that no material is deposited within 100 m of a water body or to a drainage area that leads to a waterbody. If lift stations and holding tank(s) will be used, they will hold sewage until it can be collected and hauled for sewage disposal and treatment.

Waste oil will be stored either in “lube cubes” (1 m3 totes) provided by the petrochemical products supplier or a dedicated double-walled waste oil tank. Waste material will be removed from the cubes by the supplier, as required. Other waste types, such as antifreeze or solvents will not be stored in the same container as waste oils. Used filters will be temporarily stored in filter containers and will then be disposed of at an approved registered facility.

Used hydrocarbon containers, absorbents and rags produced on site and any used spill response materials, such as fiber pads or granular absorbents (“floor dry”) will be placed in steel drums, labelled (contents and date) and temporarily stored in the waste management area. Accumulated contaminated absorbents will be removed from site and disposed of in accordance with regulatory requirements.

Waste antifreeze will be placed into empty containers and temporarily stored in the waste management area. Accumulated waste antifreeze will be removed from site and disposed of in accordance with regulatory requirements.

A Quarry Operations Plan, in conjunction with a Quarry Permit, is required for borrow source/quarry development. The Quarry Operations Plan will include the licensed explosives contractor’s details pertaining to explosives use and handling. Explosive material will only be handled and maintained by a licensed explosives contractor and they will be responsible for the disposal of any and all explosives.

If encountered, animal carcasses will be removed from site through discussions with the Department of Environment and Climate Change (GNWT-ECC).

Infrastructure Required for Waste Management

The following types of infrastructure are in place which is required for proper waste management of the operations and maintenance of the highway:

- Cleared vegetation storage area – this area for windrowing or burning will be selected within an appropriate location along the highway alignment by the Contractor and INF site representative;
- Secondary containment
- Waste storage or disposal facility – Approved Solid Waste Facility;

- Sewage disposal facility – Approved Sewage Facility;
- Appropriate hazardous waste disposal facility – Approved hazardous waste disposal facility.

References

Indian and Northern Affairs Canada (INAC). 2010a. Northern Land Use Guidelines Volume 7 – Pits and Quarries. Natural Resources and Environment Branch, INAC, Ottawa, ON. Available online:

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