Land and Water Boards of the Mackenzie Valley

Received: April 6, 2022
File #: MV2022X0004
Copied to: TM/REG

Use an "X" to indicate which Board the Application is being made to:	Mackenzie Valley Land and Water Board:	X	Sahtu Land and Water Board:	
	Wek'èezhìi Land and Water Board:		Gwich'in Land and Water Board:	

To complete this Form, please refer to the MVLWB *Guide to the Land Use Permitting Process* (Guide) and fill in the grey fields; attach additional pages, as necessary. Indicate N/A in the grey fields for Items or parts of Items that are not applicable. An application package checklist is provided in the Guide. Review the following MVLWB guidance for formatting your Application Package:

- *Document Submission Standards*
- *Standard Outline for Management Plans*

If applicable, provide the existing or current Land Use Permit file number:	New Land Use Permit Application	
Use an "X" to indicate if this Application is accompanied by an Application for a Water Licence:	Water Licence – in a non-federal area:	
	Water Licence – in a federal area:	

1. NAME AND CONTACT INFORMATION – APPLICANT

Applicant's Name:	Department of Environment and Natural Resources		
Position:	Environmental Protection Advisor		
Company Name:	Government of the Northwest Territories		
Mailing Address:	PO Box 1320		
Community:	Yellowknife	Telephone:	867-767-9236 ext. 53189
Prov/Terr:	NT	Email:	Kelly_fischer@gov.nt.ca
Postal Code:	X1A 2L9	Other:	

2. NAME AND CONTACT INFORMATION – APPLICANT'S HEAD OFFICE

Include a Certificate of Corporate Registration from the Government of the Northwest Territories in your Application Package.

Use an "X" to indicate this information is the same as Item 1 above:			**X**
Name:			
Position:			
Company Name:			
Mailing Address:			
Community:			
Prov/Terr:		Telephone:	
Postal Code:		Email:	
Field Supervisor:		Other:	

3. NAME AND CONTACT INFORMATION – CONTRACTORS AND SUB-CONTRACTORS

Include relevant names, responsibilities, and contact information. An additional table should be added for each contractor and sub-contractor.

Name:	**X**		
Position:			
Company Name:			
Mailing Address:			
Community:		Telephone:	
Prov/Terr:		Email:	
Postal Code:		Other:	

X	Use an "X" to indicate that contractor and/or subcontractor information is not available at this time.

4. LOCATION OF ACTIVITIES

Use the grey fields below to provide or reference the following information:

Traditional Place Name:	Ptarmigan Mine, Tom Mine, Tin Mine, Burwash Mine, Crestaurum Mine, Rodstrom Mine

Maps and Geographic Information System (GIS) Data: Include a map in your Application Package identifying local geographic features, watercourses and water sources, project structures, and location(s) of any proposed waste deposits. Provide geographic coordinates (latitude and longitude) of project features, and the maximum and minimum project boundary in degrees, minutes, seconds, or decimal degrees. Include GIS data in your Application Package, if applicable. Refer to the MVLWB *Geospatial Data Submission Standards* for providing geographic information.

Ptarmigan Mine			
Minimum latitude:	62°30'49.12"N	Maximum latitude:	62°31'9.92"N
Minimum longitude:	114°11'27.71"W	Maximum longitude:	114°12'39.91"W
Burwash Mine			
Minimum latitude:	62° 27' 33.45"N	Maximum latitude:	62° 27' 46.86"N

Minimum longitude:	114° 18’ 49.53”W	Maximum longitude:	114° 19’ 27.56”W
Crestaurum Mine			
Minimum latitude:	62° 34’ 48.83”N	Maximum latitude:	62° 35’ 06.19”N
Minimum longitude:	114° 20’ 54.38”W	Maximum longitude:	114° 21’ 40.48”W
Rodstrom Mine			
Minimum latitude:	62° 29’ 54.86”N	Maximum latitude:	62° 30’ 01.66”N
Minimum longitude:	114 26’ 05.54”W	Maximum longitude:	114 26’ 18.51”W
Tin Mine			
Minimum latitude:	62° 32’ 53.84”N	Maximum latitude:	62° 32’ 57.62”N
Minimum longitude:	114 11’ 00.21”W	Maximum longitude:	114 10’ 55.10”W
Tom Mine			
Minimum latitude:	62° 31’ 53.65”N	Maximum latitude:	62° 32’ 03.45”N
Minimum longitude:	114° 11’ 35.62”W	Maximum longitude:	114° 11’ 36.73”W

