NORTH AMERICAN TUNGSTEN CORPORATION LTD

c/o Alvarez & Marsal Canada Inc.
925 W. Georgia Street
Suite 902, Cathedral Place
Vancouver, BC V6C 3L2
Ph: (604) 638-7440
Fax: (604) 638-7441

May 26, 2026

Mackenzie Valley Land and Water Board
7th Floor – 4922 48th Street
PO Box 2130
Yellowknife, NT X1A 2P6

Attention: Kim Murray

Dear Ms. Murray

Re: MV2023L2-0006 Part J Items 4 & 5, and Corresponding New Applications for *Final Closure and Reclamation* of the Cantung Mine – Project Description & Impact Assessment

North American Tungsten Corporation Ltd ("**NATC**") is pleased to advise the Mackenzie Valley Land and Water Board ("**MVLWB**") and parties of its intent to undertake final closure and reclamation of the Cantung Mine. Accordingly, NATC has submitted applications for a new water licence and a new land user permit for final closure and reclamation activities. This document, *Project Description & Impact Assessment*, is provided supplemental to sections 8 and 17 of the corresponding land use permit application form and sections 4 and 10 of the water licence application form.

Yours truly,
North American Tungsten Corporation Ltd.
by its Monitor, Alvarez & Marsal Canada Inc.
acting in its capacity as Monitor of NATC and not in its personal capacity

Todd M. Martin
Senior Vice President

Enclosure

NORTH AMERICAN TUNGSTEN CORPORATION LTD



PROJECT DESCRIPTION & IMPACT ASSESSMENT

CANTUNG MINE, NT

VERSION # 1.1

PREPARED BY NORTH AMERICAN TUNGSTEN CORPORATION LTD.

Dated: MAY 2026

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ACRONYMS AND ABBREVIATIONS

Term	Definition
A&M	Alvarez & Marsal Canada Inc.
AANDC	Aboriginal Affairs and Northern Development Canada
ACM	Asbestos-containing Materials
ADKFN	Acho Dene Koe First Nation
AEP	Annual Exceedance Probability
ARD/ML	Acid-rock Drainage and Metal Leaching
BI	Buildings and Infrastructure
CDA	Canadian Dam Association
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CSM	Conceptual Site Model
CWG	Communities Working Group
DFN	Dehcho First Nations
DQC	Discharge Quality Criteria
DQO	Discharge Quality Objectives
EA	Environmental Assessment
ESA	Environmental Site Assessment
FCRP, or the plan	Final Closure and Reclamation Plan
FSM52	Métis Nation Local 52
GNWT	Government of Northwest Territories
Ha	Hectares
HBM	Hazardous Building Materials
HH/ERA	Human Health and Ecological Risk Assessment
ITI	Department of Industry, Tourism, Investment
KD	Kasha Dena
km	Kilometre
LBP	Lead-based paint
LFN	Liard First Nation
LKFN	Łíídlı̨ Kų́ę́ First Nation
m	metre
m^3	Cubic metre
MAA	Multiple Accounts Analysis
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
NATC, or the Company	North American Tungsten Corporation Ltd.
NDDB	Nahɔą Dehé Dene Band
NNPR	Nahanni National Park Reserve
NWT	Northwest Territories

Term	Definition
ODS	Ozone Depleting Substances
PCB	Polychlorinated Biphenyls
PHC	Petroleum Hydrocarbons
PMF	Probable Maximum Flood
RDAG	Resource Development Advisory Group
RRDC	Ross River Dena Council
SNP	Surveillance Network Program
TCA	Tailings Containment Area
TK	Traditional Knowledge
TT	Tetra Tech
WSCC	Workers' Safety and Compensation Commission

GLOSSARY

Term	Definition
Adit	Mine surface openings.
Canada	Government of Canada
Cantung Mine, the Site or the Project, the Mine	The topic/focus area of this final closure and reclamation plan.
Closure	Final or permanent closure of the mine.
Closure criteria	Measures whether the selected closure activity meets a particular closure objective.
Closure goals	Serve as the foundational direction for closure and reclamation planning.
Closure objectives	Measurable project-specific statements that describe what the selected closure activities are aiming to achieve. They are guided and derived through project specific goals, sub-goals, and closure principles. The objectives may be individual to mine domains or aspects of closure.
Closure options	A set of proposed alternatives for closing and reclaiming each mine component. The closure options are evaluated to determine the selected closure activity, which must be approved by the Board.
Project Team	North American Tungsten Corporation Ltd., Alvarez & Marsal Canada Inc., and Crown-Indigenous Relations and Northern Affairs Canada (see CIRNAC and A&M).
Selected Closure Activity	The selected closure activity is chosen from the closure options, and once approved, the proponent can begin the final engineering and design phase.
the Guidelines	*Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories* (MVLWB, 2013).
Tungsten, townsite	The historic town within the Project site that supported mine workers and their families while the mine was in operation.
Upgradient cell	New engineered containment structure for mine waste (tailings) and landfill (inert demolition debris and ACM in a segregated area).

1.0 PLAIN LANGUAGE SUMMARY

The Cantung Mine (Mine or the Site or the Project) has been on the Northwest Territories (NWT) landscape for over 60 years. The mine site was used for mining tungsten from on surface and underground and was home to mine workers and their families in the former townsite of Tungsten (altogether referred to as the Site). The Mine opened in the early 1960s and operated on and off with various owners until 2015. In 2015, the Mine, owned by North American Tungsten Corporation Ltd. (NATC or the Company), stopped operating. After several attempts to sell, and no successful offers to buy, NATC chose to close and reclaim the Site.

Many studies have been undertaken over a number of years to investigate the land and water, both on the surface and underground, including buildings associated with the mine and townsite of Tungsten. These studies help figure out what is needed to safely close and reclaim the Site.

This document, Project Description & Impact Assessment, describes what might happen to the environment, including water, plants, wildlife, and people, as the work needed to close and reclaim the Mine is carried out. It then evaluates how important, or significant, any changes or impacts resulting from these activities might be.

The assessment found that most of the changes arising from the closure and reclamation work will likely occur over a short period of time, related to the time the work is being done. Some effects may extend into the future as well. The activities will happen mostly within the area already disturbed by the mine and will not be permanent. There will also likely be many positive changes, or benefits, that will result from the closure and reclamation work.

2.0 INTRODUCTION

2.1 PURPOSE OF THIS DOCUMENT

North American Tungsten Corporation Ltd. (NATC or the Company) has filed an application for a closure Water Licence (WL) and Land Use Permit (LUP) to support implementation of the Cantung Mine Final Closure and Reclamation Plan for the Cantung Mine (NATC 2026a). The Final Closure and Reclamation Plan (FCRP or the "Plan") identifies closure objectives and the activities required to permanently close and reclaim the Cantung Mine site (the "Mine" or "Site"). These activities and the implementation of them constitute the "Project".

This Project Description & Impact Assessment (Project Description) has been developed to support the Mackenzie Valley Land and Water Board (MVLWB) closure Water Licence and Land Use Permit application process. This Project Description is meant to be read in conjunction with the FCRP (v1.0) and provides further context for the identification and assessment of potential project-related environmental impacts.

Numerous studies have been undertaken over the life of the Mine, which began operations in the early 1960s. The most recent studies characterizing site conditions in preparation for closure were initiated between 2017 and 2025 (see FRCP Table 2-2). It is important to note that the Cantung Mine is a brownfields site and the current environmental conditions as described are considered the "baseline" for the purposes of the impact assessment presented in this document.

2.2 PROJECT LOCATION AND ACCESSIBILITY

The Cantung Mine is located in the southwest corner of the NWT, near the border of the Yukon (Figure 2-1). It is in a valley of the Flat River (Tu Naka Dé[1]) and is roughly 275 km northwest of Nahanni Butte, NWT and 300 km north of Watson Lake (Yukon). The Mine is located within the boundaries of Treaty 11, the Traditional Territory of the Dehcho First Nations (DFN), and the asserted Territory of the Kaska Dena (KD). The communities of Tthenáágó (Nahanni Butte), Łíídlıı̨ Kų́ę́ (Fort Simpson), Watson Lake, and the Nahanni National Park Reserve are located downstream.

The Mine can be accessed by ground using the Nahanni Range Road from Watson Lake or by air. The townsite of Tungsten was established adjacent to the Mine to house mine workers and their families. Permanent habitation ceased in 1986; however, historic residential, recreational, and office/shop buildings remain.

[1] NATC understands that "Tu Naka Dé" is the Traditional place name for the Flat River. NATC recognizes that different Indigenous Nations may have distinct names for this area. "Flat River" is used throughout this document for consistency and does not imply that this is the only or preferred name across all Nations.

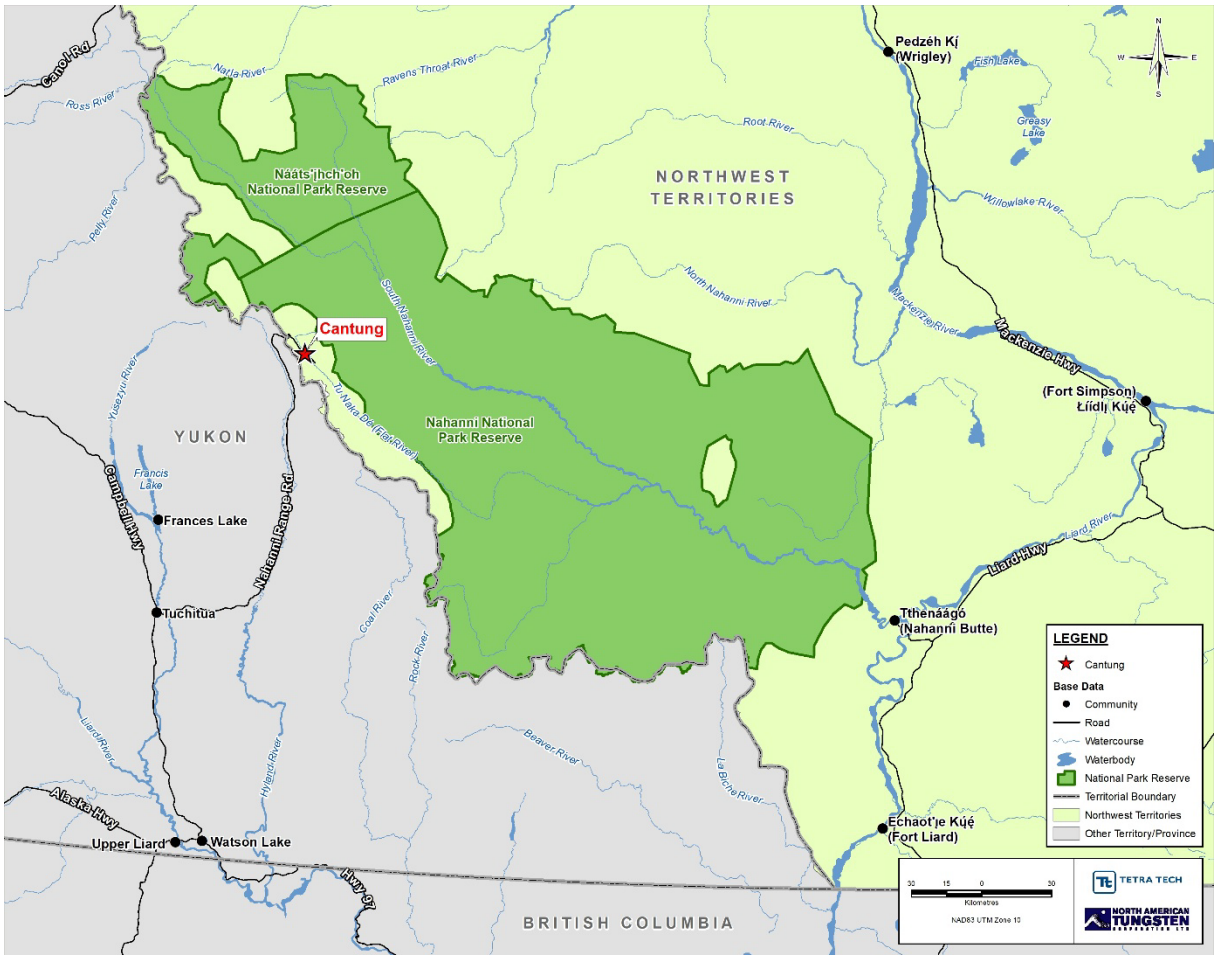


Figure 2-1 Project Location.

2.3 SITE HISTORY AND OWNERSHIP

The Cantung Mine, once North America's largest tungsten producer, has existed on the NWT landscape for over 60 years. Mining commenced in 1962 at surface with the establishment of an open pit (OP) and then continued underground. The Mine operated on and off with various owners until 2015. In 2015, the Mine, owned by NATC, stopped operating. After several attempts to sell, and no successful offers to buy, NATC chose to close and reclaim the Site. A more detailed description of the site history and ownership is provided in the FCRP.

2.4 NEED FOR THE PROJECT

The need for closure and reclamation of the Mine is summarized as follows:

1. The Mine is no longer operational and the owner is insolvent. It is in the best interest of all parties, including Indigenous Partners, to advance full closure and reclamation of the Site to prevent long-term environmental degradation and meet regulatory obligations.

2. The Site contains historic infrastructure, including aging buildings, mine openings, landfills, water crossings, and tailings containment areas (TCA). Without reclamation, deterioration will continue to occur making the site increasingly unsafe for use by humans and wildlife and increasing environmental risks.

Planning, design engineering, and engagement of Project rightsholders and other stakeholders is ongoing to inform final closure and reclamation of the Cantung Mine.

2.5 CLOSURE AND RECLAMATION PLAN SUMMARY

The Cantung Mine FCRP identifies the activities proposed to permanently close and reclaim the Site; this Project Description expands on the management and mitigation of potential environmental impacts that may result from Project activities.

The FCRP draws heavily on extensive historic and recent data collected for the site and surrounding area. A focus on environmental data collection to support closure planning was initiated in 2017 and has continued to present through ongoing monitoring conducted while the mine is under care and maintenance. Several site investigations have been conducted including a Phase III Environmental Site Assessment (ESA), Human Health and Ecological Risk Assessment (HH/ERA), various engineering assessments, and the identification and development of closure options. Additional assessment work, including geotechnical drilling and ecological mapping, was undertaken in 2024 and 2025 to further support option development, increase the certainty of certain site conditions, and collect data to be used for detailed design.

