Environmental Assessment Registration

TACORA Resources Inc.
Scully Mine Tailings
Impoundment Area Expansion Project
Wabush, NL

Prepared for:

Government of Newfoundland & Labrador
Department of Environment and Climate Change
P.O. Box 8700
St. John's, NL, Canada
A1B 4J6

Prepared by:

TACORA Resources Inc.
1 Wabush Mines Road
PO Box 3000
Wabush, NL
A0R 1B0

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www.tacoraresources.com

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List of Acronyms

°C	degrees Celsius
µm	micron
ACCDC	Atlantic Canada Conservation Data Centre
CAC	criteria air contaminant
CCAA	Companies' Creditors Arrangement Act
CCME	Canadian Council of Ministers of the Environment
CDA	Canadian Dam Association
CH_4	methane
Cliffs	Cliffs Natural Resources
cm	centimeter
CO	carbon monoxide
CO_2	carbon dioxide

CO_2e	carbon dioxide equivalents
CoA	Certificate of Approval
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPUE	Catch Per Unit of Effort
CWCS	Canadian Wetland Classification System
DDGSNL	Department of Digital Government and Service NL
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
ECWSR	Environmental Control Water and Sewer Regulations
EDMS	Environmental Database Management System
EEM	Environmental Effects Monitoring
El	elevation
ELC	Ecological Land Classification
ELOM	end life of mine
EPP	Environmental Protection Plan
FAA	Fisheries Act Authorization
FDP	Final Discharge Point
GHG	greenhouse gas
GIS	Geographic Information Systems
GPS	Global Positioning System
GRCH	George River Caribou Herd
ha	hectares
HADD	harmful alteration, disruption, or destruction
HEUs	habitat equivalent units
HSI	habitat suitability index
IAA 2019	Impact Assessment Act 2019
IAAC	Impact Assessment Agency of Canada
ITUM	Innu Nation of Takuaikan Uashat Mak Mani-Utenam
JWEL	Jacques Whitford Environment Limited
km	kilometer
km^2	square kilometers
L	liters
m	meter
m^2	square meters
m^3	cubic meters
MASL	meters above sea level
MDMER	Metal and Diamond Mining Effluent Regulations
MERS	Mine Effluent Reporting System
MGGA	*Management of Greenhouse Gas Act*
MGGAR	*Management of Greenhouse Gas Act* Regulations
MLJ	Innu Nation of Matimekush-Lac John
mm	millimeter

MMER	Metal Mining Effluent Regulations
MT	metric tonnes
N_2O	nitrous oxide
NCC	NunatuKavut Community Council
NL EPA	Newfoundland and Labrador *Environmental Protection Act*
NL ESA	Newfoundland and Labrador *Endangered Species Act*
NLDEC	Newfoundland and Labrador Department of Environment and Climate Change
NLDIET	Newfoundland and Labrador Department of Industry, Energy and Technology
NLDNR	Newfoundland and Labrador Department of Natural Resources
NNK	Naskapi Nation of Kawawachikamach
NOC	National Occupational Classification
NO_x	nitrogen oxides
NTU	Nephelometric Turbidity Units
OMS	Operation, Maintenance and Surveillance
PM	particulate matter
$PM_{2.5}$	particulate matter under 2.5 microns
PVC	Polyvinyl chloride
Q1	first quarter
QNS&L	Quebec North Shore & Labrador
RCAP	Rapid Chemical Analysis Package™
RCP	Rehabilitation and Closure Plan
RPAS	Remotely Piloted Aircraft System
s	second
SAR	Species at Risk
SARA	*Species at Risk Act*
SCC	Species of Conservation Concern
SD	standard deviation
SEM	Sikumiut Environmental Management Ltd.
SO_2	sulfur dioxide
SOP	Standard Operating Procedure
sp.	species
Spr	Spring
Sum	Summer
TACORA	TACORA Resources Inc.
TIA	Tailings Impoundment Area
TPM	total particulate matter
TSH	Tshiuetin Rail Transportation Inc.
TSS	total suspended solid
WMP	Waste Management Plan

1.0 Executive Summary

TACORA Resources Inc. (hereinafter "TACORA") operates the Scully Mine and Mill located in Labrador West, Newfoundland and Labrador. The Scully Mine is an existing iron ore mine, having operated in the same location for over 50 years. Operations were curtailed in early 2014 and the idled mine facilities entered the *Companies' Creditors Arrangement Act* (*CCAA*) process in 2015. TACORA purchased the mine assets in July 2017, and has since completed work to reactivate the mine, which currently employs 334 full time personnel.

Scully Mine currently utilizes a Schedule 2 Tailings Impoundment Area (TIA) approved under the Metal and Diamond Mining Effluent Regulations (MDMER) of the *Fisheries Act*. Based on current mining rates and tailings production, the existing TIA is expected to reach full capacity around 2025. However, sufficient ore reserves exist to sustain mining operations up to 2047.

TACORA is presenting this Environmental Assessment Registration in accordance with the Newfoundland and Labrador *Environmental Protection Act* (*NL EPA*, Part X) for the **Scully Mine Tailings Impoundment Area Expansion Project** (the Project). The Project is required to extend the operations of the mine by twenty-two years, further increasing the benefits of the current operations while fully utilizing the mine's existing ore reserves.

The current tailings disposal activities conducted by TACORA are in compliance with MDMER Environmental Effects Monitoring, Provincial water quality monitoring requirements and with Fisheries and Oceans Canada (DFO) regulations for the protection of fish and fish habitat. The Project entails continuation of the disposal of tailings in the same manner as current operations, albeit into new areas south of the current TIA. The Project will contain tailings disposal activities to the same watershed that is already in use as a TIA. TACORA will utilize existing environmental mitigation measures and regulatory compliance activities for the Project that to date have demonstrated the effectiveness of tailings management at Scully Mine. TACORA is committed to maintaining is strong environmental compliance record for the duration of the Project. The tailings disposal activities for the Project will comply with the Global Industry Standard on Tailings Management[i] issued by Global Tailings Review, August 2020.

2.0 Introduction

An overview of the proponent and the Scully Mine Reactivation is presented below.

2.1 PROPONENT INFORMATION

2.1.1 Corporate Entity

TACORA Resources Inc.
3400, de l'Éclipse Street, Office 630
Brossard, Québec
J4Z 0P3

2.1.2 Chief Executive Officer

Thierry Martel
President and CEO
TACORA Resources Inc.
3400, de l'Éclipse Street, Office 630
Brossard, Québec
J4Z 0P3

2.1.3 Project Address

TACORA Resources Inc.
1 Wabush Mines Road
P.O. Box 3000
Wabush, NL
A0R 1B0

2.1.4 Principal Contact Person

Sharlene Baird
Environment Superintendent
TACORA Resources Inc.
1 Wabush Mines Road
P.O. Box 3000
Wabush, NL
A0R 1B0

E-Mail: sharlene.baird@tacoraresources.com

2.2 THE UNDERTAKING

2.2.1 Name of Project

The Scully Mine is located in Wabush, Newfoundland and Labrador. The development of Wabush Mines began in 1957. The mine was initially developed by Pickands Mather & Co. and then operated by Cliffs Natural Resources (Cliffs) and others from 1965 to 2012, and solely by Cliffs from 2012 to 2014. Operations at this mine ceased in February 2014, due to economic factors and financial performance. For most of 2014, the site was preserved in a "warm idle" state while the company reviewed strategic options. On October 30, 2014, Cliffs informed the Newfoundland and Labrador Department of Natural Resources (NLDNR, now the Newfoundland and Labrador Department of Industry, Energy and Technology – NLDIET) of the company's plans to close Wabush Mines.

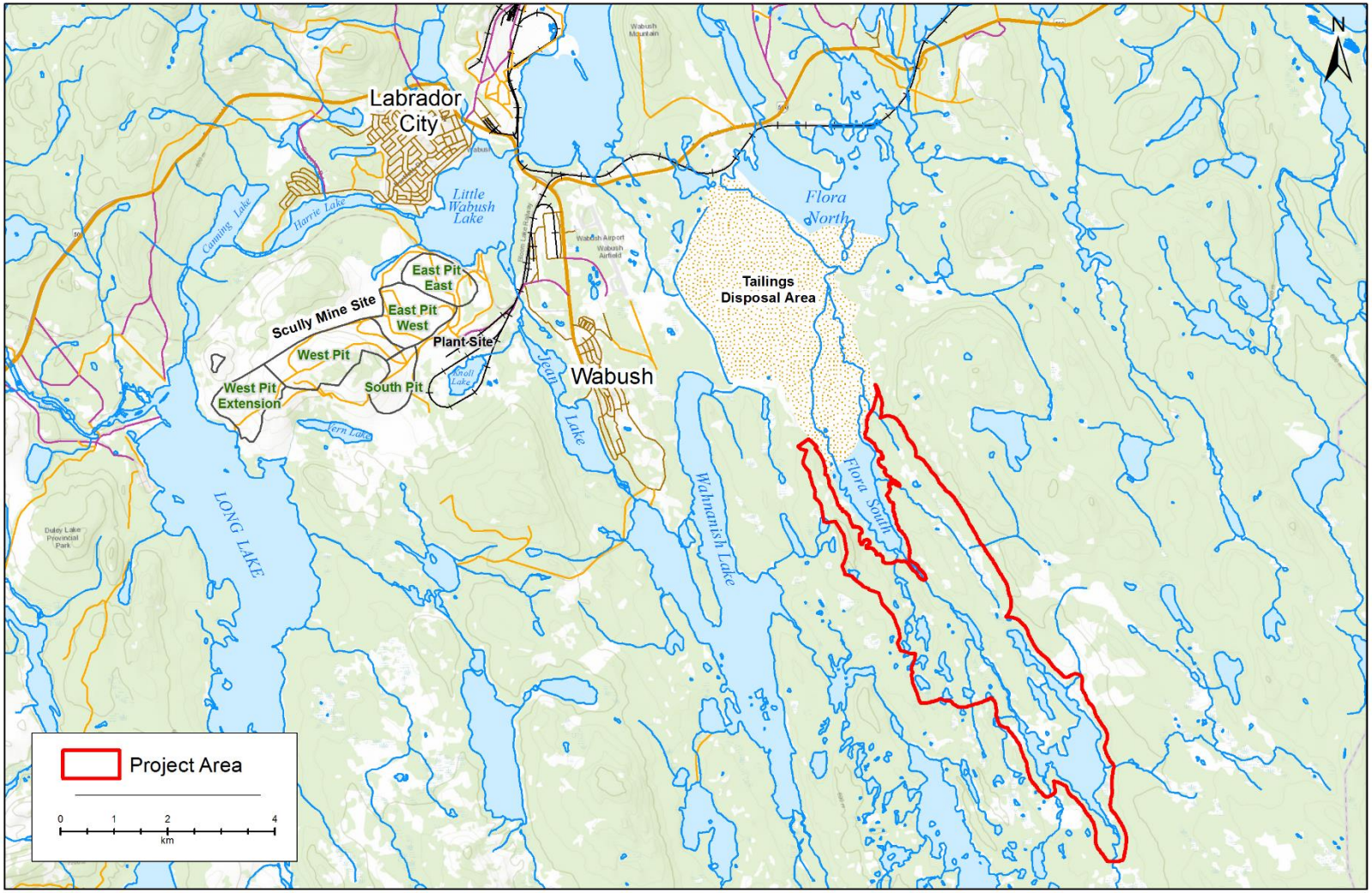
Subsequent to announcing the mine closure, Cliffs announced the operation was entering protection under the CCAA process and concurrently began marketing the mine for sale. From the fall of 2014 through early summer of 2017, the mine was maintained as a closed facility while efforts continued to market the facility for sale. During this time, facility staff continued the required environmental monitoring and reporting to various provincial and federal regulatory authorities. Some amount of tailings basin revegetation and other work occurred as specified in the mine's approved Rehabilitation and Closure Plan.