NTS Map Sheet No.: Provide the map sheet number: | 085J |

Land Types: Use an “X” to indicate the type(s) of the land on which the activities are proposed:

Free Hold/ Private:		Commissioner’s/ Territorial Lands:	X	Federal Land:		Municipal Land:	

5. ELIGIBILITY

Refer to section 18 of the Mackenzie Valley Land Use Regulations. Use an “X” to indicate which one applies:

18(a)(i):		18(a)(ii):		18(a)(iii):		18(b):	X

6. RIGHTS AND/OR CONTRACTS TO SUPPORT ELIGIBILITY

Contact Indigenous, federal, and territorial governments, and other parties to ensure all appropriate rights, authorizations, permissions, dispositions, and contracts have been obtained or are in the process of being obtained (e.g., mineral exploration rights, quarry permits, licences of occupation, leases, access agreements and authorizations, etc.). List and provide confirmation of other authorizations that relate to the proposed activities; reference these in your Application Package (e.g., rights, permits, licences, etc.).

A letter from the GNWT Department of Lands will be provided to the Mackenzie Valley Land and Water Board supporting eligibility.

7. PERMIT TYPE AND CRITERIA

Refer to sections 4 and 5 of the Mackenzie Valley Land Use Regulations. Use an “X” to indicate which permitting criteria apply:

Type A				Type B				Type C	
4(a)(i):		4(b)(i):	X	5(a)(i):		5(b)(i):		(SLWB and WLWB only):	
4(a)(ii):	X	4(b)(ii):		5(a)(ii):	X	5(b)(ii):			

4(a)(iii):		4(b)(iii):		5(a)(iii):	
4(a)(iv):	X	4(b)(iv):		5(a)(iv):	
4(a)(v):				5(a)(v):	
				5(a)(vi):	

8. PROJECT DESCRIPTION

Include a project description in your Application Package, or for small-scale projects, describe the proposed activities in the grey field provided below. Include the name and type (e.g., lake, river) of water source(s), and the purpose and quantity of water to be used (rates, volumes (m^3/day)). Indicate the total number of hectares to be used in each phase of the project, as well as through the life of the project.

The Government of the Northwest Territories (GNWT) plans to engage a contractor to place boulders to restrict vehicular traffic into the Ptarmigan Mine site proper and apply a dust suppressant to the Tailings Containment Area on the west side of the Ingraham Trail.

The GNWT also plans to engage a contractor to complete a supplemental environmental site assessment and risk assessment at the Ptarmigan, Tom, Tin, Burwash, Rodstrom and Crestaurum Mine sites to determine current site conditions. Site locations are described in Item 4 of this application and a map is included in Appendix B. Anticipated activities to support the environmental site assessment and risk assessment work include the installation of groundwater monitoring wells for groundwater sampling, surface water sampling, sediment sampling and test pitting to collect soil samples. No restoration plan will be required. Newly installed groundwater monitoring wells will be left onsite to support potential future monitoring programs and all test pits will be backfilled after sampling has been completed. The duration of this work will be within the requested term of the land use permit.

Installation and repair of fencing and signage at the site will also occur if required to restrict public access to the Ptarmigan, Tom and Tin Mine sites.

For a detailed project summary, please see Appendix A.

9. CAMP

Describe the proposed camp size and layout. Indicate the number of person-days; explain, with rationale, any variations in the number of people that may be on site over the life of the project.

No camp will be set up on site.

10. ROADS AND ACCESSES

Provide detailed information about the construction, location, and decommissioning of any roads and accesses.

Use an "X" to indicate if this is to be a pioneered road or access:	Yes		Use an "X" to indicate if the route has been laid out or ground-truthed:	Yes	
	No	X		No	

No new road accesses will be constructed to access sites. Will be using existing access roads. Additional detail on site access and access roads is provide in Appendix A.

11. PROPOSED WASTE MANAGEMENT METHODS

Use the grey fields below to provide or reference the following information:

Waste Management Plan: Include a Waste Management Plan in your Application Package, if applicable, or for small-scale projects, describe the proposed waste management activities in the grey fields provided below. A template for the Plan can be found in the MVLWB *Guidelines for Developing a Waste Management Plan*.