The closure planning process has also relied on the participation of, and input from, the Communities Working Group (CWG), which was established in 2016 to serve as a forum for information-sharing and discussion between NATC and Indigenous Partners. Feedback received through CWG engagement has provided a strong foundation in the development of the FCRP. NATC and the CWG have been working together collectively and individually through virtual meetings, in-person workshops, site tours, and community and leadership meetings, to:

- Develop a common understanding of the current status and features of the Mine and risks posed to the environment and land users;
- Embed Indigenous participation and interests in the closure planning process;
- Support and receive Indigenous Partner input into decision making on preferred closure options; and
- Develop a current understanding of possible post-closure land and water use for the Mine.

The FCRP has been structured into Project components that will have to undergo some form of physical work as part of the closure and reclamation process. The majority of Project components are existing facilities on previously disturbed land; however, some additional supporting infrastructure will be required in new areas.

The Project components are as follows:

- Site Wide Components (including contaminated soils and hazardous materials)
- Underground Mine Workings
- Open Pits
- Waste Rock and Borrow (existing and new borrow/quarry areas)
- Tailings Containment Areas (including the new containment area upgradient of TCA 4) and Flat River Floodplain Tailings
- Buildings and Infrastructure (BI) (including new and existing landfills)
- Water Management

Closure objectives and closure criteria have been developed for each Project component, along with monitoring, maintenance, and reporting requirements. These items have been considered during the assessment of the Project as presented in this document.

In consultation with its Indigenous Partners, NATC has developed the following project-specific Closure goals, which underpin execution of the FCRP:

- Closure planning process occurs collaboratively where trust is built by acknowledging and respecting Indigenous rights, values, and priorities.
- Final landscape is guided by traditional and cultural knowledge, understanding of pre-development conditions, historical land uses, and community and Indigenous priorities for future use.
- Land and water are safe for people, wildlife, aquatic life, and plants.
- Site returns to a healthy environment supportive of traditional and cultural uses requiring limited intervention and no long-term active care.
- Site is reclaimed in a manner that instills public confidence.
- Site reclamation is designed to maximize opportunities for Indigenous and local socio-economic benefits.

These goals embrace the principles of physical stability, chemical stability, no long-term active care, and future use and aesthetics as indicated in the Guidance, as well the project-specific principle of Indigenous interests. Please refer to the FRCP for more detailed descriptions of closure objectives and the engagement process.

2.6 PROJECT TIMELINE

A tentative timeline for the closure and post-closure phases is presented as Figure 2-2. The Project timeline may be updated as regulatory review and design advances. Additional detail is provided in the FCRP.

2.7 REGULATORY REQUIREMENTS

The former mine is located within the Dehcho region of the NWT and is in a designated Federal Area. The Mine is regulated by Type A Water Licence MV2023L2-0006 (current to January 31, 2027) which covers care and maintenance activities. A new water licence and land use permit will be required to implement the closure activities described in the FCRP.

Legal instruments pertaining to the Mine are included as Table 2-1 of the FRCP.

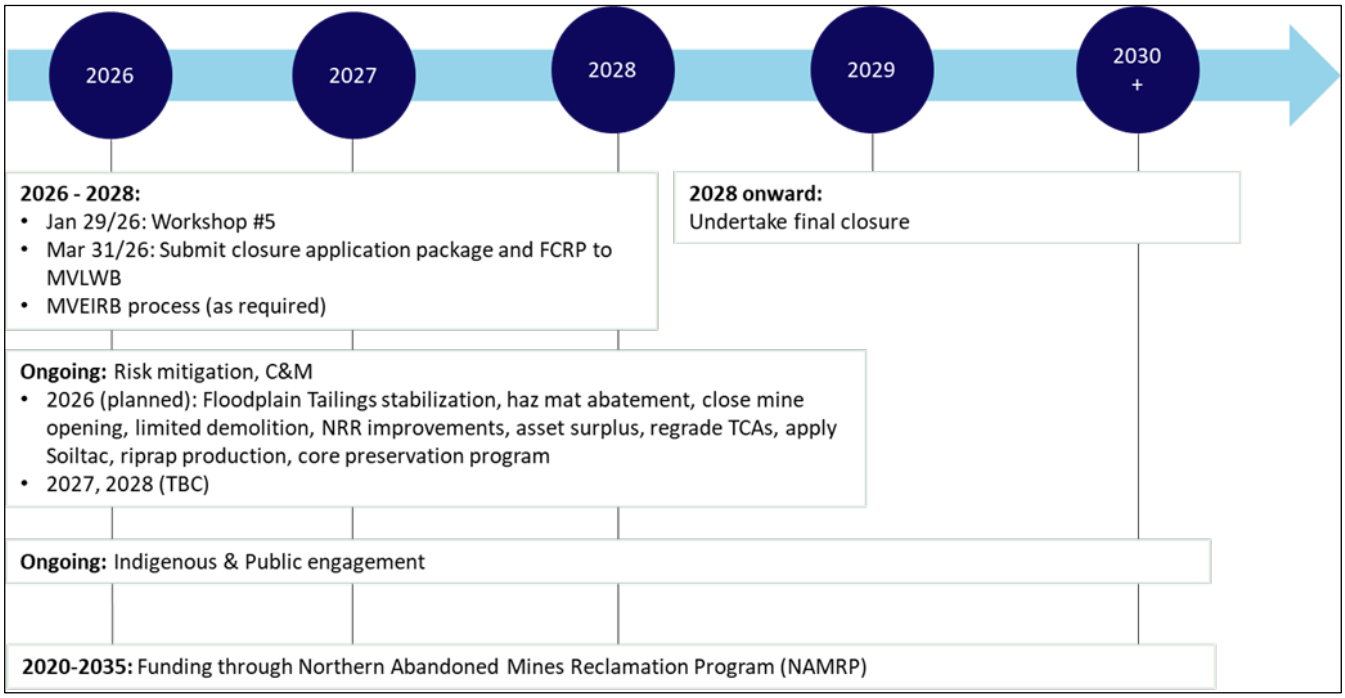


Figure 2-2 Tentative Timeline for the Cantung Mine Closure and Post-Closure Phases.

3.0 ENGAGEMENT SUMMARY

NATC has been, and continues to be, committed to engaging with Indigenous land users and rights holders, Territorial and Federal Government departments, proximal communities, and the public, referred to collectively as Affected Parties, and identified through past regulatory processes and previous engagements, as discussed further in the current approved Engagement Plan (NATC 2026b). For the purposes of the FCRP, the terms “Indigenous Partners” and “other stakeholders” are used to capture all rightsholders and stakeholders who have been engaged with throughout the closure and reclamation planning process, including groups both within and complementary to the “Affected Parties” list provided in the Engagement Plan (NATC 2026b).

There are eight Indigenous Partners[2] who hold a cultural connection to the lands and water affected by the Mine:

- Acho Dene Koe First Nation (ADKFN)
- Dehcho First Nations (DFN)
- Kaska Dena (KD) (BC communities)
- Łíídlıį Kų́ę́ First Nation (LKFN)
- Liard First Nation (LFN)
- Métis Nation Local 52 (FSM52)
- Nahɔą Dehé Dene Band (NDDB)
- Ross River Dena Council (RRDC)

The Cantung Mine lies within Treaty 11, the Traditional Territory of the DFN, and the asserted Territory of the KD. It is adjacent to the fish bearing Flat River, and upstream of areas used by recreational and traditional land users, with Tthenáágó (Nahanni Butte), LKFN (Fort Simpson), and the Nahanni Park Reserve located downstream. The Mine area holds longstanding cultural, historical, and spiritual importance to Indigenous Groups, predating mining activities, and has been used by KD and DFN peoples for hunting, fishing, trapping, traveling, and spiritual practicing. The area's hot springs hold spiritual significance, and the Flat River valley has long supported transportation, trade, seasonal movement, and connections between the Yukon and the broader Dehcho region.

Historically, Indigenous Partners were not consulted on Mine activities. Closure and reclamation planning engagement with Indigenous Partners has been critical to supporting closure planning that reflects Indigenous rights, priorities, and knowledge systems, including the incorporation of Traditional and cultural knowledge into decision-making. NATC has undertaken engagement not only to share information, but to build relationships, foster trust, and create space for dialogue that meaningfully informs closure goals, principles, objectives, criteria, and options. Where available, Traditional Knowledge has been integrated into closure planning to guide closure objectives, post-closure land and water use, preferred closure option selection, and surface design. Additional details are provided in the FCRP.

[2] Indigenous Partners have been identified by the NATC and the MVLWB through the process of compiling and approving NATC's Team's Engagement Plan (NATC 2026).

4.0 PROJECT ALTERNATIVES

The future of the Cantung Mine site can be approached in two primary ways: Do Nothing, or Full Site Decommissioning and Reclamation. The do-nothing approach would leave the Site unchanged, resulting in ongoing safety hazards, long-term environmental contamination, continued care and maintenance obligations, and potential regulatory non-compliance. In contrast, full site decommissioning and reclamation will mean actively reclaiming the site to an acceptable condition that eliminates or significantly reduces current environmental and health risks. This option not only supports regulatory compliance but also provides long-term stability, reduces future liabilities, and allows for the site to be used by future generations for traditional uses, and socio-economic, industrial, and tourism opportunities.

Once a decision was made to advance the site to final closure and reclamation, the closure planning process entailed the identification and refinement of closure objectives for each Project component. Throughout the closure planning process, various options were developed and considered for each Project component in order to meet the established closure objectives. The progression of closure planning has involved the systematic evaluation of closure options through the integration of feedback from Indigenous Partners, as well as the consideration of other technical and socio-economic input received, combined with technical and economic factors. At an early stage, options that did not meet specific criteria (e.g., were based on unproven technology, would be in violation of specific legal requirements, or would bring about changes that were of concern to the CWG) were screened out. More formal, systematic analysis methods (i.e., multiple accounts analysis or MAA) were applied to the remaining options in order to rank and select a preferred option. Additional details on the development and progression of options to final closure are provided in the FRCP.

5.0 PROJECT DESCRIPTION

With the Cantung Mine being a brownfields site, the characterization of pre-disturbance conditions does not follow current convention as the Mine predates the formal processes now established for baseline studies and environmental assessments (EA). Descriptions of pre-disturbance conditions are presented in the FCRP and have been compiled (to the extent available) using a combination of historic air photos from the 1950s and studies carried out in the intervening years.

5.1 PROGRESSIVE CLOSURE AND RECLAMATION ACTIVITIES

Progressive reclamation has been successfully implemented throughout the life of the Mine starting with the closure and reclamation of TCA 1 and 2 in the 1970’s, extensive rehabilitation of the Flat River floodplain tailings area from 1980 – 2000 that included fill placement over exposed tailings, revegetation, fertilization, irrigation, and erosion control measures, and the removal of various buildings and facilities from 1990 – 2011. Progressive reclamation from 2015 to current has involved the removal and off-site disposal of hazardous materials from buildings, backfilling of several mine openings to prevent access, and the removal of the main fuel tank farm.

5.2 CURRENT CLOSURE REQUIREMENTS

The Site contains standard mining infrastructure including mill facilities, water management facilities, an OP, underground mine workings, waste rock piles, TCAs (five in total), two landfills (one closed and one active), and various site access roads. The townsite also contains residential features such as single-family homes, apartment complexes, and a recreational facility. These accommodations are in poor physical condition and are not in use today; the Care and Maintenance workforce is housed in a temporary modular camp. Figure 5-1 illustrates the current site layout.

In the context of this report, “physical activity” or “physical work” refers to any on-site actions or operations that involve ground disturbance, material handling, construction, decommissioning, or movement of equipment that could interact with the environment. Understanding the physical activities associated with the FRCP help identify potential project-environment interactions.

Anticipated physical activities associated with the Mine FCRP generally include:

- Site preparation (including construction of supporting infrastructure and quarry area development for granular and rock material)
- Off-site removal of hazardous materials
- Demolition of buildings
- On site landfilling and transportation of materials off site for disposal
- Contaminated soil removal and backfilling of excavations
- Disposal of soil, sediment, and waste rock onto uncapped TCAs
- Excavation and disposal of tailings from TCA 1 and 2 into new containment cell upgradient of TCA 4
- Stabilization of the Flat River mainstem
- Capping and grading of TCA 3, 4, and 5 and the new cell upgradient of TCA 4
- Backfilling of mine openings to prevent access to underground workings
- Borrow and quarry operation and subsequent reclamation
- Decommissioning of on-site roads
- Passive water management
- Closure and post-closure monitoring

The following sections provide an overview the current status and proposed physical activities for each Project component.