TACORA purchased the mine and certain other assets via the CCAA process on July 18, 2017. In conjunction with this purchase, TACORA worked diligently with many provincial and federal agencies to obtain or transfer the applicable government permits and other regulatory approvals necessary to reactivate the Scully Mine. TACORA successfully reactivated Scully Mine and has been operating since 2019, producing up to 6.25 million metric tonnes of iron concentrate per year while employing 334 full time personnel.

Scully Mine currently utilizes a Tailings Impoundment Area (TIA) approved under Schedule 2 of the Metal and Diamond Mining Effluent Regulations (MDMER) of the *Fisheries Act*. Based on current mining rates and tailings production, the existing TIA is expected to reach full capacity before ore reserves are completely mined. TACORA is presenting this Environmental Assessment Registration in accordance with Part X of the *NL EPA* for the **Scully Mine Tailings Impoundment Area Expansion Project** (the Project). This *Environmental Assessment Registration* has been prepared in relation to the proposed Project by TACORA with assistance from Sikumiut Environmental Management Ltd. (SEM).

2.2.2 Nature of and Rationale for the Undertaking

Scully Mine is a conventional open pit mining operation located in western Labrador approximately three kilometres from the Town of Wabush as shown in Figure 2.1.



TACORA RESOURCES	**Scully Mine TIA Expansion Project**	FIGURE NO: **2.1**	PREPARED BY: sem
	Site Overview	COORDINATE SYSTEM: **UTM NAD83 Zone 19**	DATE: **27/05/2021**

The Scully Mine consists of open pit mines, a concentrator and support processing facilities, waste rock and tailings management facilities and a spur railway line that connects to the Quebec North Shore & Labrador (QNS&L) Railway. The mine pits are located west of the Town of Wabush and south of the Town of Labrador City and are accessed via the plant access road off Hwy 530. The TIA (Flora Lake) is situated east of the Town of Wabush. The ore deposit covers an area of approximately 23 square kilometres (km^2).

Historically, the site had an annual production capacity of 5.6 to 6.0 million metric tonnes of iron concentrate, which was shipped on the railway to Cliffs' facilities in Pointe Noire, Quebec, and then shipped throughout North America and Europe. Approximately 500 persons were employed at its mining, processing, rail and port operations.

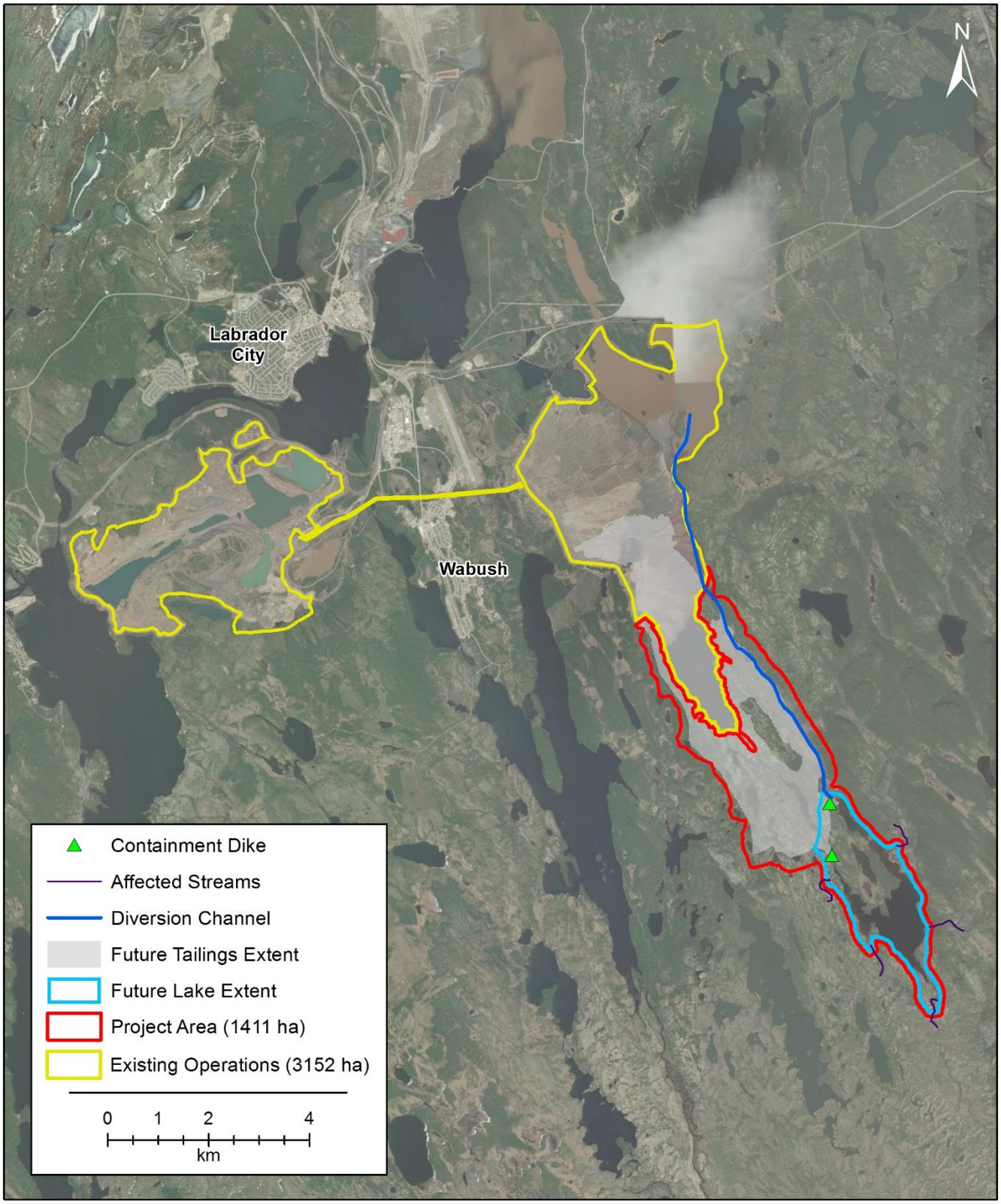
TACORA reactivated the mine in a safe, methodical and environmentally responsible manner that followed the steps specified in the Mine Reactivation Plan[ii] submitted to NLDNR (now NLDIET) in September 2017. The major components of the mine reactivation included:

- Open Pit Dewatering
- Site Infrastructure Reactivation
- Concentrator Equipment Repair and Improvement
- Open Pit Mine Preparation
- Commence Mining and Beneficiation

The Scully Mine now employs 334 people and has an annual production capacity reaching 6.25 million metric tonnes of iron concentrate. The concentrate is shipped on the QNS&L Railway to SFP Pointe-Noire facilities in Quebec and then shipped throughout Europe and Asia.

Original projections presented at the time the Mine Reactivation Plan[ii] and related documentation (Scully Mine Reactivation Environmental Assessment Registration, Development Plan and Rehabilitation and Closure Plan[iii]) were developed, indicated that the currently approved TIA would support mine operations up to 2033. However, these projections were based on information available to TACORA prior to them having operations experience at the site. Following Scully Mine reactivation, TACORA initiated work to develop more comprehensive tailings disposal modelling which indicates that the approved TIA will reach capacity by about 2025. Information regarding available ore reserves indicates that current mining operations could be sustained to 2047. Consequently, TACORA requires approval of the Project to extend mine operations by 22 years to fully utilize ore reserves.

Figure 2.2 depicts the existing mine operations area, including the approved TIA, and illustrates the Project Area. Within the Project Area, tailings deposition will occur to the east of the saddle dike which follows the height of land along the western perimeter of the Flora Basin drainage area and to the north of the containment dikes. Increased water levels will occur in the southern portion. A diversion channel will be maintained along the eastern perimeter of the expanded TIA to ensure continued northward surface water movement in the watershed.



TACORA RESOURCES	**Scully Mine TIA Expansion Project**	PAGE NO: 2.2	PREPARED BY: sem
	Project Area	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

Figure 2.2 is presented at a small scale to show conceptual arrangements; ongoing detailed engineering will be completed in support of future approvals and planning initiatives.