Waste Type	Management Method(s)
Garbage:	No garbage will be disposed of on site. Garbage to be disposed of at the Yellowknife Landfill.
Sewage (Sanitary and greywater):	N/A - Portable Toilets.
Brush and trees:	Minor brushing that is required will be disposed of at the Yellowknife Landfill.
Overburden (Organic soils, waste material, etc.):	Overburden from drilling to install groundwater monitoring wells will be contained for later disposal at a licenced facility.
Other (describe):	Purge water from groundwater monitoring wells will be collected in drums/containers and labelled for later disposal at a licenced facility.

Off-site Disposal: If waste is proposed to be disposed of off-site within the NWT, written confirmation (e.g., an email, letter, etc.) from the facility/facilities indicating they will accept the waste is required. Include it/these in your Application Package. Please note this information will be required by the Board prior to commencement of activities.

12. EQUIPMENT

Identify the types of equipment proposed to be used.

Number	Type/Description	Size (weight in tonnes)	Proposed use
1	Tracked dozer	22 tonnes	Earthworks
1	Backhoe	25 tonnes	Excavation
1	Loader	20 tonnes	Earthworks/loading trucks
1	Drill	20 tonnes	Earthworks
1	Excavator	25 tonnes	Excavation

1	Truck and flatbed trailer	14 tonnes	Transporting excavator to site
1	Skid steer (tracked and rubber tire)	4 tonnes	Earthworks in hard to access locations
1	Flatbed truck or worker truck and trailer	4 tonnes	Transporting skid steer to site
1	End dumps	16 tonnes	Transporting rocks and boulders
1	Tandems with trailers	18 tonnes	Transporting equipment to site
1	Tri-axles/tri-quads	12 tonnes	Transporting rocks and boulders

13. FUEL

Identify all fuel types proposed to be used.

Type of Fuel	Number of containers	Capacity of containers (e.g., litres, pounds)	Type of container (e.g., barrel, tank, tidy-tank)	Proposed storage or staging location(s)
Diesel:	1	450L	Fuel tank located on the back of the support truck	Support truck
Gasoline:				
Aviation Fuel:				
Propane:				
Other: (describe)				

14. METHODS OF FUEL TRANSFER

Describe the proposed methods to transfer fuel.

Equipment may be re-fueled on-site using an electric pump. Diesel fuel for re-fueling equipment may be contained in a 450L double walled tank located on the back of the support truck.

15. SPILL CONTINGENCY PLAN

Include a Spill Contingency Plan in your Application Package, if applicable, or for small-scale projects, provide relevant details in the grey field provided below. An example of this Plan can be found in the INAC *Guidelines for Spill Contingency Planning*.

A drum style spill kit will be supplied at each work site. Please see attached spill contingency plan and maps in Appendix C.

16. PROPOSED PROJECT SCHEDULE AND TERM

Indicate the proposed project start and completion dates and the time of year the project activities are planned to occur. Describe any anticipated temporary closure(s) or seasonal shutdowns. Indicate the term requested.

Start Date:	April 2022	Completion Date:	September 2027
Initial dust suppression activities are planned for the summer of 2022. Dates for environmental site assessment and risk assessment work will be determined by the hired contractor but will occur within the duration of the requested term of the permit.			
Term of Permit Requested:		5 years	

17. POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROJECT AND PROPOSED MITIGATIONS

If the proposed project, or parts of the proposed project, may be exempt from preliminary screening, describe the rationale for the exemption in the grey field below. Include the date of the most recent screening, and/or the environmental assessment or impact review number.

N/A

Unless the project could be exempt from preliminary screening, using the Impact-Mitigation Table below, or the more detailed Table in Appendix D of the Guide, identify all potential impacts and possible mitigations that are relevant to the proposed project, and indicate whether any of the mitigation measures have been developed as a result of input from affected parties. Possible potential impacts are listed below; however, these lists are not exhaustive and may not apply to all projects. All information provided should reflect the size, scale, and nature of the proposed project. Cumulative impacts and climate change must be considered. Attach additional pages if needed.

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
ABIOTIC COMPONENTS		
Land		
Soil contamination	X	Soil cuttings from boreholes may contain contaminated soil. Soil cuttings will be contained on site in soil bags provided by a licenced facility to prevent any migration of contaminants. Once drilling has been completed, the soil cuttings will be disposed of off site at a licenced facility. Potential release of fuel into the environment through use of heavy equipment on site. A Spill Contingency Plan has been developed for further information. Please see Appendix C.