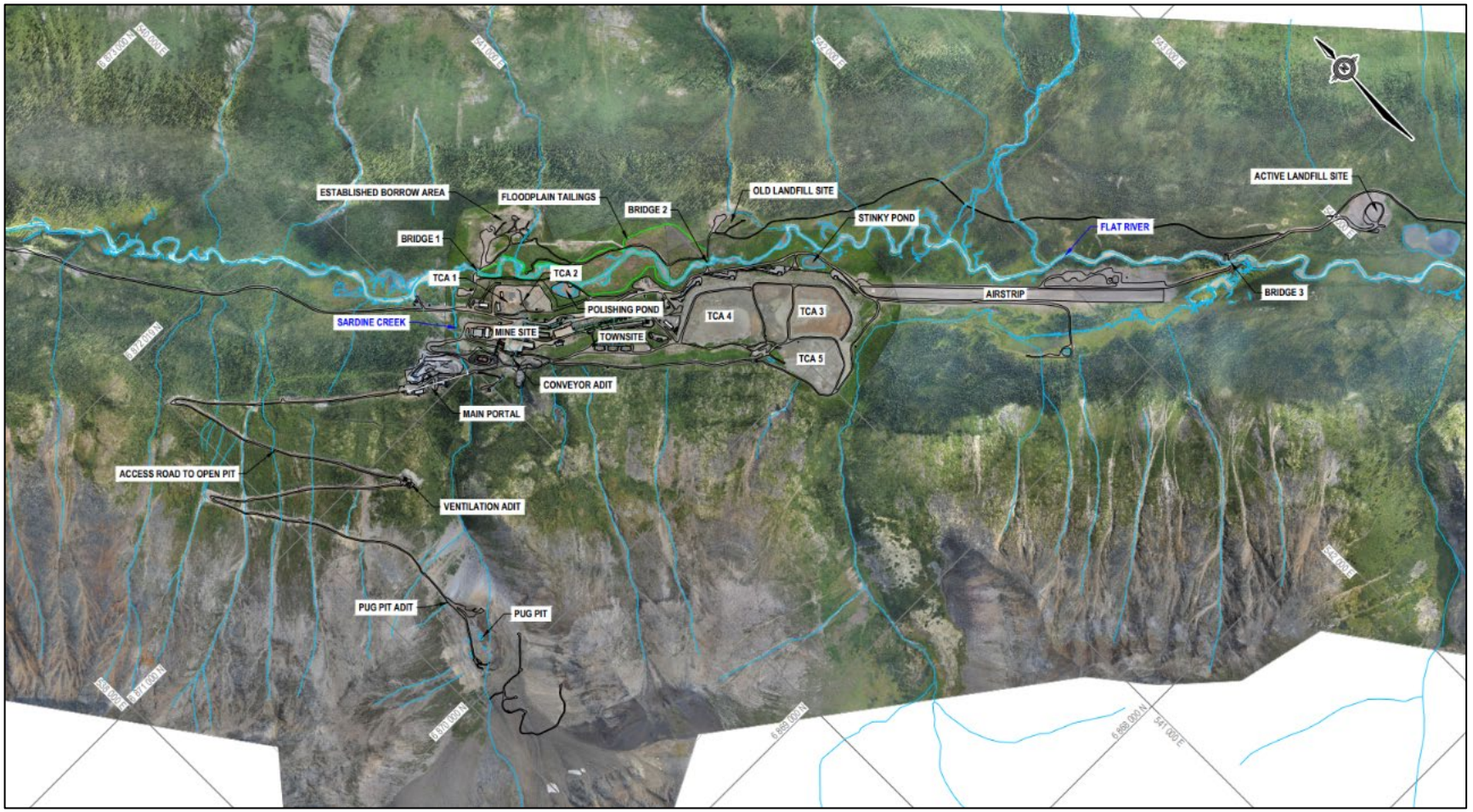


Figure 5-1 Cantung Mine Current Site Layout.

5.2.1 SITE WIDE COMPONENTS

5.2.1.1 CONTAMINATED SOILS

Soils contaminated by metals, Petroleum Hydrocarbons (PHCs), or both metals and PHC were delineated during a Phase III ESA (Tetra Tech 2020a). Contaminated soils were primarily located around the perimeter of site buildings. Site investigations did not extend under building foundations or other infrastructure; some contaminant migration under buildings is expected, depending (in part) on site conditions (e.g., building use, site gradient, contaminant source).

Proposed physical activity(s): Soil from the areas delineated in the Phase III ESA will generally be excavated to a depth of 1 m, with the exception of soil in the vicinity of the former tank farm which will be excavated to depths greater than 1 m, as described in the FCRP. Excavated material will be collected and transported to the uncapped TCAs for disposal, after which the TCAs will be capped. Excavations will then be backfilled with local granular material (except where excavations overlap with ditches that are required for post-closure site drainage). Natural revegetation is proposed for these areas.

5.2.1.2 CONTAMINATED SEDIMENT

The Phase III ESA delineated approximately 3 m^3 of metals-contaminated sediment from within the ditch that drains away from the Conveyor Adit and a combined volume of 226 m^3 of PHC-contaminated sediment from several drainage ditches and the Polishing Pond.

Proposed physical activity(s): Sediment from identified areas will be excavated to a depth of 1 m. Excavated material will be collected and transported to the uncapped TCA for disposal, after which the TCAs will be capped. Excavations will then be backfilled with local granular material (except where excavations overlap with ditches that are required for post-closure site drainage). Natural revegetation is proposed for these areas.

5.2.1.3 HAZARDOUS MATERIALS

A hazardous building material (HBM) assessment was reviewed and updated as part of the Phase III ESA (Tetra Tech 2020a). Hazardous materials documented during the Phase III ESA consisted primarily of asbestos-containing materials (ACMs), lead-based paint (LBP) and leachable lead materials, mercury-containing equipment, mould, ozone-depleting substances (ODS), polychlorinated biphenyls (PCBs), radioactive components, and miscellaneous chemicals, tanks, and drums. Of the materials identified, ACM, LBP, and miscellaneous chemicals were the materials present in the highest quantities. As noted above, progressive reclamation conducted during the care and maintenance phase has resulted in the removal of approximately 70-75% of the hazardous material on site.

Proposed physical activity(s): ACMs will be disposed of on-site in a segregated cell within the new landfill. All other hazardous materials will be removed from site for disposal at an approved facility.

5.2.2 UNDERGROUND WORKINGS

Seven mine surface openings ("adits") were developed while the underground workings were operational during mining. Openings to the underground mine workings that have not yet been secured, pose a potential safety hazard and it is necessary to permanently block openings from access by people and wildlife. Decommissioning was guided by Workers' Safety and Compensation Commission (WSCC) and *Mine Health and Safety Act* Mine Health and Safety Regulations (R-125-95; Section 17.03) developed for the NWT and long-term stability requirements specified in the closure objectives.

When mining operations stopped in 2015, the underground workings were left to flood. By 2017, much of the underground was presumed to be flooded to an elevation almost equivalent to that of the Main Adit (1,202.5 m). The majority of mine water discharges through the Conveyor Adit (located at a lower elevation than the Main Adit); however, some water discharges via the Main Adit largely in response to seasonal groundwater fluctuations (Tetra Tech 2021a).

A brief description of each adit and current status is listed in Table 5-1:

Table 5-1 Current Status of Mine Adits at the Cantung Mine.

Opening	Description	Current Status
Pit Underground (PUG) Adit	Located adjacent the OP and is at the highest elevation	Inaccessible, decommissioned as part of previous progressive reclamation works*
Alimak Adit	Presumed to be used for ventilation	Inaccessible, decommissioned as part of previous progressive reclamation works
Ventilation Adits (2)	Entryway and ventilation adits containing ventilation fans, located mid-way along the OP access road	Inaccessible
Main Adit	Largest underground opening, located near the base of the OP access road	Inaccessible, some decommissioning works have been completed
Manway Adit	Secondary entryway to the Main Adit, adjacent the underground dry and Main Adit	Inaccessible, some decommissioning works have been completed.
Conveyor Adit	Located below the Main Adit near the mill buildings and is the lowest elevation entry point to the underground workings	Inaccessible

* Decommissioning of the pit access road will further restrict access to this adit.

Generally, at closure, infrastructure remaining in the underground workings, including non-degradable (e.g., steel or aluminum) materials, ducting, piping, and electrical lines, will be left in place as all openings will be backfilled to prevent access. A subsidence assessment was conducted for the Conveyor Adit (Tetra Tech 2025d) to further inform the closure approach for this particular component. The assessment evaluated whether anticipated flow rates through the Conveyor Adit could be accommodated following subsidence and what the potential effects of subsidence might be on the long-term stability of the Conveyor Adit and Main Adit above.

Proposed physical activity(s): All underground mine openings will be sealed in accordance with an approved engineering design as part of site closure.

5.2.3 OPEN PIT (OP)

The pit is a relatively shallow side hill cut located in a cirque above the treeline and was in operation from 1962 to 1973. The pit is configured in a horseshoe shape with three excavated walls to the northwest, southwest, and southeast, which mimics the shape of the valley it is located in. The natural topography of the valley sidewalls extends another 400 to 500 m upslope above the excavations before reaching the ridgeline. The pit walls have sloughed naturally over time to form stable talus slopes that conform with the surrounding topography. Sloughed material is confined within the cirque, enhanced by rock fall berms that were constructed by NATC.

Proposed physical activity(s): The OP will be maintained in its current configuration. A berm will be constructed across the OP access road to prevent vehicular access to the area. The berm will also restrict access to the OP and the PUG Adit. The berm will be constructed of locally sourced rockfill material with larger boulders placed on top to further discourage access. The access road to the pit will also be decommissioned by removing culverts and scarifying the road surface.

5.2.4 WASTE ROCK PILES

Four primary waste rock piles (Waste Rock Piles #1 - #4) are present on site, located primarily along the upper benches of the Flat River valley adjacent the adits. All of the waste rock piles are currently physically stable. No mined material has been added or removed to any pile since the mine shut down in 2015, the exception being material sourced from Waste Rock Pile #1 in 2019, which was used to construct access ramps in support of the geotechnical site investigation conducted at the TCAs. The waste rock stockpiles are described in Table 5-2.

Table 5-2 Waste Rock Pile Summary.

Waste Rock Pile	Approximate Volume	Material	Geochemistry	Current Risks and Hazards
#1 Located outside and downgradient of the Main Adit	65,000 m^3	Mixed waste rock from underground activities	Mixed PAG/NAG	Low risk due to small waste rock volume, limited infiltration of water into the pile, and resulting small seepage volume
#2 Located upslope of the mill building, adjacent to the Conveyor Adit	15,000 m^3	Mixed low-grade ore and waste rock pile	Mixed PAG/NAG	Low potential for ARD/ML production due to presence of ore feed material that was not processed prior to mining operations stopping
#3 Located downgradient of the PUG OP	10,000 m^3	Waste rock from development of the OP	Mixed PAG/NAG	Low risk due to isolated location away from receiving waters and presence of neutralizing material within the pile
#4 Located approximately 500 m away from the mine dry building along the OP access road	400 m^3	Waste rock	Predominantly NAG	Low risk due to isolated location away from any receiving waters and generally neutral ARD/ML classification

The potential for acid-rock drainage and metal leaching (ARD/ML) impacts related to the waste rock piles is generally low due to their small volumes, limited infiltration of water into the piles which results in small seepage volumes, if any, and the general placement of the piles away from persistent sources of flowing water. The natural alkalinity of the receiving environment further mitigates against potential effects.

Proposed physical activity(s): The closure option for the waste rock piles, with the exception of Waste Rock Pile #3, is to excavate the material and relocate it to the surfaces of TCA 3, 4, and 5 prior to capping the TCAs. This consolidates potential sources of on-site contamination and simplifies future monitoring and maintenance requirements. Waste Rock Pile #3 will remain in place as it is inaccessible and is not considered to pose a long-term risk at closure. NAG waste rock used previously for TCA construction access (sourced from Waste Rock Pile #1) will also either be relocated to the surfaces of TCA 3, 4, and 5 or used in other construction works.

5.2.5 QUARRY AND BORROW AREAS

The Ski Hill borrow area was historically used as the primary borrow source for the mine. It is located on the far side of the Flat River, opposite TCA 1 and 2. Vegetation has reestablished around the edges of the Ski Hill borrow as well as sporadically within the borrow area itself. New borrow sources for both granular material and quarried rock will be required as part of final closure activities.

Proposed physical activity(s): Closure of the Ski Hill and other quarry areas will largely involve grading and contouring the final excavations to limit surface runoff and resist erosion. Ditching will also be installed (or upgraded in the case of the Ski Hill borrow) to further manage run-on and runoff water over the long-term. Areas will be left to revegetate naturally once closed.

5.2.6 TAILINGS CONTAINMENT AREAS

Tailings generated by mining are stored within five TCAs and are also present within the Flat River floodplain. Tailings were deposited into the floodplain in the early 1960s prior to the storage of tailings on land within the TCAs. The oldest TCAs (1 and 2) operated in the 1960s and were capped in the early 1970s when they reached capacity. TCA 3, 4, and 5 were constructed and used between 1971 and 2015. They were still in use when the mine stopped operating in 2015 and are currently uncapped.

Various engineering investigations and assessments of the TCAs have been undertaken to confirm appropriate stabilization approaches for closure. The results of these programs have helped refine TCA closure options and provide context around the primary risks associated with the TCAs. A summary of the TCAs is provided in Table 5-3.

Table 5-3. Tailings Containment Area Summary.

Tailings Containment Area	Estimated Volume	Location	Status	Current Hazards and Risks
TCA 1 + TCA 2	Combined Volume (TCA 1+TCA 2) 263,000 m^3	Northeast of the townsite	Both facilities were capped and reclaimed in the early 1970s when they reached capacity.	Retrogressive embankment failure due to embankment toe erosion is a concern over the short-term and long-term. A breach type failure is unlikely.
TCA 3	1,316,000 m^3	Southeast of the townsite	Uncapped	Mobilization of tailings from surface water or wind erosion A breach type failure is unlikely.

Tailings Containment Area	Estimated Volume	Location	Status	Current Hazards and Risks
TCA 4	850,000 m^3	Southeast of the townsite, north of TCA 3	Uncapped	Mobilization of tailings from surface water or wind erosion A breach type failure is unlikely
TCA 5	587,000 m^3	Southeast of the townsite, east of TCA 4	Uncapped	Mobilization of tailings from surface water or wind erosion A breach type failure is unlikely

Proposed physical activity(s): Closure and reclamation of TCA 1 and 2 will involve relocating approximately 165,000 m^3 of tailings to an engineered cell upgradient of TCA 4. Given the predominantly dry nature of the tailings, a conventional truck and shovel operation is planned. Vegetation growing on the embankments will be salvaged as a first step for later use in revegetation efforts within the excavated TCA 1 and 2 footprint and around site. Embankment material will be stockpiled adjacent the TCA 1 and TCA 2 footprint for later reuse in the reclamation of the excavated TCA 1 and 2 footprint or other closure activities needing granular fill.

Following excavation, the TCA 1 and 2 footprints will be capped with some of the stockpiled embankment material and graded to match the surrounding area and promote positive drainage. The surface would then be prepared for revegetation using material salvaged from the TCA 1 and 2 embankments. Supplemental infilling with additional plant material (e.g., woody cuttings, plugs, or seeds salvaged from other areas around Site) may be required.

The long-term goal of the revegetated area would be to rehabilitate this upper bench of the Flat River valley which once supported open stands of conifer trees and a denser shrub and herb cover. Rehabilitation of the area may also facilitate wildlife passage through the site. The closure and reclamation of TCA 1 and 2 will also include construction of an engineered containment area upgradient of TCA 4 (as described below).