The boundaries of the Project Area were determined with the following considerations:

- The western edge of the “Future Tailings Extent” follows the height of land that forms the western perimeter of the Flora Basin watershed and all Project features will remain within this watershed;
- From the easternmost portion of the ”Future Tailings Extent” area a 250 meter (m) horizontal buffer was allocated to ensure tailings disposal activities of the Project remain within the area assessed within this document;
- At the southern portion of Project Area, the “Future Lake Extent” shows the increase in size of the existing lake which will occur as a result of tailings deposition. A 50 m horizontal buffer was allocated to the maximum estimated lake elevation to ensure the affected area was captured for assessment in this document; and
- At the five “Affected Streams”, stream depth and width will increase to match the ultimate elevation of the lake. Current elevation data does not exist to pinpoint specifically where this will occur in each stream, but effects to these streams are likely to fall within the Project Area boundary. As per presentation in the current Schedule 2 TIA approval, these streams will fall within the amended Schedule 2 area. It is possible that an affected stream area may extend very slightly beyond the boundary of the Project Area identified in Figure 2.1, however all related effects will be addressed in the specific *Fisheries Act* approval. The total area of such stream areas that fall outside the identified Project Area, should any occur, will be negligible and are not expected to materially change the calculated area of the Project footprint.

2.3 REGULATORY CONTEXT

2.3.1 Environmental Assessment Process

The *NL EPA*, Part X, requires anyone who plans a project that could have a significant effect on the natural, social or economic environment (an “Undertaking”) to present it for examination through the provincial Environmental Assessment (EA) process. The associated *Environmental Assessment Regulations* (Part 3) list those projects that require registration and review.

Under the *NL EPA* (definitions), an Undertaking “includes an enterprise, activity, **project**, structure, work or proposal and a modification, abandonment, demolition, decommissioning, rehabilitation and an extension of them that may, in the opinion of the Minister, have a significant environmental effect” (emphasis added).

Following public and governmental review of this EA Registration, the Minister of the Government of Newfoundland and Labrador Department of Environment and Climate Change

(NLDEC), will determine whether the Project may proceed, subject to any terms and conditions and other applicable legislation, or whether further assessment is required.

The Government of Canada *Impact Assessment Act (IAA 2019)* is the legislative basis for federal EA in Canada. Federal environmental assessment focuses on potential Project effects that are within federal jurisdiction, including on:

- fish and fish habitat;
- other aquatic species;
- migratory birds;
- federal lands;
- effects that cross provincial or international boundaries;
- effects that impact on Indigenous peoples, such as their use of lands and resources for traditional purposes; and
- changes to the environment that are directly linked to or necessarily incidental to any federal decisions about a project.

The Physical Activities Regulations under *IAA 2019* list projects which would be subject to federal EA. The Minister of Environment and Climate Change Canada may also designate a project that is not currently listed in these Regulations if there is the potential for environmental effects in areas of federal jurisdiction or public concerns about such effects.

The existing area of mining operations without the Project is 3,152 hectares (ha); the additional footprint of the proposed Scully Mine TIA Expansion Project is 1,411 hectares (Figure 2.2). Following Project approval, the Scully Mine area of operations at end life of mine (ELOM) of 2047 will consist of a 45% increase in area over current operations, below the size threshold (50%) to trigger an assessment under the federal *Impact Assessment Act*. As indicated in the previous section, the Project Area presented in this 1,411 ha calculation includes sizable portions of lands that will not be directly affected by the Project tailings deposition or water level increases but were included to ensure the total area affected by the Project falls within the boundaries of the area covered within this document. In addition, there is a high knoll in the southeast of the Project Area that will not be covered by tailings, but the area is also included in the Project Area calculation.

Furthermore, as a result of the Project, mine production rates will not increase to levels that would trigger federal Environmental Assessment. Finally, anticipated effects of the Project on fish and fish habitat will be mitigated following well established fish and fish habitat assessment methods and fish habitat offsetting protocols. TACORA will be conducting the fish and fish habitat assessments this summer and working closely with Fisheries and Oceans Canada (DFO) to develop offsetting plans to address effects to fish and fish habitat once defined and quantified. Therefore, the Project is not expected to trigger federal EA as a result of effects to fish and fish habitat.

3.0 Project Description

The following section provides detail on the Project including alternatives, location, main components and the various activities that will be associated with it.

3.1 PROJECT ALTERNATIVES

For EA purposes, a consideration of Project alternatives is required. To continue mining to the anticipated ELOM of 2047 and fully utilize known ore reserves, expansion of the current TIA capacity is needed, or additional tailings management facilities would need to be developed. Either approach will require permitting through an amendment to Schedule 2 of the MDMER. As part of that process, a more comprehensive and detailed analysis of alternatives to the Project will be required. The information provided below reflects TACORA's current outlook on alternatives to the Project; however, no major departures from the overview below are expected as a result of the Schedule 2 amendment alternatives analysis.

The alternatives considered for the Project are:

- No Project;
- Delay of the Project;
- Use of Flora North Basin;
- In pit disposal of tailings into depleted mine pits;
- On-land storage of tailings; or
- Expansion of Flora South Basin.

3.1.1 No Project

No Project would result in the closure of the Scully Mine. Continued operation of the mine to ELOM 2047 requires that TACORA find additional storage space for tailings. Closure of the Scully Mine would result in the direct loss of 334 permanent jobs in Labrador West. Closure would impact other economic benefits that flow from the operation of the mine which is one of the main employers in Labrador City and Wabush. The end of operations at Scully Mine would result in a significant loss for a mainstay of the local economy and would have significant negative impacts on the provincial economy. As TACORA has an objective to maximize the benefits of mine operations and fully utilize ore reserves, the No Project option was eliminated.

3.1.2 Delay of Project

The approved TIA as described in the Scully Mine Reactivation Project and the current Schedule 2 of MDMER was based on an ELOM to 2033. However, recent analysis of tailings extents in the current TIA indicates that approved storage space will likely be exhausted in early 2025. The discrepancy in dates occurred as a result of the transition TACORA made as it went

from perspective buyer to operator of Scully Mine. The 2025 TIA exhaustion date is a result of recent studies based on data collected from the site in 2020 and from a tailings disposal plan currently in progress. It is evident that a solution to expand the tailings disposal capacity, including the amendment to Schedule 2, must be achieved before currently approved tailings storage capacity is exhausted. Consequently, delay of the project is also not an alternative.

3.1.3 Use of Flora North Basin

Designation of the Flora Basins TIA required that no tailings be deposited into Flora North Basin. The northern portion of the tailings deposit has been progressively re-vegetated and Flora North Basin has been used as a polishing (settling) pond to allow additional settling of sediment prior to final discharge of effluent at the outlet of Flora Lake into the Flora River. The use of Flora North Basin as a settling basin is considered necessary to meet all MDMER effluent discharge limits. Therefore, deposition of tailings directly into Flora North Basin would present other challenges from an environmental compliance perspective as alternative means would be needed for sediment settling. Furthermore, tailings deposition into the Flora North watershed would require deposition over areas that have been reclaimed and are currently revegetated. Finally, even if Flora North Basin could be used for tailings deposition, it would not have the capacity to handle the full volume of tailings to be generated up to 2047. As a result, use of Flora North Basin for Tailings deposition is not a viable alternative.

3.1.4 In Pit Disposal

In-pit tailings storage is the process of backfilling abandoned open pit surface mines with tailings. This method is attractive to mine operators as worked out pits can be filled at a fraction of the costs associated with operating a conventional tailings facility. In-pit storage does not require construction of retaining walls or containment dikes. In-pit storage of tailings does have potential for groundwater contamination below and around the pit. In addition, rapid rates of rise in the pits reduces the solar drying and desiccation potential of tailings resulting in low strength and poor consolidation properties of the tailings.

Utilization of in pit disposal of tailings would require TACORA to modify the mining sequence so that mining of one of the nearby pits would be depleted of iron ore reserves before the currently scheduled depletion date. Accompanying this would be a condemnation report prior to approval of tailings disposal to confirm the absence of economic ore within the pits. Any material changes to the mining sequence for the purpose of in pit disposal may be contemplated in subsequent reviews of the Development Plan; however, expansion of current tailings disposal capacity is required on a timeline that is not aligned with time required for permitting and approval of in pit disposal. As a result, in pit disposal is not a viable alternative to the Project.

3.1.5 Disposal on Land

On land disposal of mine tailings would result in more severe environmental impacts associated with new disturbances of natural undisturbed terrain. It would require the construction of on-

land disposal areas and associated infrastructure and completion of the associated construction work would take a significant amount of time. Upstream diversion systems would be required to prevent inundation of the on land tailings facility. Dry stacking of tailings on land also has considerable capital and operating costs and is mostly suited to low throughput operations. Dust generation is the biggest problem due to the low moisture content of the placed material. Dry stacking would exacerbate existing dust issues due to the large surface area of an on land dry stack facility. For these reasons, TACORA does not consider disposal of tailings on land as a viable alternative to the Project.

3.1.6 Expansion of Flora South TIA

The Scully Mine has been in operation and has deposited mine tailings into natural, fish-bearing water bodies since the 1960s. Flora Lake was selected for tailings disposal for the Scully Mine during the planning of mine operations in the early 1960s. It was determined at that time that, given the volume of tailings to be deposited and the nature of the local topography and drainage, there were no alternatives for tailings disposal that would not impact a fish bearing water body. The mine has been subject to MDMER since these came into force in 2002. The mine was granted transitional authorization under the MDMER which allowed the mine to temporarily deposit tailings into these water bodies. However, the transitional authorization expired on December 6, 2008 and tailings disposal in these water bodies required designation as a TIA. An assessment of tailings disposal alternatives was conducted as part of the TIA designation and concluded that the continued use of the water bodies as TIA was the best option. Environment and Climate Change Canada (ECCC) and DFO assessed the risks associated with continued disposal of tailings in these water bodies and were satisfied that the economic and environmental impact of allowing the continued use of the water bodies was minimal. The addition to Schedule 2 of water bodies associated with the Scully Mine was considered to allow the mine to continue to operate in a sound manner based on environmental, technical and socio-economic considerations. ECCC and DFO also concluded that implementation of fish habitat compensation plans would offset the loss of fish habitat associated with the designation of these water bodies as the TIA. The same environmental, technical and socio-economic considerations that were addressed in designation of the original TIA, would also apply to the expansion of the tailings facility to permit continued mining to ELOM 2047.

Expansion of the current TIA and continued deposition of tailings into the Flora South watershed would ensure any negative effects from tailings disposal will be contained within the same watershed that has already been affected by operation of the mine since 1965. This would also permit the continuation of monitoring the water quality arising from the TIA at the Flora Outlet Arm Final Discharge Point (FDP) and continuation of currently approved Environmental Effects Monitoring (EEM) under the MDMER.