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
Soil compaction		
Destabilization/erosion	X	Collection of soil samples for the environmental site assessment will involve test pitting. Once samples have been collected, the test pits will be backfilled with soil from the excavated area to prevent erosion. Installation of groundwater monitoring wells would result in disturbance of land through soil removal from the ground during the drilling of boreholes affecting soil stability. After the boreholes have been drilled, a groundwater monitoring well will be installed in the borehole to ensure the stabilization of the borehole.
Change in soil structure		
Inability to support vegetation		
Other		
Water		
Groundwater		
Water table alteration		
Infiltration changes		
Changes in water quality	X	Potential release of fuel into the environment through use of heavy equipment on site. A Spill Contingency Plan has been developed for further information. Please see Appendix C.
Temperature changes		
Other		
Permafrost		
Loss or change in extent		
Changes in seasonal fluctuations		
Change in persistence		
Other		
Surface Water		
Water flow or level changes (permanent, temporary, seasonal)		
Drainage pattern changes		
Temperature changes		
Changes in water quality	X	Potential release of fuel into the environment through use of heavy equipment on site. A Spill Contingency Plan has been developed for further information. Please see Appendix C.

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
Wetland impairment		
Changes to aquatic habitat (see Biotic section below)		
Other		
Air		
Changes in air quality	**X**	The application of dust suppressant will improve air quality in the area.
Harm to living things		
Increased greenhouse gases		
Other		
BIOTIC COMPONENTS		
Vegetation		
Direct loss of vegetation	X	Drilling and excavation activities may result in potential removal of vegetation. During soil excavation and drilling activities, efforts would be made to ensure that the impacted area is kept to a minimum.
Loss of Species at Risk or may-be-at-risk plants		
Change in species composition		
Introduction of non-native (invasive) species		
Effects on plant health (dust, metals, toxins)		
Increased risk of fire		
Compaction of vegetation		
Other		
Terrestrial Wildlife Habitat		
Direct loss or removal of habitat, dens, or nests		
Loss or removal of keystone species and/or Species at Risk habitat		
Fragmentation of wildlife corridor		
Direct injury or mortality		
Disturbances to key lifecycle stages: breeding, feeding, nesting, staging		
Effects on population abundance		
Change in species diversity		
Effects on wildlife health (toxins, metals, etc.)	X	Potential release of fuel into the environment through use of heavy equipment on site. A Spill Contingency Plan has been developed for further information. Please see Appendix C.
Changes to migratory movement patterns		
Changes to predator-prey relationships		

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
Human-wildlife conflicts		
Other		
Aquatic Habitat		
Breeding disturbances		
Change in species diversity		
Effects on health (toxins, metals, sediment, etc.)	X	Potential release of fuel into the environment through use of heavy equipment on site. A Spill Contingency Plan has been developed for further information. Please see Appendix C.
Changes to migratory movement patterns		
Changes to predator-prey relationships		
Effects on population abundance		
Change in species diversity		
Other		
CULTURAL COMPONENTS		
Wildlife Harvesting		
Loss or reduction in game species populations		
Effects on traditional land use, subsistence, and harvesting rights		
Other		
Cultural Integrity and Heritage Resources		
Change to or loss of cultural integrity		
Change to or loss of traditional lifestyle		
Change to or loss of heritage resource		
Other		
Social and Economic Well-being		
Increased human health hazard and risk	X	Temporary noise-related impacts may occur during use of equipment and may have the potential to cause hearing damage to those working in the immediate vicinity of the equipment. Hearing protection may be required for anyone working with and around equipment. Workers may be working near deteriorating structures and buildings. Proper personal protective equipment such as hard hats, steel toed boots and high visibility vests will be required by all workers while completing work on site. Restrictions are in place to limit access to structures and buildings.
Economic opportunities or losses (employment,		

Potential Impacts *Use an "X" to indicate which apply*	**X**	**Potential Project Impacts and Proposed Mitigations** *Describe the potential impact(s) and the proposed measure(s) to reduce each of these impacts.*
training)		
Change in ecological, cultural, social, or economic values identified for protection in approved Land Use Plans		
Impairment of the recreational or traditional uses of the land or water		
Impairment of the aesthetic quality of the land or water		
Changes to the use of the area by other non-Indigenous people (e.g., trappers, outfitters, residents, hunters, forest harvesters, other authorized projects)		
Other		

18. CLOSURE AND RECLAMATION

Use the grey field below to provide or reference the following information:

Closure and Reclamation Plan: Include a Closure and Reclamation Plan in the Application Package, if applicable, or for small-scale projects, describe the proposed closure and reclamation activities in the grey field provided below. Describe any temporary closure(s) and seasonal shutdowns. Please also refer to the MVLWB/AANDC *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*.