The closure and reclamation of TCA 3, 4, and 5 involves grading and reshaping the TCA 3 embankment, grading and reshaping the northwest corner and upper embankment of TCA 4 to move the embankment toe further away from the Flat River, placement of riprap along the reshaped, northwest toe of TCA 4 to protect against potential erosion from the Flat River during high flow events, and placement of a 0.5 m granular cap over all exposed tailings (including the newly constructed upgradient cell) to reduce erosion potential. The cap would be installed after the placement of contaminated soils and waste rock has occurred.

To support closure activities, a new engineered containment area will be constructed upgradient of TCA 4. The facility is approximately 8 ha in size and will be divided into two cells: one to receive tailings excavated from TCA 1 and 2 and one constructed as a landfill to receive demolition debris (including ACM in a segregated cell). The facility will be capped with granular, erosion resistant material at completion in a manner similar to that applied to TCA 3, 4, and 5.

5.2.7 FLAT RIVER FLOODPLAIN TAILINGS

The Flat River runs in a northwest-southeast direction, meandering in the valley floor adjacent to the Cantung Mine. Between 1962 and 1965 and prior to the construction of the TCAs, tailings were deposited directly into the Flat River floodplain. Extensive measures have been successfully implemented during historic operation and/or the care and maintenance phase to rehabilitate the floodplain (as described in Section 5.1).

The tailings in the Flat River floodplain have changed geochemically over time and are essentially depleted of carbonate with little original sulphide mineralization remaining. Observations from past studies suggest that oxidation of the tailings has occurred through the depositional depth of the material. The majority of the primary minerals have been replaced by secondary minerals during the oxidation reactions. Unless an erosive event exposes fresh unoxidized tailings, which are present in deeper areas of this deposit, it is expected the tailings will remain stable with no significant changes observed in terms of effects to the receiving environment.

Proposed physical activity(s): Closure and reclamation of the floodplain tailings will primarily involve reinforcing the Flat River mainstem with riprap rock to limit erosion, particularly during high flow events. Stabilization would involve a combination of fine fill and riprap armouring placed along the channel embankments. Materials used as fill (particularly riprap) will be locally sourced and geochemically inert (i.e., classified as non-PAG).

Stabilization of the Flat River mainstem will also reduce the potential for water to stagnate or become trapped in smaller side channels that lose connection with the Flat River when water levels drop. These areas often result in iron precipitate staining that is visible in the ponded water. Provisions are included in the closure design to address areas with the potential to trap water, if/when encountered during implementation.

Reclamation efforts will also look to enhance the vegetation cover in localized areas where cover is currently lacking. Potential candidate areas will be evaluated uniquely to determine if application of growth media is required and whether natural revegetation is likely, or whether more active (e.g., seeding or planting) revegetation methods would be more appropriate.

5.2.8 BUILDINGS AND INFRASTRUCTURE (BI)

Infrastructure at Cantung is a combination of industrial buildings once used for the mining and processing of ore, and a townsite consisting of residential and administration buildings. Linear infrastructure (roads and trails), an airstrip, and waste management areas (landfills) are also present. Infrastructure will be removed and the Site will be left in a stable and secure condition. Temporary structures required to support closure activities will be of modular construction and brought specifically to site for this purpose.

Proposed physical activity(s): All of the of buildings at the mine and in the townsite of Tungsten will be demolished. Hazardous materials, if present, will be disposed of off-site. Some material may be recycled; however, most of the buildings will be put into a new landfill, near the TCAs.

All of the roads will be decommissioned by removing the culverts and bridges and roughening up the road surfaces. The airstrip will be left in place but would be de-registered with Transport Canada.

5.2.9 WATER MANAGEMENT

The Site receives natural runoff from several upgradient catchments. Once water approaches the mine footprint, it is either diverted around existing infrastructure as non-contact water (e.g., through ditches upslope of TCA 3, 4, and 5) or is routed through the site using a series of ditches, culverts, and storm drains to ultimately direct runoff towards the Flat River.

At closure, run-on and runoff water will be passively routed through the Site with water directed away from structures that are to remain in place post-closure (e.g., TCA 3, 4, and 5, the upgradient cell, and the new landfill). Extreme events (floods, precipitation) and climate change considerations have been incorporated into water management designs so that water can be safely directed to the receiving environment in a manner that achieves closure objectives and criteria over the long-term. Two debris flow structures are proposed to flank the new upgradient cell to direct water away from the new cell and TCAs.

Mine water will generally follow the same path as current (i.e., from the Conveyor Adit through the mine site to the Flat River); however, areas containing culverts will be re-designed to allow water to flow on surface, with the culverts removed. Several settling ponds and small pools will be constructed to help slow flows and settle sediment. Designs will be such that they avoid the possible entrapment of wildlife and humans.

Upgrades to the Polishing Pond are proposed to limit resuspension of sediment post-closure. This will entail excavation of remaining tailings (for disposal in the cell upgradient of TCA 4) and the placement of granular material along the pond bottom. Proposed Discharge Quality Objectives (DQO) (described in more detail in the FCRP), or similar, will be incorporated into long-term monitoring of the site in the post-closure phase and will provide objectives and targets for water quality and identify if/when adaptive management measures are required.

Proposed closure and reclamation prescription: Physical works related to water management during the closure phase will generally include the removal of culverts, expansion of ditches, mechanical excavation, and/or placement of fill material, followed by general site grading to encourage positive drainage and limit water from ponding.

5.3 NEW DEVELOPMENTS TO SUPPORT CLOSURE PHASE

Closure and reclamation activities will require the establishment of new developments within or adjacent the Site. These largely include construction of the containment cell upgradient of TCA 4 and the development of new quarry and borrow sources. These developments will be closed and reclaimed as soon as they are no longer required for implementation of the FCRP.

5.3.1 ESTABLISHMENT OF CAMP FACILITIES

A construction camp will be required to support closure and reclamation activities. The camp will be temporary in nature and will entail relocation and expansion or replacement of the existing camp. There will be no new water intakes or discharges associated with the temporary camp. Once it is no longer needed to support closure activities, the construction camp will be dismantled and removed from site.

5.3.2 ESTABLISHMENT OF UPGRADIENT CELL INCLUDING NEW LANDFILL

As presented above, an engineered containment cell upgradient of TCA 4 will be constructed to support closure activities. The configuration of the upgradient cell is based on an engineered waste stockpile, analogous to a dry stack tailings facility. It will be composed of a granular perimeter containment berm with contents placed and compacted in its interior. An interior berm will divide the cell to separate tailings from landfill debris. Side slopes would be constructed to a 2H:1V configuration. Run-on water would be managed by ditching and the construction of debris deflection berms around the cell. The design flow would be 1/3 between 1:1,000 Annual Exceedance Probability (AEP) and Probable Maximum Flood (PMF) event, consistent with Canadian Dam Association (CDA) guidelines. The facility will be capped with granular, erosion resistant material at completion.

5.3.3 ESTABLISHMENT OF QUARRY(S)

New quarries will be required for both rock and granular production as part of the final closure design for the Site. Several potential quarry areas have been identified; however, it is unlikely all areas would be developed during the closure phase of the Project.

6.0 BASELINE CONDITIONS

For the purpose of this assessment, the Site's "baseline" condition is its present state. This assessment does not aim to evaluate the effects of the Site pre-development compared to the current or future state. Baseline (current) conditions for the abiotic, biotic, and cultural environmental components have been summarized briefly in Section 5.0 of this document but are described more fully in the FRCP.

7.0 IMPACT ASSESSMENT

Identification and consideration of potential adverse impacts and positive changes resulting from implementation of proposed closure activities has been at the forefront of decision making and design since closure planning was initiated. The purpose of this assessment is to review the FCRP, including design concepts and associated physical works, and determine if potential changes to the biophysical and human environment that may result would be considered significant adverse impacts. The assessment also highlights positive potential changes (outcomes) resulting from implementation of the FCRP.

The terms "effect" and "impact" are often used interchangeably, but for the purpose of this assessment, the general Mackenzie Valley Environmental Impact Review Board (MVEIRB) definition of impact ("any effect on land, water, air or any other component of the environment, as well as on wildlife harvesting, and includes any effect on the social and cultural environment or on heritage resources") is being applied. Additional terms used in the assessment are as follows:

- **Effects**: Refer to the **measurable changes** to environmental conditions caused by the project. Effects are generally quantitative or observable and can usually be identified during early technical analysis of the project. Typically, mitigation measures can be incorporated into project design or monitoring to eliminate, reduce, control, or offset adverse effects. Not all environmental effects will result in environmental impacts, particularly if they are easily mitigated through compliance with regulatory requirements, site-specific objectives and thresholds, and known best practices.
- **Residual Effects**: Effects that **persist** after mitigation measures are applied are called referred to as residual. Impact assessment strives to apply a significance level to all residual effects resulting from a project.
- **Impacts**: Refer to the **significance or consequence** of project-related residual effects, and considers the frequency (how often does the change occur), magnitude (how big is the change?), geographic extent (local, regional, territorial etc.), duration (short- or long-term, permanent), reversibility (can changes be reversed back to normal conditions), and context (ecological rarity, cultural importance). A residual effect becomes a significant impact when one or more of these criteria exceed acceptable thresholds.

This assessment supports informed decision-making by evaluating whether project-related effects have the potential to result in significant adverse environmental impacts. At the same time, the identification of positive changes (outcomes) is also a critical aspect of the assessment given that the overarching goal of the Mine FCRP is to return the mine site and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities. If identified early, positive outcomes can be encouraged to bring benefits to the biophysical and human environment during and after the project has taken place.

As described in Section 3.0, the CWG has worked collaboratively throughout the closure planning process to proactively integrate environmental considerations, as well as local concerns and ideas, into Project design. This collaborative approach has helped to avoid adverse impacts while creating opportunities for positive outcomes.

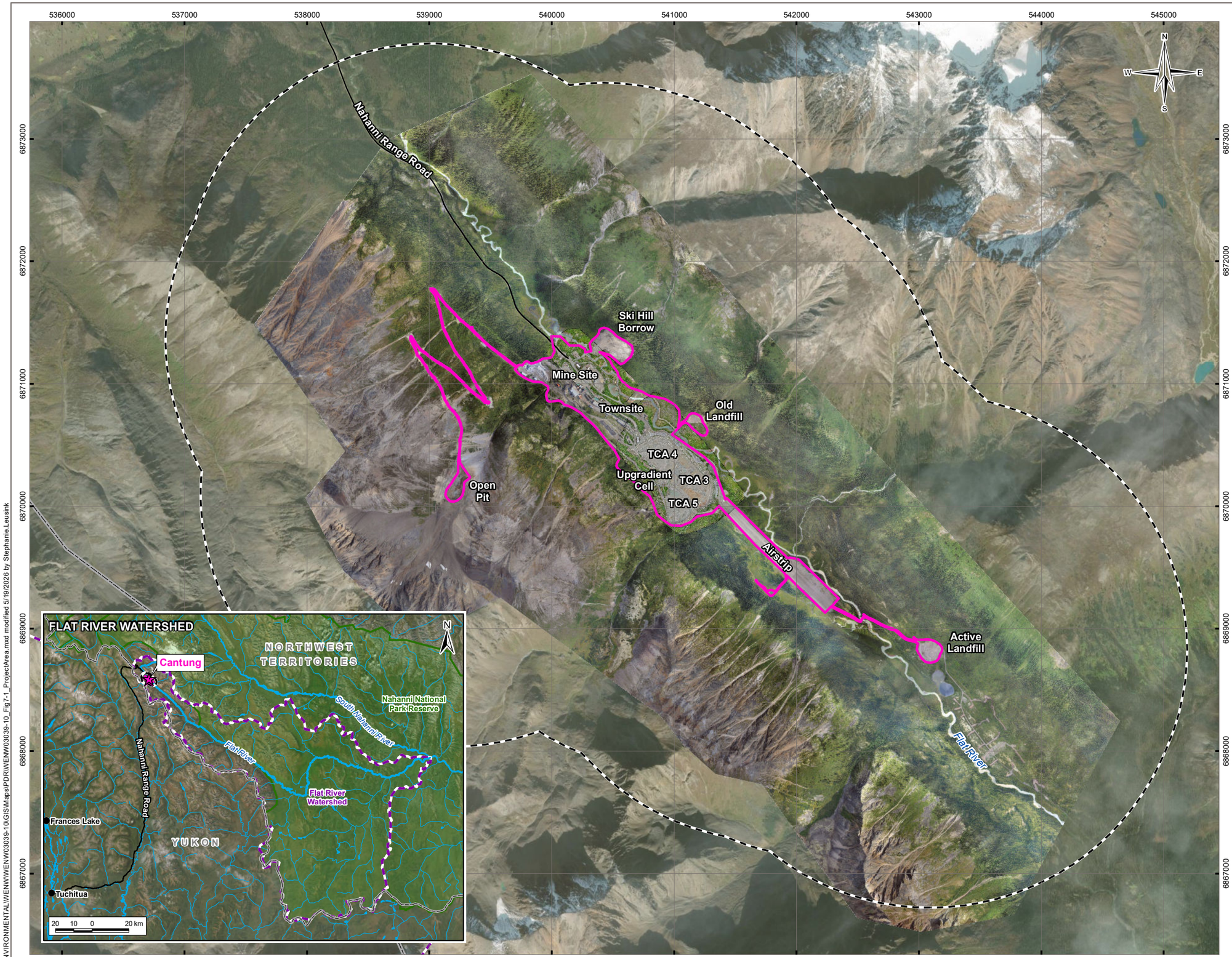
7.1 SPATIAL AND TEMPORAL BOUNDARIES

Potential environmental impacts resulting from the proposed closure and reclamation works have been evaluated in relation to spatial and temporal boundaries. Three spatial extents have been considered (Figure 7-1):

The **Project Site** includes the footprint of the existing Mine Site and new developments[3] related to implementation of the FCRP. Direct impacts related to project-environment interactions are most likely to occur within this area (e.g., soil compaction).

The **Local Study Area** is setback approximately 2 km from the edge of the Project Site. This represents the approximate zone of influence for potential environmental impacts resulting from Project-environment interactions within the Project Site (e.g., windblown dust during excavation of soils in the Project Site).