Expansion of tailings deposition in the South Flora watershed will consider effects on fish and fish habitat and ability to meet MDMER effluent standards, particularly with regard to suspended solids. Designation of the Flora Basins as a TIA in 2009 was subject to Wabush Mines (under

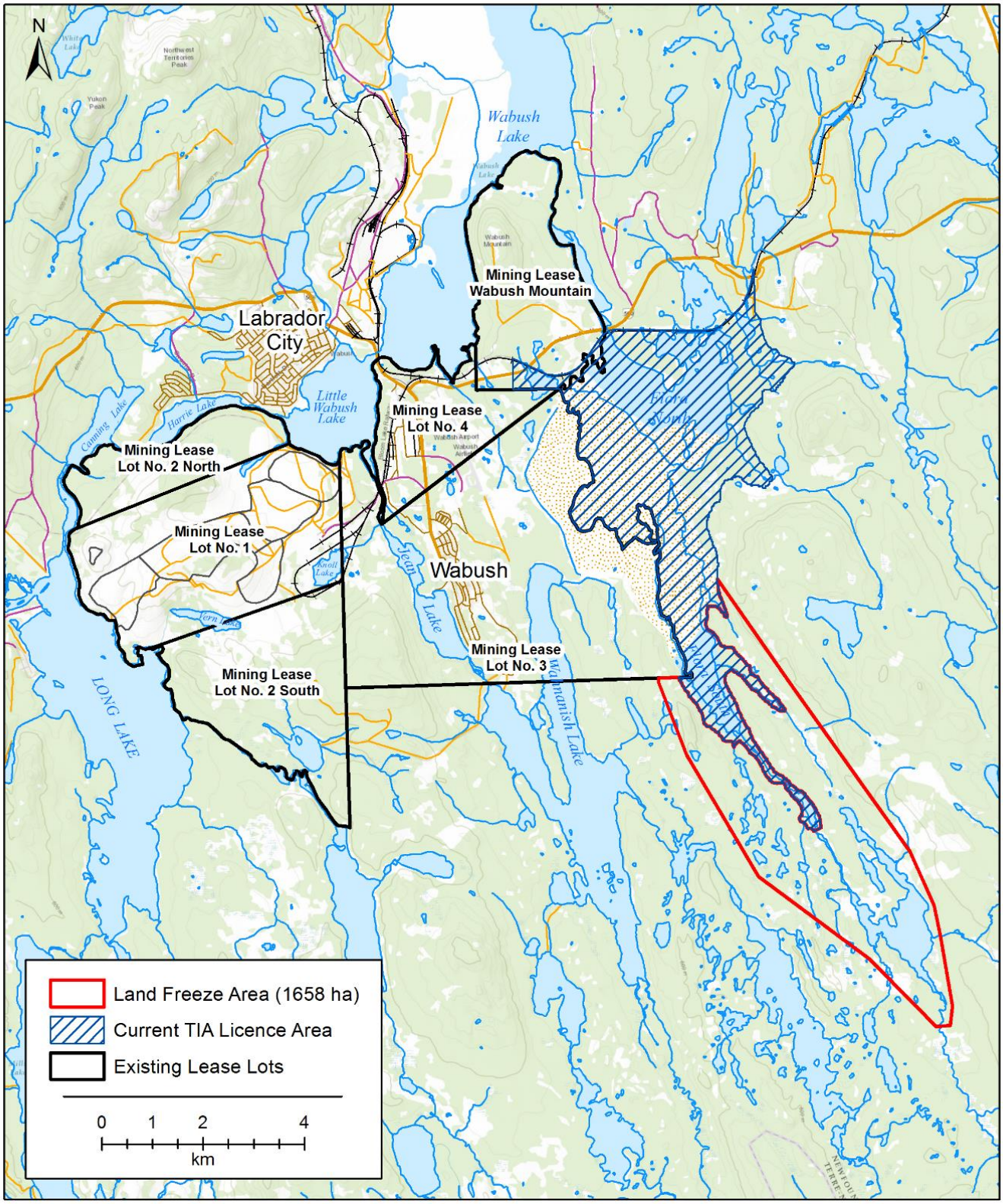
previous ownership) implementing a fish habitat compensation plan (now termed fish offset plan) to compensate (offset) fish habitat losses associated with the TIA. The habitat losses associated with the TIA were quantified (34.5 ha) and included infilling of Flora South and inundation of three tributary streams due to raising the water level of Flora South. Wabush Mines has since fully satisfied the habitat compensation requirements through construction of the Loon Lake Extension (lacustrine habitat) and the Flora Riverine Habitat Compensation Channel (riverine habitat). TACORA satisfied, and has been released from, all monitoring requirements that remained for those fish habitat compensation projects when they took ownership of the mine. Expansion of tailings in Flora South will result in additional habitat losses and TACORA will need to negotiate and implement a fish offset plan to the satisfaction of DFO. TACORA has opted to advance expansion of the Flora South TIA as “the Project” as it limits interactions to an already affected watershed, maintains the stringent environmental monitoring program well established at the site and can effectively offset loss of affected fish habitat. More details regarding this selected alternative are presented below.

3.2 GEOGRAPHIC LOCATION

The Scully Mine is located in western Labrador approximately three kilometers from the town of Wabush. The mine pits are located west of the Town of Wabush and south of the Town of Labrador City and are accessed via the plant access road off Hwy 530. The TIA (Flora Lake) is situated east of the Town of Wabush. Figure 2.1 (above) shows the location of the Project relative to Wabush and Labrador City.

3.2.1 Land Ownership

The Project Area is located primarily on Crown Lands. Up to 2025, tailings deposition will continue to occur on areas within the currently approved TIA. When the Project begins, areas outside the currently approved TIA will phase into tailings deposition with permits and approvals to be obtained following environmental assessment of the Project, thus ensuring the Project maintains regulatory compliance. TACORA is currently working with the NLDIET, Crown Lands Division to acquire surface rights from Crown Lands for the Project. In the interim, TACORA has applied for a land freeze in the Project Area and, upon EA Release, the area identified in Figure 3.1 will be obtained as a surface lease by TACORA for the Project.



TACORA RESOURCES	**Scully Mine TIA Expansion Project**	PAGE NO: 3.1	PREPARED BY: sem
	Land Freeze Area	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

3.2.2 Federal Lands

There are no federal lands, including national parks or Canadian forces bases, proximate to the Project Area and the Project is located wholly within the Province of Newfoundland and Labrador.

3.3 SITE HISTORY

The development of Wabush Mines began in 1957 and first iron ore concentrate production occurred in 1965. The Town of Wabush was developed and owned entirely by the mining company, it was incorporated as a municipality in 1967.

The Scully Mine continued to operate under various ownership configurations until operations at this mine ceased in February 2014 due to economic factors and financial performance. During the mine's operations, employees lived in local company provided housing and over time many current or previous employees purchased their residences from the mine. Titles to various commercial and other properties were conveyed to private companies or the local government entities over time.

On October 30, 2014, Cliffs informed NLDNR of the company's plans to close Wabush Mines. After announcing the mine closure, Cliffs announced the operation was entering protection under the CCAA process and concurrently began marketing the mine for sale.

TACORA purchased the mine and certain other assets via the CCAA process on July 18, 2017 and proceeded to submit the EA Registration for the Scully Mine Reactivation Project. The reactivation project was released from further environmental assessment on November 21, 2017, clearing the way for TACORA to obtain other permits and approvals (e.g., Mine Development Plan, Rehabilitation and Closure Plan, Certificate of Approval). Scully Mine was reactivated and has been in operation since January 2019, with its first ore to crusher on May 23, 2019 and the first seaborne vessel shipment of iron ore concentrate on August 26, 2019.

The Scully Mine is an open pit iron ore operation which historically extracted approximately 11.8 million tonnes of raw ore per year from which approximately 4.1 million metric tonnes (MT of iron concentrate per annum were produced at its on-site milling facility. Upon reactivation annual production capacity targeted a capacity of 6.25 million MT of iron concentrate by 2021, with production ranging from 5.80 to 7.55 over the subsequent 22 years. Iron concentrate is transported by rail to the port facilities at Pointe Noire (Sept-Îles), QC, where it is unloaded, stockpiled and loaded on vessels for sale to the seaborne market.

Waste products generated by the milling process produced on average 10.9 MT of thickened tailings annually, containing approximately 30% to 45% water. Tailings have been deposited into the Flora Lake watershed since the start of Scully Mine operations, under a license provided by the Government of Newfoundland and Labrador (Order 410-62) and/or under Certificate of Approval (CoA). Tailings were historically deposited on land in the Flora Lake

watershed and allowed to dewater into Flora Lake. Solids accumulation over time divided Flora Lake into distinct North and South Basins.