Closure Cost Estimate: Prepare a Closure Cost Estimate and include it in your Application Package. Applicants are encouraged to contact Board staff, prior to applying, to determine which closure-cost-estimate template is most suited to the activities being applied for. Guidance is provided in section 2.2 of the MVLWB/INAC/GNWT *Guidelines for Closure and Reclamation Cost Estimates for Mines*. If the Application is submitted concurrently with a Water Licence Application, the estimate should include a breakdown of water- and land-related activities and liabilities.

No restoration plan will be required. Newly installed groundwater monitoring wells will become part of potential future monitoring programs and all test pits resulting from soil sampling will be backfilled after sampling has been completed.

19. ADDITIONAL SUPPORTING INFORMATION

Use the grey field below to provide or reference the following information:

Engagement: Conduct engagement, prepare an Engagement Record and Engagement Plan in accordance with the MVLWB *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits*, and include them in your Application Package. Templates are provided in the Guidelines. Please also refer to *Information for Proponents on MVLWB's Engagement Requirements*.

Land Use Plans: Contact the applicable Land Use Planning Board or the Tłįchǫ Government to discuss conformity with the relevant land use plan(s). Include a Land Use Plan Conformity Table in your Application Package, demonstrating how the project meets the requirements of the Land Use Plan, if applicable.

Traditional (Environmental) Knowledge (TEK/TK): Provision of TEK/TK is mandatory for applications to the SLWB. Other applicants are strongly encouraged to include TEK/TK.

Studies Undertaken to Date: List any relevant studies that support the proposed activities and include them in your Application Package.

20. FEES

Refer to the Guide for assistance in determining relevant fees.

Type of Fee	Amount ($)
Application fee (if applicable):	$150
Land-use fees (for federal areas only):	$
Total Fees:	$

21. SIGNATURE

Mischelle Remigio on behalf of: Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR)	Contaminated Sites Project Officer
Applicant's Name (print) or Company Name	Position (print)

Mischelle J. Remigio	April 5, 2022
Signature	Date

Review the application package checklist provided in the Guide, and submit completed applications to the Regulatory Manager or Executive Director identified on the "Contact Us" pages of the respective Land and Water Board (www.mvlwb.com, www.wlwb.ca, www.slwb.com, www.glwb.com).

Appendix A
Project Summary

Project Summary

Site Descriptions

Ptarmigan Mine

Ptarmigan Mine is a former gold exploration and mining site, located on the Ingraham Trail approximately 15 kilometers northeast of Yellowknife. Coordinates for the Ptarmigan Mine site are provided in Appendix B – Site Map. The site is located on Government of the Northwest Territories (GNWT) Commissioner's Land and is classified as an Excepted Waste Site in the Northwest Territories Lands and Resources Devolution Agreement and is subject to ongoing negotiations between the GNWT and Canada.

There are currently no mining activities taking place at Ptarmigan Mine. The site is an abandoned mine with numerous physical hazards such as, structurally unsafe buildings, debris and openings to the underground that need to be addressed due to evident public presence on these sites. A Phase I/II Environmental Site Assessment (ESA) was completed in 2013 by the Government of Canada and a Phase III ESA was completed in 2017 by the GNWT. Results of the ESAs identified contamination in soil, groundwater, surface water and sediment. Additional ESA work and risk assessment work is required to determine current site conditions.

Tom Mine

Tom Mine is a former gold exploration and mining site, located approximately 25 kilometers northeast of Yellowknife near Cassidy Point. Coordinates for the Tom Mine site are provided in Appendix B – Site Map. The site is located on GNWT Commissioner's Land and is classified as an Excepted Waste Site in the Northwest Territories Lands and Resources Devolution Agreement and is subject to ongoing negotiations between the GNWT and Canada.

There are no current mining activities at Tom Mine. The site is an abandoned mine with numerous physical hazards such as mine openings, abandoned structures and buildings, and non-hazardous and hazardous debris. A Phase I/II ESA was completed in 2013 by the Government of Canada and a Phase III ESA was completed in 2017 by the GNWT. Results of the ESAs identified contamination in soil, surface water and sediment. Additional ESA work and risk assessment work is required onsite to determine current site conditions.