[3] The estimated volume of granular and rock material required from quarries to support closure activities may be sourced from a combination of areas as presented in the FCRP. Quarry locations have not been finalized and are not included on Figure 7-1.

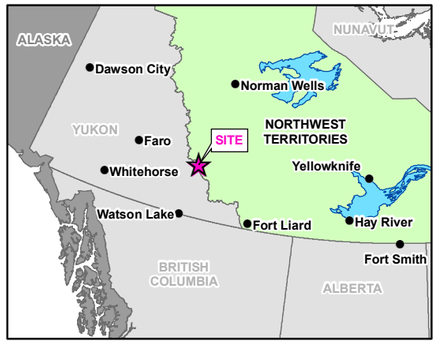


LEGEND

- Cantung
- Project Site
- Local Study Area (2 km Buffer)
- Regional Study Area (Flat River Watershed)

Base Data

- Community
- Road
- Watercourse
- Waterbody
- National Park Reserve
- Territorial Boundary



NOTES
Base data source:
Imagery from EINAC (2013); ESRI (2012/2021).
High resolution drone imagery collected in 2022.

STATUS
ISSUED FOR USE

PROJECT DESCRIPTION REPORT CANTUNG MINE, NT

Spatial Boundaries Associated with Assessment

PROJECTION UTM Zone 9		**DATUM** NAD83		**CLIENT** North American Tungsten Corporation Ltd
Scale: 1:30,000 500 250 0 500 Metres				TETRA TECH
FILE NO. WENW03039-10_Fig7-1_ProjectArea.mxd				
OFFICE Tt-VANC	**DWN** SL	**CKD** BB	**APVD** TP	**REV** 0
DATE May 19, 2026	**PROJECT NO.** ENW.WENW03039-10			**Figure 7-1**

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The **Regional Study Area** is generally bound by the Flat River watershed. This larger area, which also overlaps with a portion of the Nahanni National Park Reserve (NNPR), supports the assessment of potential changes and indirect effects on abiotic, biotic, and cultural components at a wider scale. In particular, the scale allows for the examination of potential effects on socio-economic values of the communities and stakeholders of the region.

The temporal boundaries of the assessment are from initiation of the Closure Phase through to the end of the Post-Closure Phase and includes site preparation, construction, and post-construction monitoring.

7.2 ASSESSMENT METHODS

An initial assessment of the potential for interaction between proposed FCRP Project components and abiotic, biotic, and cultural components was undertaken (Table 7-1; Appendix A). Potential interactions were carried forward to another level of assessment which included the identification of project phase, project interaction, planned mitigation, residual effects, and assessment direction (Table 7-2; Appendix A).

If adverse residual effects remained following the application of planned mitigation, an evaluation of significance was completed using the criteria presented in Figure 7-2 as a guide. Neutral (effects that are considered mitigable) and positive changes or outcomes are also noted in Table 7-2 but were not evaluated for significance.

Negligible* or Low	Moderate	High
Effects are likely to be negligible or minor in scale if they are negligible or low in magnitude, of short duration, infrequent, small in spatial extent, reversible or readily avoided, and to generate few or minor impacts in social or ecological contexts. Mitigation measures will allow baseline conditions to remain largely unchanged.	Effects are likely to be medium in scale if they are moderate in magnitude, of moderate duration, occasionally frequent, possibly/partially reversible, and to generate a moderate level of impacts in environmental, health, social or economic contexts. Mitigation measures may not fully eliminate, reduce, control or offset effects but should enable affected communities to maintain health, social and economic well-being, and should prevent the diminishment or loss of key components of the environment.	Effects are likely to be severe in scale if they are high in magnitude, permanent/long term, frequent, irreversible, and over a large spatial extent or within an area of exclusive/preferred Indigenous use or of ecological/environmental sensitivity. High levels of impacts in environmental, health, social or economic contexts are expected. There is a high degree of uncertainty of the effectiveness of mitigation measures, or mitigation measures are unable to fully address effects such that valued components are diminished or lost.

** A "negligible" effect does not mean "no effect" but that an effect is sufficiently small to likely not result in a noticeable change to the valued component. However, in the context of cumulative effects, a negligible effect may be important in understanding regional effects as a whole. For example, while an effect may be negligible on its own, it may be amplified if other physical activities affect the same valued component.*

Source: Impact Assessment Agency of Canada (2023)

Figure 7-2 Suggested Criteria for Characterizing Extent of Significance.

7.3 RESULTS OF IMPACT ASSESSMENT

The assessment of potential environmental effects related to closure activities for the Mine is summarized below. The approach is based on the Northwest Territories water licensing process and integrates both technical and community-informed perspectives.

Interaction between Project components and the surrounding environment is expected to occur as summarized in Table 7-1. Effects related to these interactions have been greatly reduced or avoided through thoughtful and proactive Project design which prioritized compliance with regulatory standards and the incorporation of known industry best practices to mitigate adverse effects. Mitigation examples include, but are not limited to, the following list:

- Industry-standard approaches for civil construction and earthworks
  - Erosion and sediment control
  - Spill prevention and response planning
  - Application of dust control measures (when required)
  - Construction and post-construction monitoring by Qualified Professionals
- Building demolition and hazardous materials abatement
  - Following WSCC Asbestos Abatement Code of Practice and GNWT Guidelines for Hazardous Waste Management
- Site-specific mitigation measures
  - Designing Project components to facilitate the achievement of closure objectives
  - Capping TCA 3, 4, and 5 and the upgradient cell to retain tailings, limit dust production, and restrict oxygen diffusion into the piles (thus reducing the potential for geochemical reactions to occur)
  - Consolidating areas of contamination (e.g., placing excavated contaminated soil, sediment, waste rock, and tailings from TCA 1 and 2 onto TCA 3, 4, and 5 and into the upgradient cell)
  - Designing Project components to work with existing site conditions to limit earthworks and areas of new disturbance
  - Limiting vehicle use to pre-existing disturbance areas (where possible)
  - Reclaiming areas in a way that makes use of salvaged material (both plants and rooting substrate) and encourages natural revegetation (e.g., through site preparation and scarification)
  - Conducting pre-disturbance surveys for wildlife and heritage/archaeological resources
  - Operating outside of sensitive lifecycle stages for wildlife, where possible

Residual effects remaining following mitigation are expected to be short-term (associated with temporary, active construction), localized within the Project footprint, and readily reversible. Many of the interactions resulting in potential adverse effects during the closure phase revert to neutral or positive impacts during the post-closure phase, as the site returns to a more natural state. A summary of the broad components assessed is provided below.

The majority of identified effects can be mitigated. Of the few residual effects remaining after mitigation has been applied, most are positive and work to achieve a more natural site condition following reclamation. The few adverse effects identified are associated with the construction of supporting infrastructure that will remain on the landscape (e.g., the upgradient cell and some areas used for quarried material). These adverse effects are considered of low significance as they are small in their spatial extent and are unlikely to affect high-value habitat for plants and wildlife. Adverse residual effects within the local or regional study areas are not expected to occur.

Abiotic Components: Project–environment interactions with abiotic components (land, water, and air) are expected to occur primarily during earthworks, material handling, and the operation of mobile equipment. Residual effects after mitigation will be predominantly short-term, low magnitude, and localized, consistent with a low significance. Minor residual effects may include soil disturbance and compaction, potential erosion during construction, temporary dust generation, and limited changes in infiltration or surface water quality, which can be readily mitigated through the use of well-known industry best practices.

Some activities, such as stabilization of the Flat River channel and site-wide water management, result in significant positive long-term effects, including enhanced water quality, reduced erosion potential, and improved stability of reclaimed landforms.

Biotic Components: Residual effects on vegetation, wildlife, and aquatic habitat are a mix of short-term construction-related disturbance and long-term positive improvements as a result of reclamation. Vegetation clearing for borrow sources and the upgradient cell results in localized, irreversible losses, but broad-scale revegetation and habitat recovery across the site create positive outcomes over time.

Wildlife interactions, particularly those associated with vehicle use can be offset by implementing speed limits and adhering to safe driving practices. Wildlife may experience temporary disturbances as a result of construction noise and activity; however, these effects are expected to be temporary and reversible once construction work is complete. Disturbance to habitat supportive of key life stages will be avoided by conducting surveys prior to construction to identify active features (such as nests) and apply appropriate setbacks. Overall, site reclamation is expected to improve habitat quality and connectivity, potentially enabling some species to resume historic movement or migration routes through the Flat River valley.

Aquatic habitat is expected to be enhanced over the long-term, as Flat River stabilization reduces potential bank erosion and supports healthier fish habitat. No significant adverse biotic effects remain after mitigation.

Cultural Components: Site access will be largely restricted during construction to maintain site safety. Once construction is complete, residual social and cultural effects are expected to be generally positive, particularly in relation to site safety, aesthetics, land use, and local economic opportunities. Potential employment and training opportunities during closure provide short-term economic benefits with long-term transferable skills for Indigenous and local workers.

Reclamation will substantially improve landscape aesthetics, remove unsafe infrastructure and hazardous materials, and support renewed traditional and recreational land use, including safer access to features such as the airstrip and hot springs. Potential impacts to heritage resources are mitigable through pre-disturbance archaeological assessments and avoidance. No significant adverse social, cultural, or economic effects are anticipated following mitigation.

Monitoring conducted as part of the post-closure phase (described further below) will provide additional support to the prediction of residual effects described above.

7.4 CONSIDERATION OF CUMULATIVE EFFECTS

The residual effects remaining, as described in Section 7.3, have been considered in combination with effects of other past, present, and reasonably foreseeable future developments to present an assessment of potential cumulative effects. To be considered in the cumulative effects assessment, adverse residual effects from the Project need to overlap spatially and temporally with those of other projects and there should be a reasonable expectation that the addition of the Project's residual (adverse) effects would result in a change that could affect the quality or sustainability of the component (abiotic, biotic, and/or cultural) in question.

The approach to assessing cumulative effects associated with closure of the Cantung Mine included defining a boundary within which cumulative effects might occur and identifying past, present, and reasonably foreseeable future developments that might occur within the defined cumulative effects boundary and during the same timeframe as Project activities.

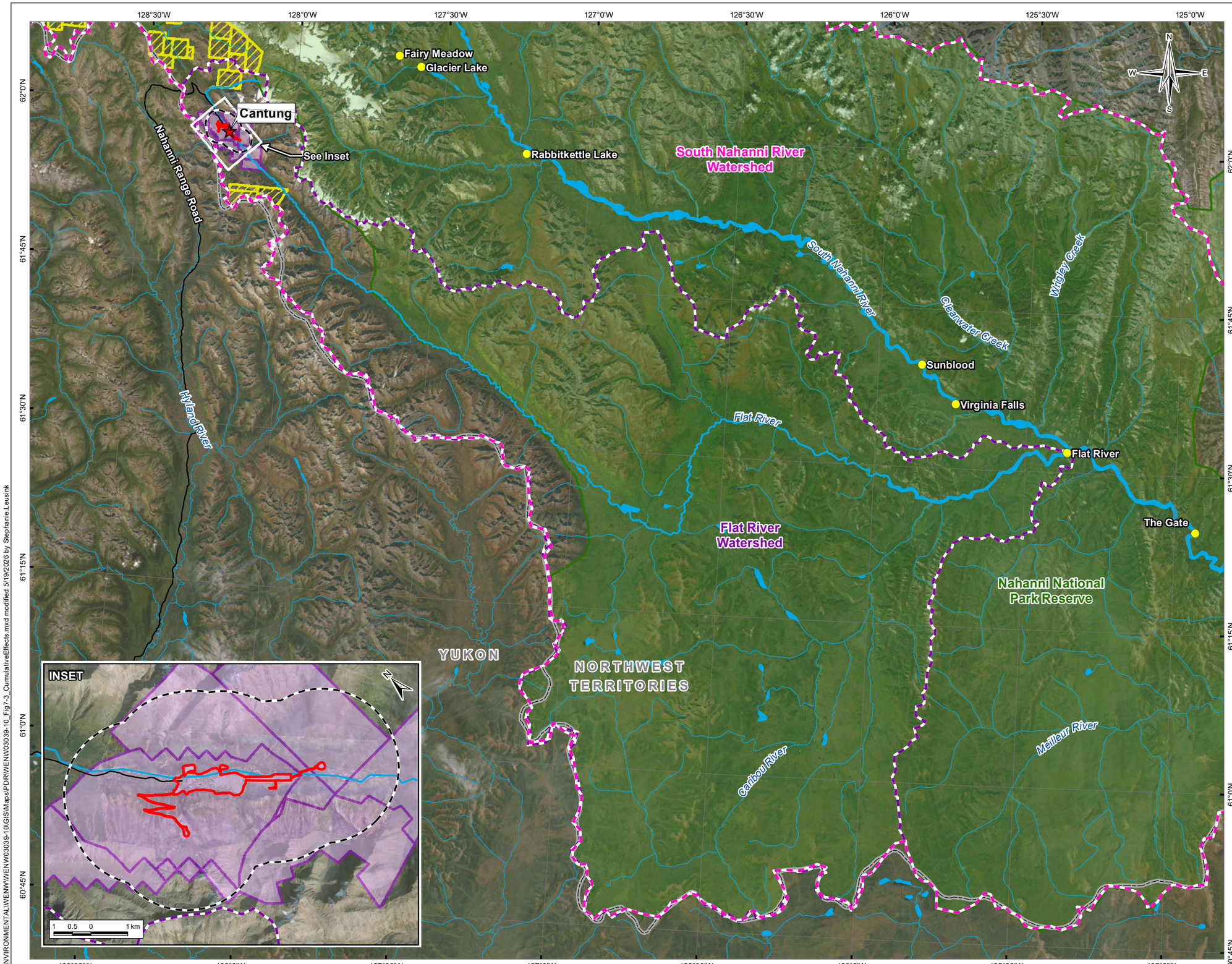
The boundary used to assess cumulative effects is the regional study area, equivalent to the Flat River watershed which encompasses a portion of the NNPR (Figure 7-3). Development projects that could potentially occur within this boundary were identified by reviewing the online registries maintained by the MVEIRB, MVLWB, and the Yukon Environmental and Socio-economic Assessment Board, the Northwest Territories Mineral Tenure Map Viewer, and reviewing the management plan for NNPR (Parks Canada 2021). All active, completed, and withdrawn projects were considered.