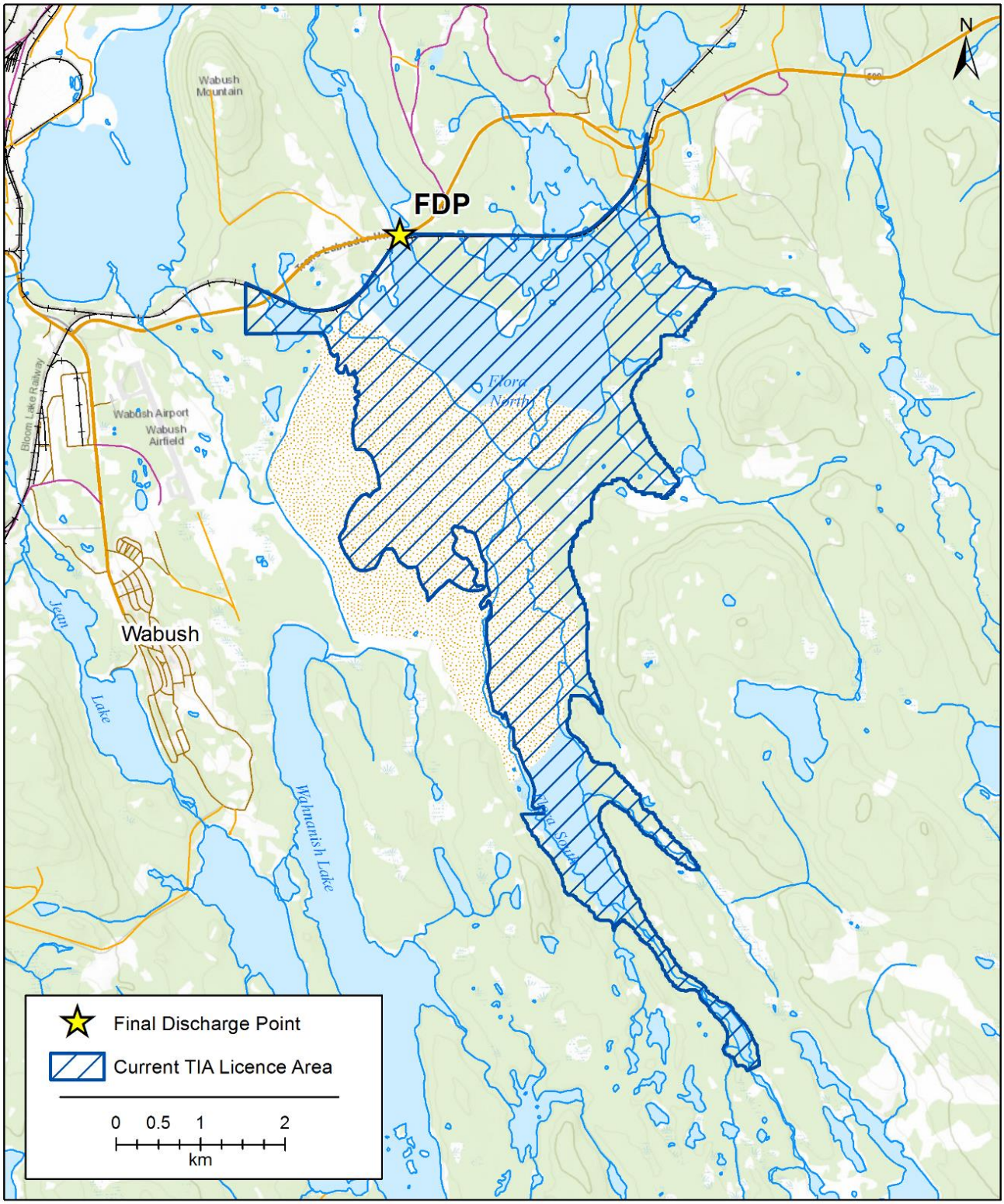
Regulatory approvals were finalized in 2009 formally designating Flora Lake as the Scully Mine's TIA. The Flora Basin TIA includes the South Basin, the North Basin and associated tailings covered areas, which had a total surface area of approximately 23.1 km^2. The boundaries of this TIA are set out in the Flora Lake Tailings License dated May 15, 1962. The License was granted to TACORA's predecessors for a term of 99 years coincident with the original Mining Lease Lot #1 (refer to Figure 3.1) and expires in 2055. The general arrangement of the existing TIA is shown on Figure 3.2.

The Scully Mine has five active effluent discharge points with the TIA discharge representing the greatest volume and single source of loadings to receiving water bodies (Figure 3.2). The Flora Lake Discharge is the Scully Mine tailings effluent compliance point (FDP) for the MDMER, being the greatest single source of "deleterious substance" loadings. The existing EEM program and FDP monitoring for the currently approved TIA will apply directly to the Project and these regulatory compliance activities will not require any modification as a result of the Project. Consequently, the data set that has been accumulated in the years leading up to this Project will be directly comparable to new data collected as the Project is implemented and mining activities extend over two more decades.

3.4 PHYSICAL FEATURES

The Project is required to accommodate TACORA's future tailings management activities. The following sections outline existing tailings management activities, updated plans for tailings disposal and details on locations and progression of future TIA requirements. It also identifies rehabilitation and closure plans TACORA will undertake for the Project, including opportunities for progressive rehabilitation.

TACORA has developed a feasibility study to demonstrate proven iron ore reserves that would support continued mining to an ELOM of 2047. In support of this objective, TACORA has developed a revised tailings management plan. The tailings management plan outlines tailings deposition requirements in a phased approach with a total of 9 phases covering the period from current (2021) activity to the projected ELOM of 2047. Phases 1 through 4 will occur within the currently approved TIA, while Phases 5 to 9 involve activities in areas which are outside of the currently approved TIA. In effect, it is Phases 5 through 9 of the tailings management plan that require amendment to Schedule 2 and effectively represent activities which constitute the Project that is the subject of this EA Registration. However, for clarity and context, all tailings disposal phases are described below.



TACORA RESOURCES	**Scully Mine TIA Expansion Project**	PAGE NO: 3.2	PREPARED BY: sem
	Existing TIA and FDP	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

3.4.1 Existing Tailings Management

The existing TACORA TIA is located east of the Scully Mine site and was granted approval through the Schedule 2 Gazette to deposit tailings into Flora Lake and the surrounding basin. Fish habitat compensation (also referred to as offsetting) was required for permitting of habitat losses associated with the TIA and lake and riverine habitat compensation has been completed and monitoring has confirmed the effectiveness of the compensation (offsetting) measures.

Thickened tailings are currently deposited along the ridge to the east of Flora South with water decanting into the lake which acts as a settling pond. Discharge from the Flora South occurs through a 1.5 kilometer (km)-long, poorly defined, channel that enters the south-eastern portion of the Flora North. The Flora North acts as a polishing pond removing colloidal particles from the effluent prior to draining into the Flora Outlet Arm, into Flora River and subsequently into Wabush Lake.

Fine tailings at the Scully Mine are thickened to slurry form in an 85 m diameter thickener. Coarse tailings are cycloned and delivered directly to the tailings pump box. The tailings thickener feed is dosed with flocculants to avoid fines build-up in the process water distribution system. The density of the pumped slurry has been approximately 30 to 45 percent solids by weight. Three 305 millimeter (mm) diameter rubber-lined pipelines, each having two (2) pumps, transport the tailings from the concentrator to the TIA. The slurry is pumped at approximately 3.65 m per second, 18.2 m^3 per minute, per line. Two of the three lines must be operational for normal processing plant operations. Currently, there is a series of 13 pumping stages in eight (8) pump houses on each pipeline to maintain the required volume capacity and velocity over the 7 km distance from the plant to the tailings basin with two pump stations on the dike crest. There are ten (10) pumps available for each of Tailings Lines 2 and 3 and eight (8)pumps for Line 1.

This arrangement will accommodate tailings disposal for existing storage capacity as permitted under Schedule 2 of the MDMER.

3.4.2 Future Tailings Management

The density of the pumped slurry under future operations will be increased gradually to the target solid thickness of 48% by weight. The increased solids content of the slurry will result in changes in the tailings beach slopes from those observed during the past operations. The tailings beach slope will be regularly surveyed and adjustments made to the future estimated storage capacity. A conservative beach tailings density of 1.6 MT per cubic meter (m^3) was used for storage estimates as a contingency for potential variance in storage. Deep, consolidated tailings are likely to achieve a higher bulk density, up to 1.9 MT/m^3 locally, resulting in lower storage volume requirements and costs for dike construction thus prolonging the serviceable life of the existing and future storage capacity.

Important items in forecasting tailings storage are the particle size distribution of the tailings, slurry density (percent solids in the slurry by weight) and discharge velocity. These parameters

determine the tailings deposition slope. The discharged tailings slurry forms a naturally segregated delta in the basin. The coarse fraction of tailings deposit near the discharge point and finer fractions are hydraulically transported and deposited further out into the basin. The denser and slower the slurry being pumped, the steeper the deposit slope. The coarse materials settle out first to form the steeper slope and the remaining fine fraction forms a flatter slope.

Discharge of the tailings will continue to be carried out using three lines (two operational at any given time with a third used while maintenance is conducted on an operational line) that will be relocated regularly to allow drainage of coarse material near the discharge point and to avoid thick layers of frozen tailings that may not fully thaw during future construction periods. TACORA also plans to introduce spigot discharge methodology, beginning in 2021 but extending into the Project, to allow for tailings deposition with uniform beach formation. The expansion of the TIA will require modifications to the tailings delivery system to include additional booster stations and pipeline extensions.

The tailings are considered low risk from a potential for acid generation and metals leaching; therefore, seepage containment and an effluent treatment system will not be required for tailings storage. As no flotation stream is involved in the processing of the tailings, the material pumped to the TIA is relatively coarse, allowing for good drainage and use as construction material for future embankments.

Spigot disposal will permit discharge of tailings in a broader fashion, rather than a single discharge location, around the perimeter of the tailings facility to create a beach between the embankment, or dike, and the supernatant pond, currently Flora South. Multiple spigots will be small diameter pipes that feed off distribution lines that then feed off the larger diameter main delivery line(s) from the mine's thickener plant. The spigots will be changed over and moved to promote bleeding and drying prior to further layering and raising. Spigot disposal helps to promote laminar rather than turbulent flow allowing coarse particles to settle nearer the spigot creating improved drainage. This also permits a slightly steeper angled beach that aids the removal of fluids from tailings deposited near the spigot. A conceptual diagram of the spigot methodology for tailings discharge is provided in Figure 3.3 and a photograph of spigot discharge is shown in Figure 3.4.

There are no requirements for recirculation or reclaim of decant water in the TIA for process water reuse in the mining operation. Decant water from the tailings during future deposition will initially continue to drain directly to Flora South and then to Flora North via an existing drainage channel. Tailings will not be deposited directly into North Flora Lake, which will act primarily as a polishing system for the decant water to help prevent suspended sediments from continuing downstream towards Wabush Lake. As tailings deposition continues, all of Flora South will be infilled and a new lake will be created further to the south. This new lake will be pushed further to the south as tailings deposition continues.