Tin Mine

Tin Mine is a former gold exploration and mining site, located approximately 20 kilometers northeast of Yellowknife near Prosperous Lake. Coordinates for the Tin Mine site are provided in Appendix B – Site Map. The site is located on GNWT Commissioner's Land and is classified as an Excepted Waste Site in the Northwest Territories Lands and Resources Devolution Agreement and is subject to ongoing negotiations between the GNWT and Canada.

There are no current mining activities at Tin Mine. The site is an abandoned mine with numerous physical hazards such as mine openings, and hazardous and non-hazardous debris. A Phase I/II ESA was completed in 2013 by the Government of Canada and a Phase III ESA was completed in 2017 by the GNWT. Results of the ESAs identified contamination in soil and surface water. Additional ESA and risk assessment work is required onsite to determine current site conditions.

Burwash Mine

Burwash Mine is a former gold exploration and mining site, located approximately 1.9 kilometers east of Yellowknife on the shore of Yellowknife Bay. Coordinates for the Burwash Mine site are provided in Appendix B – Site Map. The site is located on GNWT Commissioner's Land and is classified as an Excepted Waste Site in the Northwest Territories Lands and Resources Devolution Agreement and is subject to ongoing negotiations between the GNWT and Canada.

There are no current mining activities at Burwash Mine. The site is an abandoned mine with numerous physical hazards such as mine openings, scattered debris, and waste rock. A Phase I/II ESA was completed in 2013 by the Government of Canada and a Phase III ESA was completed in 2017 by the GNWT. Results of the ESAs identified contamination in soil, surface water and sediment. Additional ESA work and risk assessment work is required onsite to determine current site conditions.

Crestaurum Mine

Crestaurum Mine is a former gold exploration and mining site, located approximately 15 km north of Yellowknife. Coordinates of the Crestaurum Mine site provided in Appendix B – Site Map. The site is located on GNWT Commissioner's Land and is classified as an Excepted Waste Site in the Northwest Territories Lands and Resources Devolution Agreement and is subject to ongoing negotiations between the GNWT and Canada.

There are no current mining activities at the Crestaurum Mine. The site is an abandoned mine with numerous physical hazards such as mine openings, scattered debris, and waste rock. A Phase I/II ESA was completed in 2013 by the Government of Canada and a Phase III ESA was completed in 2017 by the GNWT. Results of the ESAs identified contamination in soil and sediment. Additional ESA work and risk assessment work is required onsite to determine current site conditions.

Rodstrom Mine

Extensive exploration work was conducted at Rodstrom Mine in the early 1960s and the late 1970s. Rodstrom Mine is located approximately three kilometers north of Long Lake in Yellowknife. Coordinates for the Rodstrom provided in Appendix B – Site Map. The site is located on GNWT Commissioner's Land and is classified as an Excepted Waste Site in the Northwest Territories Lands and Resources Devolution Agreement and is subject to ongoing negotiations between the GNWT and Canada.

Rodstrom Mine is an abandoned site with numerous physical hazards associated with mine openings, hazardous and non-hazardous debris, and waste rock. A Phase I/II Environmental Sites Assessment (ESA) was completed in 2017 by the GNWT. Results of the ESA identified surface water contamination in soil, and hazardous and non-hazardous debris. Additional ESA work and risk assessment work is required onsite to determine current site conditions.

Site Access

Ptarmigan Mine, Tom Mine, Tin Min, Crestaurum Mine are accessible by an all-season road. Ptarmigan, Tom, and Tin are accessible by the Ingraham Trail. Crestaurum Mine is accessible via the Vee Lake Road access. Locations of the road access are illustrated in the site map found in Appendix B.

Burwash Mine is accessible via boat or off-road trails. For the duration of the project, the contractor is expected to access the site via boat to complete the field program to support the environmental site assessment and risk assessment work. No heavy equipment is expected to be onsite during the duration of the project, therefore there is no plan to build an access road at this time.

Rodstrom Mine is accessible via helicopter and by snowmobile via an unmarked path/off-road trail during the winter. The contractor is expected to access the site to complete the field program to support the environmental site assessment and risk assessment work. No heavy equipment is expected to be onsite during the duration of the project, therefore there is no plan to build an access road at this time.