NATC notes that, through its engagement, various potential post-closure uses of the land and waters have been contemplated within the cumulative effects boundary. As these uses are largely conceptual at the time of this assessment, they do not fit the criteria for consideration presented above. As such, they have been excluded from the cumulative effects assessment.

The temporal (time frame) boundary considered is the next 10 years. During this time, the closure phase would be complete and the Project would be in post-closure, with regular monitoring and maintenance occurring. Whether any active or new projects will commence during this 10-year timeframe remains unknown.

Mineral exploration tenure associated with several exploration projects was noted in and around the Nahanni Range Road and Howards Pass Access Road to the north and south of the Cantung Mine, both within the NWT and YT (Figure 7-3). While the mineral tenures and related boundaries overlap with the cumulative effects boundary for Cantung; the exploration activities are expected to be sufficiently restricted in spatial and temporal extent as to not interact with the localized residual effects anticipated from closure of the Cantung Mine. Points of interest within NNPR (per Map 3 in Parks Canada 2021, recreated on Figure 7-3) also occur in the South Nahanni watershed, outside the cumulative effects boundary identified for Cantung, which avoids potential overlap with Project-related activities (Figure 7-3).

The adverse residual effects described in Section 7.3 and Table 7-2 associated with the Cantung Project are small in spatial extent and occur only within the Project footprint. As such, cumulative effects resulting from the Project and other existing or proposed projects in the vicinity are not anticipated to occur.



LEGEND

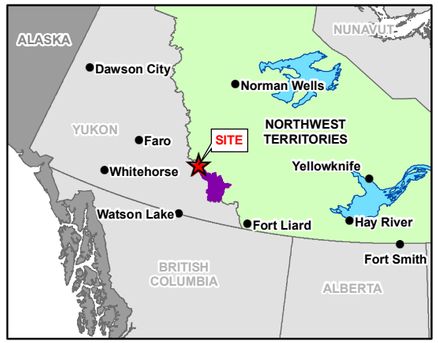
- Cantung
- Project Site
- Local Study Area (2 km Buffer)
- NNPR Point of Interest
- Regional Study Area (Flat River Watershed)
- South Nahanni River Watershed

GWNT Active Mineral Tenure

- NATC Tenure
- Other Tenure

Base Data

- Community
- Nahanni Range Road
- Watercourse
- Waterbody
- National Park Reserve
- Territorial Boundary



NOTES
Base data source:
Imagery from ESRI; Maxar (various dates).

STATUS
ISSUED FOR USE

PROJECT DESCRIPTION REPORT
CANTUNG MINE, NT

Cumulative Effects

PROJECTION UTM Zone 10	**DATUM** NAD83	**CLIENT** NORTH AMERICAN TUNGSTEN CORPORATION LTD	
Scale: 1:650,000 (10 5 0 10 Kilometres)		TETRA TECH	
FILE NO. WENW03039-10_Fig7-3_CumulativeEffects.mxd			
OFFICE Tt-VANC	**DWN** SL / **CKD** BB / **APVD** TP / **REV** 0		**Figure 7-3**
DATE May 19, 2026	**PROJECT NO.** ENW.WENW03039-10		

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8.0 MONITORING, MAINTENANCE, AND REPORTING

The FCRP sets out permanent closure actions and the ongoing management and mitigation of environmental impacts for Cantung Mine; implementation relies on the supporting management and monitoring plans prepared as part of the water licensing process. Monitoring, maintenance, and reporting requirements will be carried out as described in the FCRP for each Project component.

Post-closure monitoring will be phased, with the initial phase occurring over a 10-year period. During this time, inspections and water quality monitoring would occur annually for the first five years, with a report compiled after each inspection. After the fifth year of monitoring, an interim data review would be carried out to identify emerging trends, particularly those trends that suggest closure criteria could be met. Favourable trends could justify reducing the monitoring interval to every two years until the end of the 10 year post-closure monitoring phase.

If results of the interim data review are variable or emerging trends suggest closure objectives (all or part) might not be met by the end of the 10 year post-closure monitoring period, monitoring would continue annually.

Efforts to improve the on-site condition, if required, could also be made at any point during the 10 year post-closure monitoring period, as dictated by monitoring results.

At the end of the 10 year post-closure monitoring phase, a performance assessment report would be compiled. The report would present monitoring results over the complete 10 year timeframe and would summarize the extent to which closure objectives and criteria were met. It is anticipated that monitoring would continue into the future following the initial 10 year post-closure monitoring phase, either using the same or similar approach presented above, or in accordance with a revised set of requirements.

Should the 10 year performance assessment report indicate closure objectives were not met (in part or full), the on-site condition would require adjustment and the monitoring period would almost certainly be extended for another term. The approach to adjusting the on-site condition and the duration of the additional monitoring period would likely be determined as part of the post-closure review.

Monitoring relies on regular inspections by qualified professionals (engineers, environmental scientists, and technicians) and on-site data collection programs. Data from the Surveillance Network Program (SNP) are explicitly integrated into performance tracking to monitor whether or not controls and mitigation aimed at avoiding or reducing impacts (both during and after the closure phase) is performing as predicted. Where monitoring indicates additional measures may be required, adaptive management measures will be implemented in consultation with the CWG and regulatory authorities.

9.0 CONCLUSIONS

Advancement of this Project will allow NATC to reduce risks that remain due to historic mine operation. With the implementation of the mitigation presented in Table 7-2, no significant adverse effects are anticipated during the site closure phase. The majority of identified effects can be mitigated and the few residual effects remaining after mitigation are generally positive and work to achieve a more natural condition following reclamation.

Residual effects remaining following mitigation are expected to be short-term (associated with temporary, active construction), localized within the Project footprint, and readily reversible. Many of the interactions resulting in potential adverse effects during the closure phase revert to neutral or positive impacts during the post-closure phase, as the site returns to a more natural state.

10.0 REFERENCES

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APPENDIX A – TABLES

Table 7-1 Potential Interactions between Closure Phase Project Activities and Abiotic, Biotic, and Cultural Components

Project – Environment Interactions	Closure Phase (Active Construction)								Post-Closure Phase (Monitoring and Adaptive Management)
Potential Impacts	Potential Interaction (Y/N)	Site Wide Components	Underground Workings	OP	Waste Rock and Borrow	Tailings Containment and Flat River Floodplain Tailings	Buildings and Infrastructure	Water Management	Ongoing Monitoring and Planned Maintenance Activities
ABIOTIC COMPONENTS									
Land									
Soil contamination (accidental spills or leaks)	Y	•	•		•	•	•	•	•
Soil contamination (migration of existing contaminants)	Y	•				•	•		
Soil compaction (new roads and quarries, upgradient cell, floodplain tailings)	Y	•			•	•			
Destabilization/erosion (related to construction activities)	Y	•	•	•	•	•	•	•	
Destabilization/erosion (TCA embankment stability, capping material erosion, Flat River armouring erosion)	Y				•	•		•	
Change in soil structure	Y				•	•			
Inability to support vegetation	Y				•				
Other – changes in topography	Y		•			•	•		•
Other – reuse of existing granular/rock material	Y					•			•
Water									
Groundwater									
Water table or groundwater flow alteration	N								
Infiltration changes	Y	•			•		•	•	
Changes in groundwater quality (accidental spills or leaks)	Y	•							
Changes in groundwater quality (migration of existing contaminants)	Y	•							
Temperature changes	N								
Other	N								

Project – Environment Interactions	Closure Phase (Active Construction)								Post-Closure Phase (Monitoring and Adaptive Management)
Potential Impacts	Potential Interaction (Y/N)	Site Wide Components	Underground Workings	OP	Waste Rock and Borrow	Tailings Containment and Flat River Floodplain Tailings	Buildings and Infrastructure	Water Management	Ongoing Monitoring and Planned Maintenance Activities
Permafrost									
Loss or change in extent	N								
Changes in seasonal fluctuations	N								
Change in persistence	N								
Other	N								
Surface Water									
Drainage pattern changes (water conveyance for site closure)	Y							•	
Temperature changes	N								
Changes in surface water quality (accidental spills or leaks)	Y	•	•		•	•		•	
Changes in surface water quality (migration of existing contaminants)	Y	•			•	•		•	
Wetland impairment	N								
Changes to aquatic habitat (see Biotic section below)	Y	•			•	•		•	
Other – climate change considerations	Y	•							•
Air									
Changes in air quality (fugitive dust)	Y	•	•	•	•	•	•	•	
Harm to living things	N								
Increased greenhouse gases (equipment and vehicle use during construction)	Y	•	•	•	•	•	•	•	
Other	N								
BIOTIC COMPONENTS									
Vegetation									
Direct loss of vegetation (new development areas)	Y				•	•	•		•
Loss of Species at Risk (SAR) or may-be-at-risk plants	N								
Change in species composition (from hydrologic and soil modifications)	N								

Project – Environment Interactions	Closure Phase (Active Construction)								Post-Closure Phase (Monitoring and Adaptive Management)
Potential Impacts	Potential Interaction (Y/N)	Site Wide Components	Underground Workings	OP	Waste Rock and Borrow	Tailings Containment and Flat River Floodplain Tailings	Buildings and Infrastructure	Water Management	Ongoing Monitoring and Planned Maintenance Activities
Introduction of non-native (invasive) species	Y	•	•	•	•	•	•	•	
Effects on plant health (dust, metals, toxins)	Y	•	•	•	•	•	•	•	
Increased risk of fire	Y	•	•	•	•	•	•	•	
Compaction of vegetation	Y				•	•			
Terrestrial Wildlife Habitat									
Direct loss or removal of habitat, dens, or nests	Y				•	•	•		
Loss or removal of keystone species and/or SAR habitat	N								
Fragmentation of wildlife corridor	Y								•
Direct injury or mortality	Y	•			•	•	•		
Disturbances to key lifecycle stages: breeding, feeding, nesting, staging	Y	•	•	•	•	•	•	•	
Effects on population abundance	N								
Change in species diversity	N								
Effects on wildlife health from toxins, metals etc.	N								
Changes to migratory movement patterns	Y	•				•			•
Changes to predator-prey relationships	N								
Human-wildlife conflicts	Y	•	•	•	•	•	•	•	
Aquatic Habitat									
Breeding disturbances	N								
Change in species diversity	N								
Effects on health (toxins, metals, sediment etc.)	N								
Changes to migratory movement patterns	N								
Changes to predator-prey relationships	N								
Effects on population abundance	N								

Project – Environment Interactions	Closure Phase (Active Construction)								Post-Closure Phase (Monitoring and Adaptive Management)
Potential Impacts	Potential Interaction (Y/N)	Site Wide Components	Underground Workings	OP	Waste Rock and Borrow	Tailings Containment and Flat River Floodplain Tailings	Buildings and Infrastructure	Water Management	Ongoing Monitoring and Planned Maintenance Activities
Other – direct injury or mortality to fish	Y	•			•	•			
Other – temporary change in habitat quality	Y					•			•
CULTURAL COMPONENTS									
Wildlife Harvesting									
Loss or reduction in game species populations	N								
Temporary effects on traditional land use, subsistence, and harvesting rights	Y								•
Cultural Integrity and Heritage Resources									
Change to or loss of cultural integrity	N								
Change to or loss of traditional lifestyle	Y								•
Change to or loss of heritage resource	Y				•	•			
Other	N								
Social and Economic Well-being									
Increased human health hazard and risk	Y								•
Economic opportunities or losses (employment, training)	Y	•	•	•	•	•	•	•	•
Change in ecological, cultural, social, or economic values identified for protection in approved Land Use Plans	N								
Impairment of the recreational or traditional uses of the land or water	Y	•				•			•
Impairment of the aesthetic quality of the land or water	Y	•			•	•		•	•
Changes to the use of the area by other non-Indigenous people (e.g., trappers, outfitters, residents, hunters, forest harvesters, other authorized projects)	Y	•	•	•	•	•	•	•	•

Table 7-2 Assessment of Potential Project-Environment Interactions During the Closure and Post-Closure Phases

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
ABIOTIC COMPONENTS					
Land					
Soil contamination	Closure Phase	Accidental spills associated with vehicle and equipment use on site, camp operation	Follow Project Spill Contingency Plan and applicable Terms and Conditions, including use of appropriately sized spill kits in vehicles and work areas, proper material storage and handling Workers trained in spill response procedures Wastewater managed in accordance with Waste Management Plan Conduct vehicle and equipment fueling and maintenance in designated areas Mobile equipment will be in good operating condition and maintained to manufacturer's specifications	None – mitigable	Neutral
		Excavation and transportation of contaminated soils	Handling and transport of contaminated soils includes containment to reduce potential spread to surrounding areas Soil excavation extents based on FCRP and HH/ERA with field verification Excavations backfilled with clean, locally-sourced material Construction monitoring by QEP	None – mitigable	Neutral
		Accidental spills associated with handling and disposal of hazardous materials	Non-ACM removed from site Handling, including transport and disposal managed by certified waste transporter and receiver	Yes	Positive – residual effects removed off-site
		General – Design, Construction, and Monitoring	Conduct all work in accordance with approved design specifications and regulatory conditions, including implementation of environmental monitoring program	Yes	Positive
	Post-Closure Phase	Contamination remaining after closure	Contaminated soil removed from surface and disposed of in accordance with FCRP	Yes	Positive – potential sources of contamination consolidated on-site
		Accidental spills associated with vehicle and equipment use on site	Maintain spill kits in vehicles during environmental monitoring and site maintenance activities	None – mitigable	Neutral
		General – Monitoring and Maintenance Activities	Implement and report on environmental monitoring and adaptive management (if necessary) in accordance with approved regulatory conditions	Yes	Positive
Soil compaction	Closure Phase	Use of mobile equipment	Limit operation to areas of pre-existing disturbance where possible	None – mitigable	Neutral
		Construction of new infrastructure (upgradient cell, quarry development)	Limit activities to areas of pre-existing disturbance where possible; Scarify/roughen surfaces when areas no longer needed to support closure activities	None – mitigable	Neutral
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Use of rig mats when working within floodplain, as appropriate to limit gouging and rutting	None – mitigable	Neutral