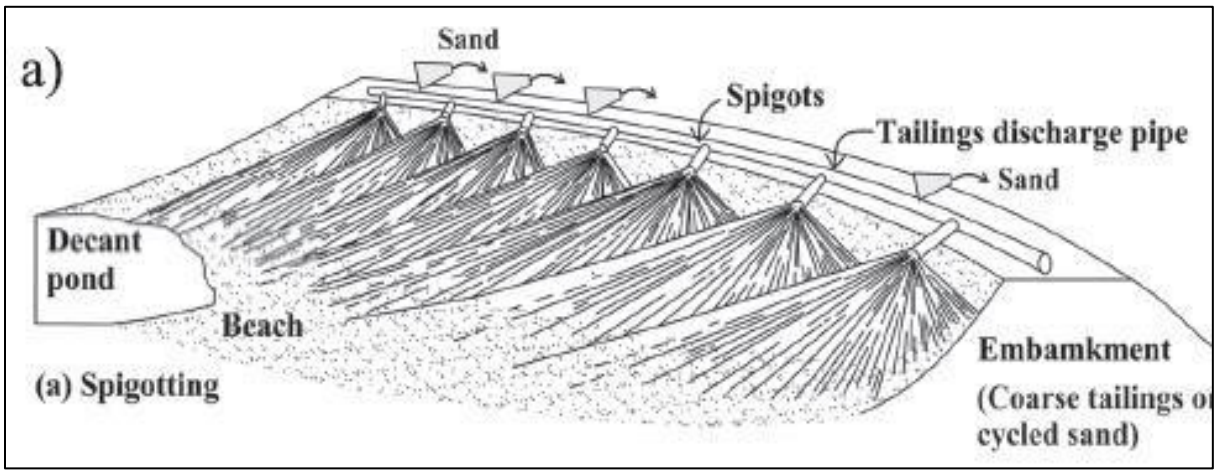


Figure 3.3 Conceptual View of Spigot Tailings Discharge.

Figure 3.4 Photograph of Spigot Tailings Discharge.

A new section of the drainage channel will be created naturally extending from the new lake to Flora North and this channel will grow in length as tailings deposition extends further to the south. More detail and illustrations of these features are provided in Section 3.5 below.

Water treatment associated with tailings management consists of natural (unaided) settling of solids in Flora South and surrounding watershed, approved under MDMER for tailings management. Water quality is measured at the MDMER FDP at the Flora Outlet Arm which then drains to Flora River and then to Wabush Lake.

3.4.3 Future Tailings Production and Deposition

3.4.3.1 Tailings Characteristics

No flotation stream is involved in the processing of tailings, consequently the tailings pumped to the TIA are relatively coarse, allowing for good drainage and use as construction material for future embankments and dikes. It may be possible to achieve thicker consolidated tailings deposits resulting in lower storage volume requirements and costs for dike construction thus prolonging the serviceable life of the existing and future TIA.

The site is not considered a region of discontinuous or continuous permafrost; however, the winter seasons are long and it is possible to have frozen zones trapped within the tailings deposit. It is assumed that these frozen zones thaw within one warm cycle. The spigot system for tailings distribution will further reduce the possibility of frozen zones within the tailings.

3.4.3.2 Dike Construction and Extensions

To facilitate the deposition plan and achieve vertical storage, dikes will be constructed along the natural topographic ridge (west side of the Flora watershed divide) and will be raised in the upstream direction over free draining, consolidated, coarse particle tailings deposits. This methodology and conceptual design assumptions are contingent on geotechnical investigations, detailed engineering and permitting.

The design and operation of the TIA is in accordance with the Canadian Dam Association Dam Safety Guidelines (CDA, 2013[iv]) and the associated Application of Dam Safety Guidelines to Mining Dams Technical Bulletin (CDA, 2019[v]). The design and operation of the future TIA will also be in accordance with these guidelines or any new guidelines that may come into place during mine operations.

Starter dams will be constructed for the new south dike extensions. Stripping or grubbing of the basin area is not anticipated. In order to improve drainage and reduce compaction costs, tailings will be cycloned in non-freezing months at the TIA to provide construction materials with suitable permeability, density and drainage properties. This will help alleviate seepage issues observed on the existing embankments during previous operations. A drainage layer that extends from under the starter dike out into the tailings basin may be considered to improve drainage and reduce seepage from the face of new dikes.

Embankment construction would be carried out in non-freezing months whenever possible to avoid construction over undrained tailings with high ice content. Due to the constricted construction period, raises will not exceed more than 3 m (10 feet) per year to allow drainage and pore pressure dissipation. The conceptual dike section is summarized in Table 3.1 and illustrated in Figure 3.5.

Table 3.1 Design Summary of Typical Dike Section.

Design Parameter	Value	Basis of Assumption
Overall Slope	5H:1V	Historical design for North and South Dike
Bench Slope	3H:1V Downstream	Reduce surficial erosion/gulling and facilitates placement of vegetation for closure reclamation
Bench Height	Maximum 4 m (typically 3 m)	Rate of raise
Bench Width	Minimum 6 m	Satisfies overall slope requirement and sufficient to allow single articulated haul truck
Crest Width	16 m	Allowance for construction vehicle traffic, safety berms and 3 tailings slurry pipelines

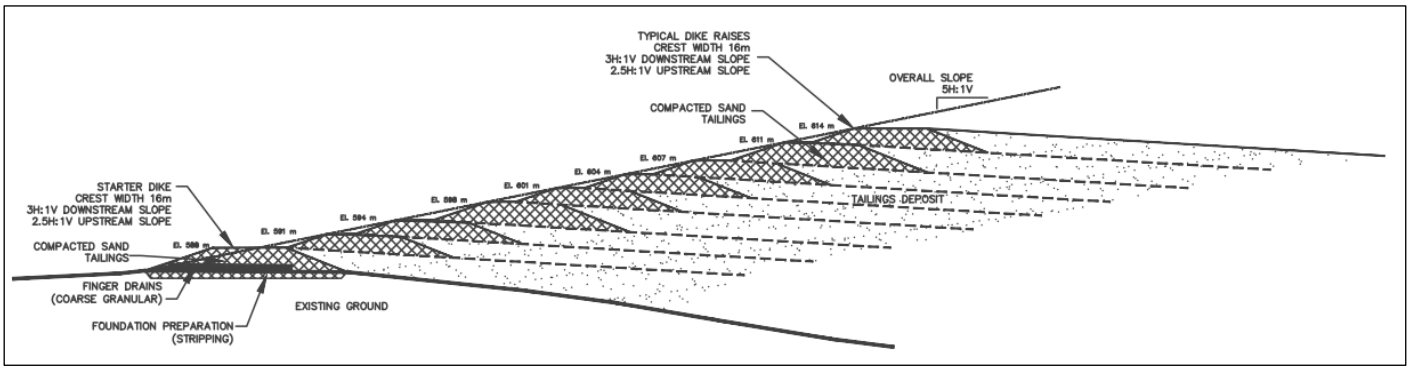


Figure 3.5 Typical Dike Design for Southern Extension.

3.4.3.3 Dike Construction Methods

The upstream dike method of tailings disposal has been and will continue to be utilized at Scully Mine. Under the long-range plan, upstream dikes and the pipeline access roadway will be extended further south. The utilization of upstream dikes and vertical expansion allows for the majority of tailings to be stored vertically. Continued dike construction along the mid and south perimeter dikes is required. A tiered system of parallel upstream dikes will be conducted in lifts

to the ultimate elevation of 617 m, in areas that are outside of the 590.5 m limit due to local airport restrictions. Progress to a uniform linear elevation of dike construction sequencing will be emphasized.

The newly constructed dikes will be raised in the offset upstream dike construction method, utilizing coarse beach tailings for the dike embankment material. Historically, an active tailings line was utilized and coarse tailings at the discharge point were dozed back to form the dike embankment. The pipeline was extended along the dike crest as the dike progressed. Proper seasonal uniform discharging by the pipeline system on the dike will place the majority of the tailings required for dike construction well in advance of the raise construction period. Alternatively, borrow excavation and trucking of tailings material to the dike section has also proven viable and economical in the historic dike construction work. The dike raises using tailings are suspectable to erosion by runoff and wind. Thus, the dike design shall include appropriate erosion protection and traffic safety berms as required.

As the Flora South level would be significantly lower than the foundation base of the dike, the source of water within the dike section could only be derived from precipitation infiltration and water released during slurry discharge operation. The starter dike design section will incorporate finger drains at the base to improve drainage particularly in the toe section, thereby improving the local stability of the dike embankment. Stability analysis was conducted on the typical design dike section for the maximum dike height of the southern extension. The design section with an overall slope of 5H:1V follows similar overall slope of the existing North and South Dikes which have remained stable without signs of instability since their construction.

Starter dikes will be constructed for the new southern extensions beyond the existing saddle dike along the western perimeter of the tailings deposition area. Clearing and/or chipping of trees within the basin area will be required to minimize impedances of the deposition flows and beach formation; however, stripping or grubbing is not anticipated. The slurry deposition will naturally segregate the coarser particles near the spigot discharges from dike crest locations with the finer particles being carried further down the beach. The coarser grained tailings beach deposits in the inactive area offers convenient access for dike construction materials with suitable permeability, strength, and drainage properties; it also provides a competent foundation to construct the raises.

Finger drains that are to be constructed at the base of the Starter Dike section will consist of coarse granular mine-produced material with mostly gravel sizes. Embankment construction will be carried out in non-freezing months whenever possible to avoid construction over frozen tailings with high ice content. Due to the short construction period, raises should not exceed more than 3 m per year to allow drainage and pore pressure dissipation.

To address any risk related to the stability of the dike embankments, the following practices are established in TACORA's Operation, Maintenance and Surveillance ("OMS") Manual for the Tailings Impoundment Area[vi]:

- Instrumentation is installed for monitoring of phreatic levels at the existing dike and future instruments to be installed in critical sections of the new dike extension. Instruments include standpipe piezometers which will also facilitate groundwater sampling for environmental water quality monitoring.
- Instrumentation has been installed for monitoring the level of South Flora Lake to comply with the existing Schedule 2 permit. This monitoring will be discontinued once Schedule 2 Amendment approval is granted.
- Dike safety practices will be implemented for surveillance and monitoring of the dike in accordance with CDA Mining Dams Technical Bulletin (CDA, 2019) and Mining Association of Canada Operation, Maintenance, and Surveillance Manual (MAC, 2019[vii]) guidelines for dam safety and tailings management system. These include routine inspection by trained site staff, frequent dam safety inspections by the Engineer of Record and periodic dam safety review audits by a qualified third-party consultant.
- Drone survey of the active beach slopes and the drainage pathway of the Diversion Channel will be conducted to ensure deposition is in accordance with the deposition plan and ensure no impedance or blockage of the Diversion Channel drainage path.