Project Descriptions

Proposed Road Boulders and Fencing – Ptarmigan Mine

During the winter of 2016/2017, the GNWT installed chain link fencing around the head frame and lift area and mill and crusher area for public safety purposes as well as placed boulders on the access road. Since being installed, the fencing was compromised and boulders moved allowing public access to mine site. The GNWT identified eight areas of fencing requiring repairs and two locations where boulders need to be strategically placed. Repairs to the fencing were completed in November 2021. While continuing care and maintenance of the site, additional fencing repairs may be required to maintain public safety mitigations. Fencing repairs will occur as required. Replacement of boulders along the access road is planned to be completed in the summer of 2022. Placement of boulders will be completed with the use of heavy equipment. Heavy equipment to be used for the movement and placement of boulders will be determined by the hired contractor.

Fencing Repairs – Tom and Tin Mine

Fencing was installed at the Tom and Tin Mine sites in 2017. While continuing care and maintenance at the sites, additional fencing repairs may be required to maintain public safety mitigations. Fencing repairs at the Tom and Tin Mine sites will be completed as required. Equipment and tools to be used for required fencing repairs will be determined by the hired contractor.

Proposed Dust Suppression

Approximately 262,000 tonnes of uncovered tailings are present at the Ptarmigan Mine site. The tailings containment area and dam was constructed in November/December 1988 and was in operation until 1994. The GNWT is currently in the process for determining next steps for the excepted waste sites, including Ptarmigan Mine. Further environmental site assessment work and risk assessment work is required prior to determining next steps. Until next steps are determined, the GNWT is proposing to undertake a dust suppression program at the tailings containment area to mitigate the effects of wind blown dust on the surrounding area. The initial spray of dust suppression is expected to be completed in summer 2022. More details on water and volumes is discussed in in the sentences to follow. Source of water for the dust suppression program is to be determined by the hired contractor. The volume of water to be used onsite will not exceed 100m3 per day. Water will not come from any nearby waterbodies but will be water transported from Yellowknife. Additional details of the type of dust suppression to be used, source of water, and exact dates of program will be determined by the hired contractor. The volume of water to be used for the dust suppression program will not exceed $100m^3$ per day. Nearby waterbodies will not be used as the source of water. Dust suppression work will occur at least once a year or as required, depending on the site conditions.

Proposed Environmental Site Assessment and Risk Assessment Work

A Phase I/II Environmental Site Assessment (ESA) was completed at the Ptarmigan, Tom, Tin, Burwash and Crestaurum Mine sites in 2013 by the Government of Canada. A Phase I/II ESA was completed at Rodstrom Mine in 2017 by the GNWT. A Phase III ESA was completed at the Ptarmigan, Tom, Tin, Burwash and Crestaurum Mine in 2017 by the GNWT. Results of the ESAs identified contamination in soil, groundwater, surface water and sediment. Additional ESA work and risk assessment work is required at all six excepted waste sites to determine current site conditions.

A field program will be conducted to collect data to support the environmental site assessment and risk assessment work. The field program will include the completion of soil, groundwater, surface water and sediment sampling at the Ptarmigan, Tom, Tin, Burwash, Crestaurum and Rodstrom Mine sites.

Installation of new groundwater monitoring wells will occur onsite to support the groundwater sampling for the environmental site assessments and for potential future groundwater monitoring programs. Groundwater monitoring wells are expected to be installed using a drill rig, but equipment to be used onsite for the installation of groundwater wells will be determined by the hired environmental consultant. The number of groundwater wells to be installed, and the locations of the groundwater wells will be determined by the hired environmental consultant in their sampling plan. Information on the groundwater monitoring well locations will be determined by the hired environmental consultant.

Test pits and boreholes will be completed to collect soil samples. Test pits will be advanced using an excavator or backhoe. Boreholes will be advanced using a drill rig. No Heavy equipment will be used at Burwash or Rodstrom Mine sites. Locations of test pits and boreholes are to be determine by the hired environmental consultant. Information on soil sampling locations will be provided once they are available.

Surface water samples and sediment samples are to be completed via grab samples unless otherwise indicated by the hired environmental consultant.

No restoration plan will be required. Newly installed groundwater monitoring wells will be left onsite to support potential future monitoring programs and all test pits will be backfilled after sampling has been completed. The duration of this work will be within the requested term of the land use permit.