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
		General surface preparation and grading at end of closure construction phase	Areas no longer needed to support closure activities will be scarified/roughened to limit erosion, promote positive drainage, and encourage natural revegetation	Yes	Positive – reduces compaction
Destabilization / Erosion	Closure Phase	Settlement following excavation (soil removal and backfilling, adit backfilling)	Excavations backfilled with clean granular fill, compacted and mounded to avoid settlement General grading to promote positive drainage and avoid run-on water accumulation	None – mitigable	Neutral
		Unstable ground at mine opening, pit	Review by geotechnical engineer Adaptive management as required	None – mitigable	Neutral
		Unstable ground resulting from quarry development blasting and excavation	Follow Quarry Management Plan Qualified blasting contractor responsible for quarry development QP oversight during and after blasting	None – mitigable	Neutral
		Embankment erosion (TCA 3, 4, 5, and upgradient cell)	TCA 3 and 4 embankments to be resloped to increase stability and limit erosion Toe of TCA 4 will be moved away from Flat River to reduce erosion potential during high flow/flood events	None – mitigable	Neutral
		Settlement/erosion of cap over TCA 3, 4, 5, and upgradient cell	Cap will be mounded, graded, and compacted to limit settlement, promote positive drainage, and avoid water pooling from run-on water accumulation/snowmelt Cap will be constructed out of coarser rock material that is more resistant to erosion	None – mitigable	Neutral
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Implementation of erosion and sediment control plan Isolation of work area from flowing water/work in the dry where possible Select areas with exposed tailings within floodplain will be capped and revegetated, reducing erosion potential	None – mitigable	Neutral
		Settlement following building demolition	Basements cut below grade and backfilled with clean fill, compacted, and mounded to limit settlement and run-on water accumulation	None – mitigable	Neutral
		Settlement following culvert removal	Grout deep culverts and stormwater conveyance system Reroute surface flows according to site water conveyance design General site grading to promote positive drainage and limit water ponding	None – mitigable	Neutral
		Construction of new infrastructure (upgradient cell, quarry development)	Upgradient cell located in area first used as quarry (re-use of disturbance area) Implementation of erosion and sediment control plan during construction and operation Quarry closure and reclamation includes scarification and grading of slopes and quarry floor to limit erosion and promote positive drainage	None – mitigable	Neutral
		General surface preparation and grading at end of closure construction phase	Areas no longer needed to support closure activities will be scarified/roughened to limit erosion, promote positive drainage, and encourage natural revegetation	Yes	Positive – reduces erosion potential

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
	Post-closure Phase	Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Armouring of Flat River channel through floodplain tailings reduces the potential for tailings resuspension and mobilization Areas within the floodplain that were capped will be mounded and graded to limit erosion and settlement and promote positive drainage, avoiding water ponding	Yes	Positive – reduces erosion
Change in soil structure	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development)	Stripping and stockpiling of overburden in areas of new development for reuse in reclamation	None – mitigable	Neutral
Inability to support vegetation	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development)	Limit size of new infrastructure Upgradient cell located in area first used as quarry (re-use of disturbance area) Quarry closure and reclamation includes preparation of remaining surfaces (slopes, floor) to encourage natural revegetation Stockpiled overburden, if present, will be replaced Salvaged vegetation, if present, will be replanted	Low	Adverse – quarries developed to bedrock likely not able to support future vegetation colonization Residual effect small in spatial extent
		Reclamation of TCA 1 and 2 footprint	Stockpiled embankment material will be used in preparation of surface for replanting Plant material salvaged from embankments will be replanted	Yes	Positive – leaves areas once unable to support vegetation in a condition that supports vegetation
		Select revegetation of floodplain tailings	Select areas with exposed tailings within floodplain will be capped and revegetated, improving the ability to support vegetation	Yes	Positive – leaves areas once unable to support vegetation in a condition that supports vegetation
		General surface preparation and grading at end of closure construction phase	Areas no longer needed to support closure activities will be scarified/roughened to limit erosion, promote positive drainage, and encourage natural revegetation	Yes	Positive – leaves areas once unable to support vegetation in a condition that encourages natural revegetation
Changes in topography	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development)	Limit size of new infrastructure Upgradient cell located in area first used as quarry (re-use of disturbance area) Facility closure and reclamation includes sloping embankment and remaining faces to blend with surrounding landscape Quarry surfaces roughened to encourage natural revegetation	None – mitigable	Neutral
		Backfilling of mine adits	Adits backfilled with locally-sourced material and graded to blend with surrounding landscape, in accordance with FCRP and engineering design	Yes	Positive
Other – reuse of existing granular/rock material	Closure Phase	Reclamation of TCA 1 and 2 footprint and excavation of waste rock piles	Embankment material from TCA 1 and 2 will be stockpiled for later reuse in closure activities, reducing the extent of new quarry development Waste rock classified as NAG can be reused in closure activities	Yes	Positive – reuse of available material reduces extent of disturbance
Water					
Groundwater					
Infiltration changes	Closure Phase	Reclamation of TCA 1 and 2 footprint	Removal of tailings material from surface shortens infiltration path of rainfall/snowmelt to groundwater Surface preparation and revegetation of TCA 1 and 2 footprint improves ability for water to infiltrate to groundwater	Yes	Positive – can result in increased groundwater infiltration/recharge

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
		Reduction in groundwater recharge with capping of TCA 3,4, 5, and construction of upgradient cell	Placement of cap over TCAs and upgradient cell can reduce infiltration to groundwater	None – mitigable	Neutral
		General surface preparation and grading at end of closure construction phase	Areas no longer needed to support closure activities will be scarified/roughened to limit erosion, promote positive drainage, and encourage natural revegetation	Yes	Positive – can result in increased groundwater infiltration/recharge
Changes in groundwater quality	Closure Phase	Accidental spills associated with vehicle and equipment use on site, camp operation	Follow Project Spill Contingency Plan and applicable Terms and Conditions, including use of spill kits appropriately sized for vehicles and at work areas, material storage and handling Workers trained in spill response procedures Wastewater managed in accordance with Waste Management Plan Conduct vehicle and equipment fueling and maintenance in designated areas Mobile equipment will be in good operating condition and maintained to manufacturer's specifications	None – mitigable	Neutral
		Excavation and disposal of contaminated soils, waste rock, tailings from TCA 1 and 2	Soil excavation extents based on FCRP and HH/ERA with field verification Excavations backfilled with clean, locally-sourced material Placement of material on TCA 3, 4, 5 (prior to capping) consolidates contamination Construction monitoring by QEP	Yes	Positive – consolidates on-site contamination; reduces potential to interact with groundwater
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Armouring of Flat River channel through floodplain tailings reduces the potential for tailings resuspension and mobilization Select areas within the floodplain will be capped, graded to limit erosion and settlement and to promote positive drainage, avoiding water ponding	Yes	Positive – reduces potential to interact with groundwater
		Operation and closure of active and new landfills	Non-hazardous waste disposal only into facility (active and new) Both facilities will be covered at closure to limit infiltration and promote positive drainage Disposal of ACM in new facility will follow accepted practice Waste placement overseen by QEP Landfill operation in accordance with landfill management plan	None – mitigable	Neutral
Surface Water					
Water flow or level changes (permanent, temporary, seasonal)	Closure Phase	Use of freshwater (camp operation, equipment requirements)	Water withdrawal in accordance with water licence limits	None – mitigable	Neutral
Drainage pattern changes	Closure Phase	Unplanned flow from underground mine workings to surface	Discharge locations from mine adits are consistent with historic discharge locations Adit closures implemented in accordance with FCRP and engineering design Engineering design considerations include freezing, underground collapse, and energy dissipation in plunge pools near adit discharge locations Hydraulic analysis factored into engineering designs such as settling pond/ditch sizing	None – mitigable	Neutral
		Unplanned flow/alternate flow paths to broader site-wide water conveyance	Implement engineering design for water management in accordance with FCRP and engineering designs Engineering design considerations for ditch sizing, larger flow events	None – mitigable	Neutral

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
			Bridge and culvert removal will facilitate flow (removes potential for blockages) Construction monitoring by QEP including flow during construction work		
		Stabilization of floodplain tailings (armouring of Flat River channel)	Channel engineering implemented in accordance with FCRP and engineering design Downstream flows are maintained Work is conducted in low water conditions to the extent feasible Work areas isolated as needed Work carried out in accordance with DFO advice, as applicable Construction monitoring by QEP	None – mitigable	Neutral
		Water management (general)	Final water management and conveyance constructed in accordance with FCRP and engineering design Engineering design avoids alteration of existing natural watercourses/drainages and routes water through site to reconnect with Flat River	Yes	Positive – re-establishment of more natural drainage patterns
Changes in surface water quality	Closure Phase	Accidental spills associated with vehicle and equipment use on site, camp operation	Follow Project Spill Contingency Plan and applicable Terms and Conditions, including use of appropriately sized spill kits in vehicles and work areas, proper material storage and handling Workers trained in spill response procedures including prompt clean up before spills reach surface water Camp located within existing footprint, well away for watercourses and/or high-water mark Materials stored >30 m away from watercourses and/or high-water mark Wastewater managed in accordance with Waste Management Plan Conduct vehicle and equipment fueling and maintenance in designated areas away from flowing water Mobile equipment will be in good operating condition and maintained to manufacturer's specifications	None – mitigable	Neutral
		Erosion and sedimentation potential (all closure activities)	Best practices for sediment and erosion control will be implemented during construction Final site grading to promote positive drainage and direct overland flow to broader site conveyance network Settling ponds incorporated into design to manage suspended sediment production Monitoring and reporting in accordance with water licence Work conducted in low water conditions to extent feasible Work areas in water are isolated where feasible	None – mitigable	Neutral
		Reclamation of TCA 1 and 2 footprint	Best practices for sediment and erosion control will be implemented during construction, including management of stockpiled embankment material Footprint surface will be revegetated, limiting erosion potential	None – mitigable	Neutral
		Excavation and disposal of contaminated soils, waste rock, tailings from TCA 1 and 2	Handling and transport of contaminated soils includes containment to reduce potential spread to surrounding areas	None – mitigable	Neutral

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
			Soil excavation extents based on FCRP and HH/ERA with field verification Excavations backfilled with clean, locally-sourced material Construction monitoring by QEP Disposal of material on TCAs and upgradient cell consolidates contamination		
		Retention of waste rock pile (#3) on-site	Waste rock pile #3 (downslope of OP) has been on surface for decades and is physically stable Considered low risk to receiving environment as is located away from sources of surface water	None – mitigable	Neutral
		Pooling/ponding of water following closure activities	Excavations managed to avoid accumulation of water (incl from rainfall or snowfall) Excavations backfilled with clean fill, compacted, and mounded to allow for settlement Sediment and erosion control practices implemented during closure construction activities Construction monitoring by QEP	None – mitigable	Neutral
		Operation and closure of active and new landfills	Non-hazardous waste disposal only into facility (active and new) Both facilities will be covered at closure to limit infiltration and promote positive drainage Disposal of ACM in new facility will follow accepted practice Waste placement overseen by QEP Landfill operation in accordance with landfill management plan	None – mitigable	Neutral
		Mine water discharge	Potential contaminants from mine operations removed from underground workings DQOs developed based on extensive dataset Mine water is expected to continue meeting guideline values Plunge pools and settling ponds incorporated into mine discharge and broader water conveyance through site designed to manage potential sediment production Monitoring and reporting in accordance with water licence	None – mitigable	Neutral
		ARD/ML generation (from movement of tailings, waste rock)	Implement waste rock and tailings closure in accordance with FCRP and related engineering design Tailings excavation and transport planned efficiently to limit tailings exposure times Tailings-impacted water contained/collected for disposal in accordance with appropriate management plan Only inert (NAG) rock used in construction Construction monitoring by QEP	None – mitigable	Neutral
		Stabilization of floodplain tailings (armouring of Flat River channel)	Best practices for sediment and erosion control will be implemented during construction Work in low water conditions, where feasible Isolate work area, where feasible Monitoring by QEP	None – mitigable	Neutral

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
		Construction of new infrastructure (upgradient cell)	Non-hazardous waste disposal only into facility Will be covered to limit infiltration and promote positive drainage Disposal of ACM will follow accepted practice Waste placement overseen by QP Landfill operation in accordance with landfill management plan Facility located away from surface water	None – mitigable	Neutral
		Closure of quarry areas	Slopes regraded to limit erosion Quarry footprint graded to promote positive drainage and avoid ponding Surfaces prepared to encourage natural revegetation	None – mitigable	Neutral
	Post-closure Phase	Closure of TCA 3, 4, 5, and upgradient cell	Exposed tailings surfaces capped in accordance with FCRP and engineering design	Yes	Positive – reduces potential interaction of runoff water with exposed tailings surface
		Closure of TCA 3, 4, 5	Closure design for TCA 4 implemented in accordance with FCRP and engineering design	Yes	Positive – increases embankment distance away from Flat River and reduces potential embankment toe erosion associated with flood/high water conditions
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Exposed tailings along channel banks armoured to protect against ARD/ML production Reduces potential for long-term erosion and particle mobilization during high flow events Exposed tailings within floodplain capped and revegetated in accordance with FCRP and related engineering design	Yes	Positive – general protective measures for surface water
Other – climate change considerations	Closure Phase	Water management (general)	Climate change considerations have been incorporated into the engineering design of the general water conveyance network through site Larger ditch and settling pond sizing included to accommodate larger/more extreme events	Yes	Positive – proactive approach to future site condition
Air					
Changes in air quality	Closure Phase	Dust generation from mobile equipment use	Use of dust suppressant (water or suitable chemical alternative) where required Adherence to speed limits to reduce dust production Activities stopped/avoided during periods of high winds	None – mitigable	Neutral
		Dust generation from quarry operations such as blasting, crushing, screening	Application of dust suppressant (water or suitable chemical alternative) where required Dust generating activities stopped/avoided during periods of high winds	None – mitigable	Neutral
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Amount of vegetation removed/grubbed during site preparation for channel armouring will be limited, where possible, to reduce dust production Exposed tailings capped and revegetated in accordance with FCRP and related engineering design	None – mitigable	Neutral
	Post-closure Phase	Closure of TCA 3, 4, 5, and upgradient cell	Exposed tailings within floodplain capped in accordance with FCRP and related engineering design	Yes	Positive – reduces potential for dust production post-closure