3.4.3.4 Pipeline/Pumping Limitations and Pipe Bench Geometry

The existing pumping capacity of the tailings discharge system appears to be limited to near the south abutment of the Saddle Dike.

It is assumed that beyond the existing Pump House #8, there will be no capacity limitations with addition of appropriate pumping system (booster stations and pipeline extensions) from the west ridge of Flora Lake to satisfy the required deposition locations and elevation to minimize and optimize dike extension and raises. Modelling has dictated the required deposition points and it is assumed there would be enough pumping capacity to reach the limits established.

The switch in discharge methodology to a spigot discharge will allow near uniform tailings beach development on the upstream side of the dikes and enable upstream dike raised construction. Winter operation could consider the previously used end discharge methodology at specified points.

In Phase 5 (Year 2024) a pumphouse with 12 pumps, two (2) pumps in series per tailings line will be installed to serve the tailings expansion up until 2030. In mid Phase 7 (Year 2030), a second pumphouse with 12 pumps, two (2) pumps in series per tailings line will be installed to serve the expansion up until the ELOM. Further engineering studies will optimize the timing of pump installations based on the deposition plan and mill production for each operating year. A more detailed presentation of Project Phases is presented in Section 3.5.

3.4.3.5 Tailings Beach Slopes

The particle size distribution of the tailings, slurry density (percent solids in the slurry by weight) and discharge velocity will contribute to the formation of the tailings deposition slope. Discharged tailings slurry form a naturally segregated delta in the basin. The coarse fraction of tailings are deposited near the discharge point and finer fractions are hydraulically transported and deposited further out into the basin. The denser the slurry being pumped, the steeper the deposit slope. The coarse materials settle out first to form the steeper slope and the remaining fine fraction forms a flatter slope.

Scully Mine tailings slurry historically ranged from 35 to 45 percent solids by weight and increase gradually to the target solid thickness of 45% by weight during current operations. The increased solids content of the slurry will result in changes in the tailings beach slopes from those observed during the past operations.

The existing tailings deposit beach above and below water provide actual achievable deposit slopes representing characteristics of historical operations. Current operations exhibited a channelized flow and dozers are periodically employed to maintain the open channel flows by spreading laterally the accumulated tailings solids. This practice did not achieve the deposit formation as expected and what was required for dike raises. This practice was also not cost efficient and presented a safety risk from the operation of a dozer in discharge channel flows. Use of the spigot approach to tailings distribution will greatly improve the characteristics of the tailings beaches and reduce/prevent the need for dozer operation during tailings discharge.

3.4.3.6 Tailings Production

The Concentrator will produce approximately 320 MT of tailings over a period of 27 years based on a production reference point at the beginning of 2021 (Year 2021 to end of Year 2047). The required tailings storage capacity for the life of mine on an annual basis was obtained from GMining in April 2021 and is provided in Table 3.2. On a yearly average, 18 Mt of ore will be processed to produce 6 Mt of iron concentrate with 12 MT of tailings left to be disposed in a TIA.

Table 3.2 Annual Tailings Production Schedule for the Scully Mine.

Time	Total Mined	Waste	Ore Milled	Concentrate	Tailings		
Year	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	m^3	Cumulative m^3
2021	28,228,024	13,417,381	15,587,717	5,124,084	10,463,633	6,539,771	6,539,771
2022	32,848,564	14,503,095	18,083,628	6,000,000	12,083,628	7,552,267	14,092,038
2023	32,000,000	12,588,556	17,572,609	6,008,905	11,563,704	7,227,315	21,319,353
2024	32,000,003	12,083,305	18,327,915	6,000,000	12,327,915	7,704,947	29,024,300
2025	32,381,308	13,560,611	18,529,755	6,002,454	12,527,301	7,829,563	36,853,863
2026	32,000,001	10,849,316	18,239,425	6,000,000	12,239,425	7,649,641	44,503,504
2027	32,000,001	10,857,995	18,715,115	5,998,777	12,716,338	7,947,711	52,451,215
2028	32,000,000	13,268,163	19,292,453	5,986,939	13,305,514	8,315,946	60,767,161
2029	31,999,995	13,431,096	18,235,961	6,000,000	12,235,961	7,647,475	68,414,637
2030	31,999,999	14,788,665	18,043,468	5,998,995	12,044,473	7,527,796	75,942,432
2031	31,999,999	14,387,214	18,334,101	5,995,136	12,338,965	7,711,853	83,654,286
2032	32,000,000	16,242,488	18,802,219	5,945,693	12,856,526	8,035,329	91,689,615
2033	32,000,001	15,206,232	18,474,522	5,980,363	12,494,159	7,808,849	99,498,464
2034	31,999,999	15,369,356	18,231,560	5,947,966	12,283,594	7,677,247	107,175,710
2035	36,000,001	18,774,384	18,656,724	5,942,420	12,714,304	7,946,440	115,122,151
2036	35,999,997	17,878,960	18,121,039	6,000,000	12,121,039	7,575,649	122,697,800
2037	35,128,924	17,395,630	17,733,295	6,000,000	11,733,295	7,333,309	130,031,109
2038	32,308,343	14,769,098	17,539,246	6,000,000	11,539,246	7,212,029	137,243,137
2039	32,631,216	14,479,128	17,510,918	6,000,000	11,510,918	7,194,323	144,437,461
2040	32,000,001	14,577,358	17,132,691	6,000,000	11,132,691	6,957,932	151,395,392
2041	33,943,706	14,224,024	18,064,422	6,000,000	12,064,422	7,540,263	158,935,656
2042	36,000,000	17,360,813	19,080,480	5,966,479	13,114,000	8,196,250	167,131,906
2043	32,000,001	12,395,256	18,784,621	6,000,000	12,784,621	7,990,388	175,122,294
2044	31,999,998	18,523,967	16,441,245	5,914,816	10,526,429	6,579,018	181,701,312
2045	35,801,113	18,273,475	17,527,638	6,000,000	11,527,638	7,204,774	188,906,086
2046	32,015,351	12,767,194	16,810,282	6,000,000	10,810,282	6,756,427	195,662,513
2047	17,520,467	8,888,134	11,070,208	4,286,870	6,783,338	4,239,586	199,902,099
Total	868,807,011	390,860,895	478,943,255	159,099,897	319,843,358	199,902,099	-

3.5 TAILINGS DEPOSITION

The tailings will be transported from the plant to the TIA via three separate steel pipelines (two in operation and one spare at any given time) and intermediate pump booster stations (up to Pumphouse #8). Additional pumping stations will be added as the tailings deposition progresses in a southerly direction. Presently, the tailings are pumped end discharged from the dike crest at the southern extent of the TIA. The pipeline end discharge arrangement will be modified to allow multiple spigot discharges and spigot discharge locations will be relocated

regularly to allow drainage of the coarse material near the discharge point and to avoid thick layers of frozen tailings. Spigot discharge methods will consider winter operations to target longer term deposition areas and limit frequent spigot valve operations over the cold weather season.

Hatch (2021[viii]) conducted a tailings deposition modelling exercise using Muk3D Tailings+ software to determine the tailings deposition extensions and associated earthworks to achieve the required storage volume for each phase of future tailings deposition (i.e., for specific time periods). A summary of the tailings deposition phases is provided in Table 3.3**.** An overview of each deposition phase based on the modelled cases for each time period are provided in the ensuing sections. For each deposition phase, a figure has been developed to depict a plan view perspective of the extent of the tailings deposition based on the modelled scenarios.

3.5.1 Tailings Deposition Phases 1 to 3

Phases 1 to 3 (Figure 3.6) will fill in the available space of the existing tailings area and the existing storage is estimated to be sufficient without impacting Flora North or the El. 555 m level of Flora South and will not impede the natural drainage path (i.e., Diversion Channel). The existing storage capacity, with the current dikes, is sufficient for at least 3 years of storage and no new equipment or dike raises are required for this period, with the exception of slurry pipeline extension and implementation of the spigot discharge system. It is assumed that the current pumping capacity is sufficient to discharge at the planned locations up to Phase 3. Slope angles were based on the previous 5-year filling plan issued in 2014 (Golder Associates 2017[ix]). These slopes were chosen as the start-up tailings feed is expected to be approximately the same density as the previous operations and gradually ramped up to higher densities.