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
Increased greenhouse gases	Closure Phase	Greenhouse gas emissions from mobile equipment use	Mobile equipment will be in good operating condition and maintained to manufacturer's specifications Small workforce limits number of vehicles in operation Efficient planning and implementation of site activities to limit vehicle traffic and travel distances	None – mitigable	Neutral
BIOTIC COMPONENTS					
Vegetation					
Direct loss of vegetation	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development)	Size of new infrastructure will be limited, where possible Use of existing disturbance areas, where possible (upgradient cell to be located in area first used as quarry) Stripping and grubbing only as required Salvage and stockpiling of soils/vegetative mat/vegetation for reuse in later reclamation activities where possible	Low	Adverse – new infrastructure will result in permanent loss of vegetation; quarries developed to bedrock likely not able to support future vegetation colonization Residual effect small in spatial extent
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Amount of vegetation removed/grubbed during site preparation for channel armouring will be limited, where possible Use of rig mats when working within floodplain, as appropriate to limit vegetation disturbance	None – mitigable	Neutral
	Post-closure Phase	Reclamation of TCA 1 and 2 footprint	Plant material salvaged from embankments will be replanted	Yes	Positive – restores historic loss of vegetation in TCA footprint
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Exposed tailings within floodplain capped and revegetated in accordance with FCRP and related engineering design	Yes	Positive – offsets loss of vegetation
Introduction of non-native (invasive) species	Closure Phase	Use of mobile equipment	Equipment and vehicles arriving to site will be clean and free of dirt, soil, and mud	None – mitigable	Neutral
Effects on plant health (dust, metals, toxins)	Closure Phase	Dust generation from mobile equipment use	Use of dust suppressant (water or suitable chemical alternative) where required Adherence to speed limits to reduce dust production Activities stopped/avoided during periods of high winds	None – mitigable	Neutral
Increased risk of fire	Closure Phase	Use of mobile equipment	Use of spark arrests on mobile and stationary equipment Maintenance of appropriate fire suppression equipment in vehicles Follow emergency plan policies and procedures	None – mitigable	Neutral
		Human presence at site	Modify or limit work and use of wildlife deterrents (bear bangers) during periods of high forest fire potential Smoking in designated areas only Maintenance of appropriate fire suppression equipment at work sites and in camp Follow emergency plan policies and procedures	None – mitigable	Neutral
Compaction of vegetation	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development)	Operations will be limited to areas of pre-existing disturbance where possible	None – mitigable	Neutral
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Amount of vegetation removed/grubbed during site preparation for channel armouring will be limited, where possible Use of rig mats when working within floodplain, as appropriate to limit vegetation disturbance	None – mitigable	Neutral
Terrestrial Wildlife Habitat					

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
Direct loss or removal of habitat, dens, or nests	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development, temporary construction camp); floodplain tailings stabilization	Activities will be limited to areas of pre-existing disturbance where possible QEP to conduct pre-clearing surveys for nests, other wildlife features prior to construction Activities conducted outside key, sensitive lifecycle stages, where possible Active nests, if present, will be avoided where possible and in accordance with ECCC guidance Extent of vegetation disturbance will be limited, where possible	None – mitigable	Neutral
		Construction of new infrastructure (upgradient cell, quarry development)	Size of new infrastructure will be limited, where possible Use of existing disturbance areas, where possible (upgradient cell to be located in area first used as quarry) Stripping and grubbing only as required Salvage and stockpiling of soils/vegetative mat/vegetation for reuse in later reclamation activities where possible	Low	Adverse – new infrastructure will result in permanent loss of wildlife habitat Residual effect small in spatial extent
Fragmentation of wildlife corridor	Closure Phase	General site reclamation	General reclamation of site in accordance with FCRP and engineering designs	Yes	Positive – Site reclamation may restore wildlife movements through the Flat River valley that were displaced by the presence of the mine
Direct injury or mortality	Closure Phase	Use of mobile equipment General human presence	Adherence to posted speed limits Vehicles to stay within pre-existing disturbance areas, where possible Drive to conditions and exercise caution Avoid landing aircraft when wildlife is present Use of wildlife deterrents (noise, bear bangers)	None – mitigable	Neutral
		Construction of new infrastructure (settling ponds)	Engineering designs include measures to avoid wildlife entrapment (e.g., gentle slopes to facilitate escape)	None – mitigable	Neutral
	Post-closure Phase	Backfilling of mine adits	Mine adits backfilled in accordance with FCRP and engineering designs	Yes	Positive – avoids entrapment of wildlife in open adits
		Building demolition	Building demolition and disposal in accordance with FCRP and engineering designs	Yes	Positive – building demolition and disposal removes potential risks to wildlife
Disturbances to key lifecycle stages: breeding, feeding, nesting, staging	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development, temporary construction camp); floodplain tailings stabilization	Activities will be limited to areas of pre-existing disturbance where possible QEP to conduct pre-clearing surveys for nests, other wildlife features Activities conducted outside key, sensitive lifecycle stages, where possible Active nests, if present, will be avoided where possible and in accordance with ECCC guidance Extent of vegetation disturbance will be limited, where possible	None – mitigable	Neutral
		Quarry operation	Maintain granular slope faces to avoid nesting by bank swallows QEP to do regular sweeps of exposed faces	None – mitigable	Neutral
		Building demolition	Demolition during nesting season will be avoided to the extent feasible	None – mitigable	Neutral

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
			QEP to carry out nest surveys in advance of building removal (where possible given possible building access and safety restrictions) Active nests, if present, will be avoided where possible and in accordance with ECCC guidance		
Effects on wildlife health (toxins, metals etc.)	Closure Phase	Excavation and disposal of contaminated soils, waste rock, tailings from TCA 1 and 2	Handling and transport of contaminated soils includes containment to reduce potential spread to surrounding areas Soil excavation extents based on FCRP and HH/ERA with field verification Excavations backfilled with clean, locally-sourced material Construction monitoring by QEP	None – mitigable	Neutral
		Mine water discharge	Follow FCRP and HH/ERA for potential wildlife exposure risks Establishment of DQOs based on extensive dataset Water expected to continue meeting guideline values	None – mitigable	Neutral
	Post-closure Phase	Contamination remaining after closure	Contaminated soil, tailings, waste rock removed from surface and disposed of in accordance with FCRP	Yes	Positive – potential sources of contamination consolidated on-site, reducing wildlife exposure risks
Changes to migratory movement patterns	Post-closure Phase	General site reclamation	General reclamation of site in accordance with FCRP and engineering designs	Yes	Positive – Site reclamation may restore wildlife movements through the Flat River valley that were displaced by the presence of the mine
Human-wildlife conflicts	Closure Phase	Human presence	Camp structures will be arranged to prevent wildlife entrapment Garbage and waste will be managed in accordance with Waste Management Plan Food will be stored securely Perishable food will not be left on site when camp is not operating External openings will be covered/blocked (e.g., vents, decks) to deter wildlife access Perimeter fencing will be erected around camp Use of wildlife deterrents (noise, bear bangers), where required	None – mitigable	Neutral
Aquatic Habitat					
Other – direct injury or mortality to fish	Closure Phase	Impingement during water withdrawal	DFO guidance will be followed for use of fish screens on water intake structures	None – mitigable	Neutral
		Stabilization of floodplain tailings (armouring of Flat River channel)	Work will be carried out in the dry or in low water conditions where possible Work areas will be isolated where possible Fish scare techniques will be used prior to rock placement Work will be carried out in accordance with DFO advice	None – mitigable	Neutral
		Construction of new infrastructure (upgradient cell, quarry development)	Blasting adjacent to fish-bearing watercourses will be avoided to the extent feasible Fish scare techniques will be used prior to blasting, if possible Work will be carried out in accordance with DFO advice	None – mitigable	Neutral

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
Other – temporary change in habitat quality	Closure Phase	Stabilization of floodplain tailings (armouring of Flat River channel)	Best practices for sediment and erosion control will be implemented during construction Fish passage in Flat River will be maintained, where possible Work will be carried out in accordance with DFO advice	None – mitigable	Neutral
CULTURAL COMPONENTS					
Wildlife Harvesting					
(Temporary) effects on traditional land use, subsistence, and harvesting rights	Post-closure Phase	Building demolition	Building demolition and disposal in accordance with FCRP and engineering designs	Yes	Positive – building demolition and disposal may provide opportunity to resume traditional land use in the Flat River valley that was displaced by the presence of the mine
		General site reclamation	General reclamation of site in accordance with FCRP and engineering designs	Yes	Positive – site reclamation including allowance for a travel corridor may provide opportunity to resume traditional land use in the Flat River valley that was displaced by the presence of the mine
Cultural Integrity and Heritage Resources					
Change to or loss of traditional lifestyle	Post-closure Phase	General site reclamation	General reclamation of site in accordance with FCRP and engineering designs	Yes	Positive – site reclamation including allowance for a travel corridor may provide opportunity to resume traditional lifestyle in the Flat River valley that was displaced by the presence of the mine
Change to or loss of heritage resource	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development)	Archaeological assessment will be carried out in advance of activities in previously undisturbed areas Sites found will be reported and mitigated in accordance with appropriate archaeological advice	None – mitigable	Neutral
Social and Economic Well-being					
Increased human health hazard and risk	Closure Phase	Use of mobile equipment	Adherence to posted speed limits Drive to conditions and exercise caution Designated drivers trained in company procedures only	None – mitigable	Neutral
		Excavation and disposal of contaminated soils, waste rock, tailings from TCA 1 and 2	Soil excavation extents based on FCRP and HH/ERA with field verification Use of appropriate PPE and H&S protocols during materials handling	None – mitigable	Neutral
		Exposure to hazardous materials	Worker H&S protocols for hazardous materials handling will be followed Use of appropriate PPE while handling materials ACM disposed of on-site in accordance with FCRP and engineering design Hazardous materials abatement carried out prior to building demolition	None – mitigable	Neutral

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
			Co-mingled hazardous and non-hazardous waste that cannot be safely or economically separated will be treated as hazardous waste for disposal off-site		
		Construction of new infrastructure (settling ponds)	Considerations incorporated into engineering design to avoid human entrapment (e.g., gentle slopes to facilitate escape)	None – mitigable	Neutral
		Mine water discharge	Follow FCRP and HH/ERA for potential human exposure risks Establishment of DQOs based on extensive dataset Water expected to continue to meet guideline values	None – mitigable	Neutral
		Backfilling of mine adits	Access to underground mine will be permanently removed Closure of mine openings implemented in accordance with FCRP, WSCC approval, and engineering designs	Yes	Positive – avoids entrapment of humans in open adits
		Road decommissioning and installation of pit berm	Access to OP will be permanently removed by road decommissioning and installation of berm, implemented in accordance with FCRP, WSCC approval, and engineering design	None – mitigable	Neutral
		Closure of TCA 3, 4, 5, and upgradient cell; floodplain tailings stabilization	Exposed tailings surfaces capped in accordance with FCRP and engineering designs Reduces potential dust production from tailings surfaces	None – mitigable	Neutral
		Building demolition	Building demolition and disposal in accordance with FCRP and engineering designs	Yes	Positive – building demolition and disposal removes safety and hazard risks to humans
		Operation and closure of active and new landfills	Non-hazardous waste disposal only into facility (active and new) Both facilities will be covered to limit infiltration and promote positive drainage Disposal of ACM will follow accepted practice Waste placement overseen by QP Landfill operation in accordance with Landfill Management Plan Landfill cover system at closure designed to limit infiltration	None – mitigable	Neutral
	Post-closure Phase	Contamination remaining after closure	Contaminated soil, tailings, waste rock removed from surface and disposed of in accordance with FCRP	Yes	Positive – potential sources of contamination consolidated on-site, reducing human exposure risks
Economic opportunities or losses (employment, training)	Post-closure Phase	Retention of airstrip	Airstrip remaining in place may provide for new economic opportunities	Yes	Positive – maintains possible access to site
		General site reclamation	General reclamation of site in accordance with FCRP and engineering designs	Yes	Positive – provides new economic opportunities for workers
Impairment of the recreational or traditional uses of the land or water	Closure Phase	Water navigability	Navigable waters self-assessment will be undertaken Water intake structures will comply with navigation protection Notice and signage installed during construction, as applicable, so water remains safely navigable	None – mitigable	Neutral
		Building demolition	Building demolition and disposal in accordance with FCRP and engineering designs	Yes	Positive – building demolition and disposal may provide opportunity to resume enjoyment of the Flat River valley that was displaced by the presence of the mine

Potential Impacts	Project Phase	Potential Project Interaction	Planned Mitigation	Residual Effects	Assessment Direction
		General site reclamation	General reclamation of site in accordance with FCRP and engineering designs	Yes	Positive – site reclamation including allowance for a travel corridor may provide opportunity to resume enjoyment of the Flat River valley that was displaced by the presence of the mine
Impairment of the aesthetic quality of the land or water	Closure Phase	Construction of new infrastructure (upgradient cell, quarry development)	Size of new infrastructure will be limited, where possible Use of existing disturbance areas, where possible (upgradient cell to be located in area first used as quarry) Stripping and grubbing only as required Salvage and stockpiling of soils/vegetative mat/vegetation for reuse in later reclamation activities where possible Embankments and quarry faces will be sloped/graded at closure to blend with surrounding landscape Quarry surfaces will be prepared to encourage natural revegetation	None – mitigable	Neutral
		Stabilization of floodplain tailings (armouring of Flat River channel and spot-treatment within floodplain)	Stabilization of floodplain tailings in accordance with FCRP and engineering design	Yes	Positive – capping of exposed tailings and armouring of Flat River channel reduces interaction of water with tailings and the potential production of orange staining
	Post-closure Phase	General site reclamation	General reclamation of site in accordance with FCRP and engineering designs	Yes	Positive – site reclamation including allowance for a travel corridor may provide opportunity to resume enjoyment of the Flat River valley that was displaced by the presence of the mine
		Construction of new infrastructure (upgradient cell)	Construction of upgradient cell incorporates footprint of quarry site and is in the vicinity of TCA 3, 4, and 5, consolidating the landform remaining post-closure	None – mitigable	Neutral