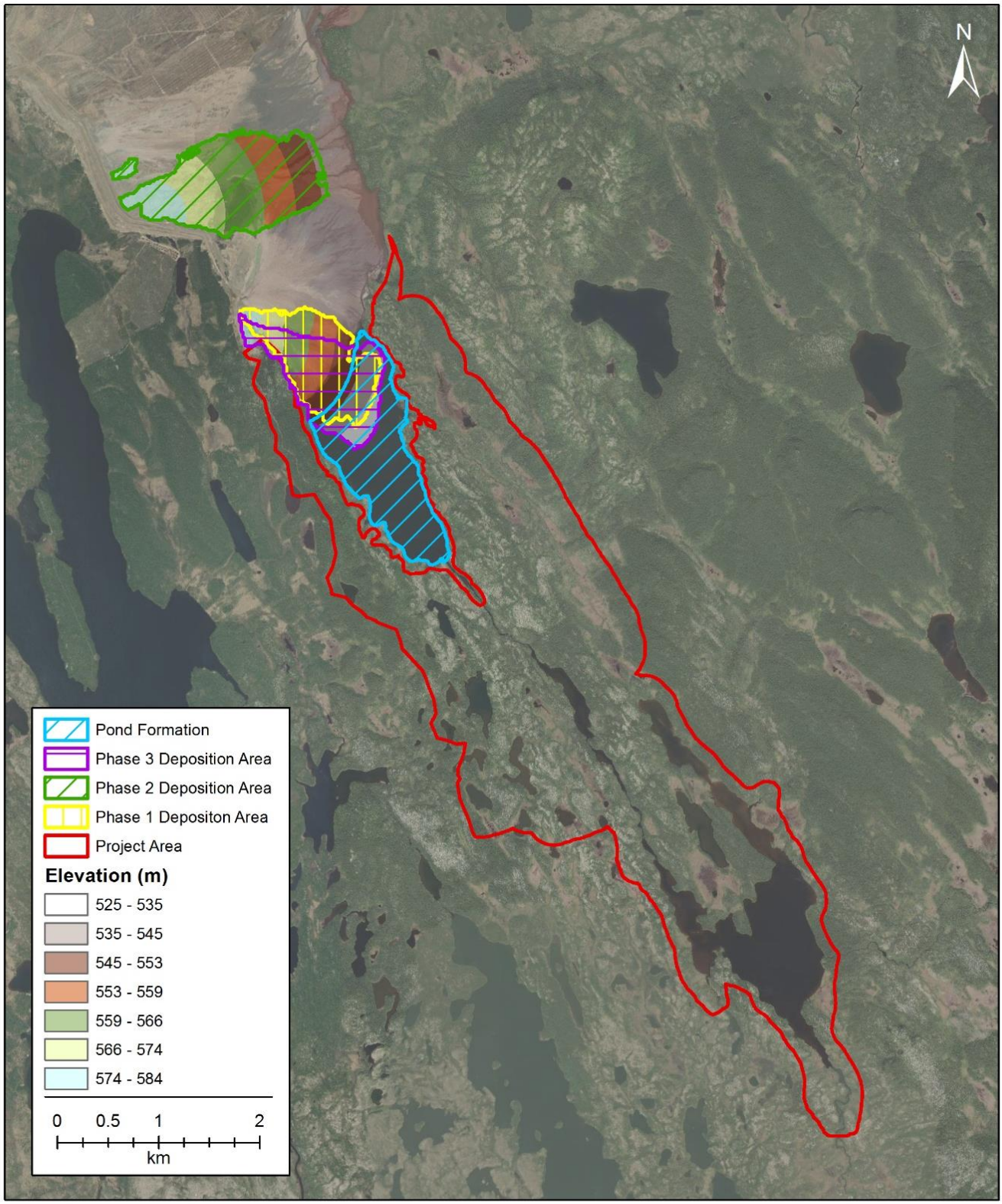
Tailings Line 1 will be 1,400 m of carbon steel piping and built in 2021 under Phase 1 while Tailings Line 2 will be 1,500 m of carbon steel piping and built in 2022 also during Phase 1. An additional 1,900 m of carbon steel piping will be added to Tailings Line 1 in 2022 under Phase 2. Tailings Line 3 will be 1,500 m carbon steel piping and built in 2021 under Phase 1.

Deposition in Phase 1 will be mostly along the area northwest of South Flora Lake with dewatering into the lake. Deposition in Phase 2 will be targeted to areas adjacent to the south dike mostly in areas of lower elevation. Deposition in Phase 3 will be mostly along the area northwest of South Flora Lake to the saddle dike elevation of 583 m with dewatering into the South Flora Lake. During Phase 3 there will be an extension of the tailings pipeline of approximately 600 m to the south. Phases 1 to 3 cover the time period approximately to February 2022.

Table 3.3 Summary of the Tailings Deposition Phases for the Scully Mine to ELOM 2044.

Phase	Description	Incremental Deposit Volume	Cumulative Volume	Average monthly production	Duration	Start	Finish	Dike Crest Elevation	Discharge Elevation	Predicted Lake Level Elevation
		m^3	m^3	m^3 / month	months			m	m	m
Phase 1	South Flora Lake	2,472,169	2,472,169	258,799	9.6	1-Nov-20	19-Aug-21	585	584.5	550
Phase 2	South Dike Low Areas	3,917,118	6,389,287	258,799	15.1	1-Nov-20	5-Feb-22	585	584.5	550
Phase 3	Saddle Dike Crest El. 583 (Starter)	2,494,227	8,883,514	414,079	6.0	19-Aug-21	19-Feb-22	583	583	550
Phase 4	Saddle Dike Raise Crest El. 586	11,574,359	20,457,873	587,234	19.7	19-Feb-22	13-Oct-23	586	586	551
Phase 5	Saddle Dike Raise Crest El. 589	6,684,908	27,142,781	570,108	11.7	13-Oct-23	4-Oct-24	589	589	554
Phase 6	Saddle Dike Raise Crest El. 591	7,220,059	34,362,840	593,154	12.2	4-Oct-24	11-Oct-25	591	591	554
Phase 7	South Extension Dike Crest El. 594 (Starter)	67,934,766	102,297,606	606,286	112.1	11-Oct-25	18-Feb-35	594	594	560
Phase 8	South Extension Dike Crest El. 607 (Starter)	60,266,205	162,563,811	557,307	108.1	18-Feb-35	29-Feb-44	607	607	560-565
Phase 9	South Extension Dike Raise Crest El. 617	37,149,861	199,713,672	569,247	41.3	29-Feb-44	11-Aug-47	617	617	560-565

Note: El. Indicates elevation in meters above sea level



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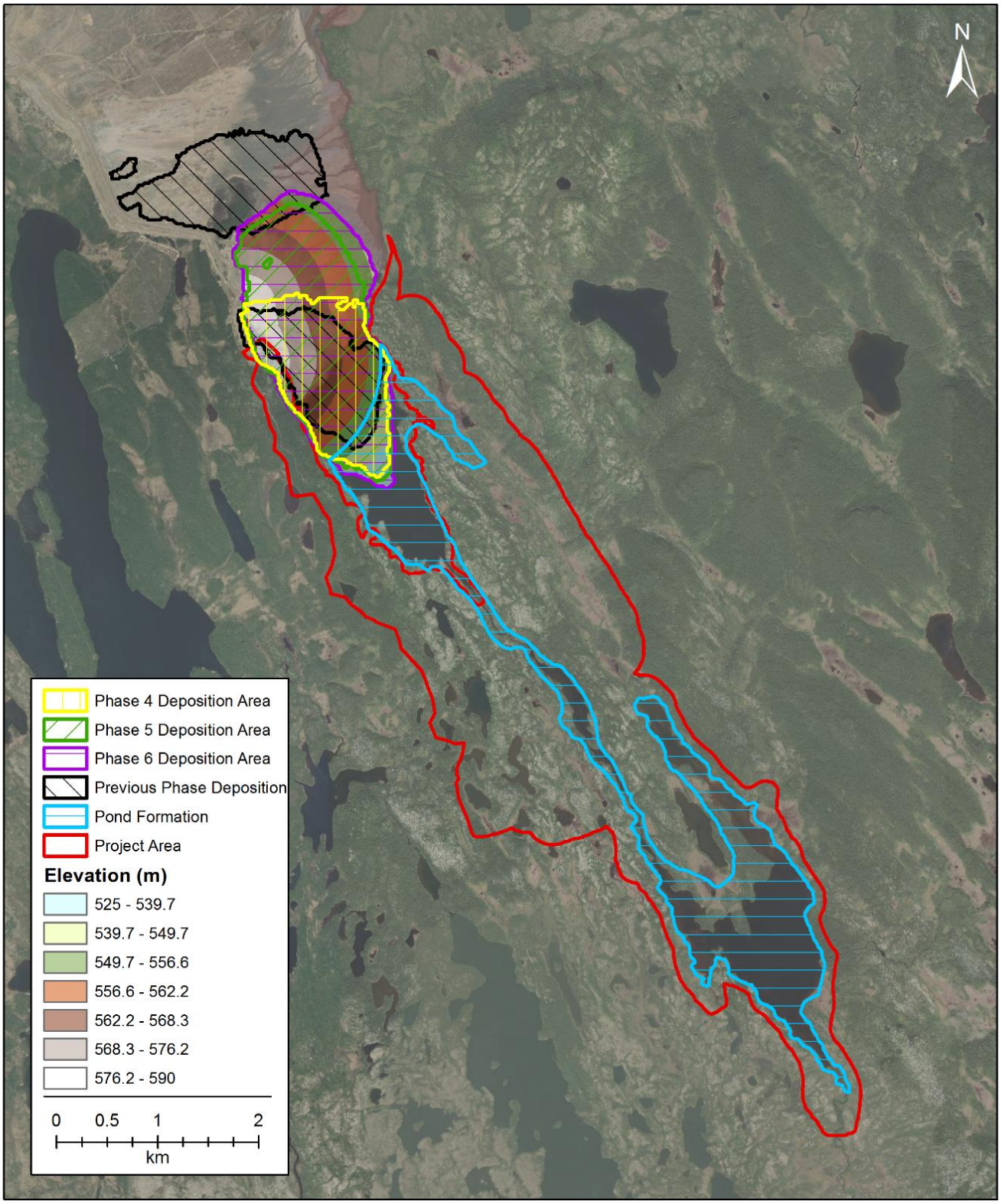
3.5.2 Tailings Deposition Phases 4 to 6

Phases 4 to 6 will require raising of the existing Saddle Dike. During Phase 5, it is expected that the deposit could impede the Diversion Channel and raise the Flora South level above the El. 555 m limit prescribed in the existing Schedule 2. An amendment to Schedule 2 will be required to permit tailings expansion further south into the Flora Basin. Activities related to Phase 5 onward constitute the Project as activities from Phase 1 through 4 occur in compliance with terms of the existing TIA approval.

Phase 4 covers the time period approximately to October 2023, and will require a raise in the saddle dike elevation to 586 m (Figure 3.7). Tailings deposition will be focused to the same location as Phase 3 and will extend further south into Flora South. Deposition in this phase will result in an approximate 1 m rise in the elevation of Flora South which will cause further inundation of tributaries to the lake and an extension of the lake shoreline.

Phase 5 covers the time period approximately to October 2024, and will require a further raise in the saddle dike elevation to 589 m (Figure 3.7). Deposition in this phase will result in an additional approximate 3 m rise in the elevation of South Flora Lake (total 4 m rise from 550 m) which will cause extensive inundation of the main tributaries to the lake and considerable back up of water and flooding of areas to the south and further extension of the lake shoreline. In 2024, a pumphouse (Pumphouse #9) with 12 pumps, two (2) pumps in series per tailings line, will be installed to serve the tailings expansion up until 2030.

Phase 6 covers the time period approximately to October 2025, and will require a further raise in the saddle dike elevation to 591 m (Figure 3.7). Tailings deposition during this period will be directed to the area to the east of the saddle dike and will overlay areas of pervious deposition. Deposition in this phase will not result in any increase in the elevation of South Flora Lake or any further flooding. A total 7,500 m of carbon steel piping will be added to all three tailings lines during Phase 6.



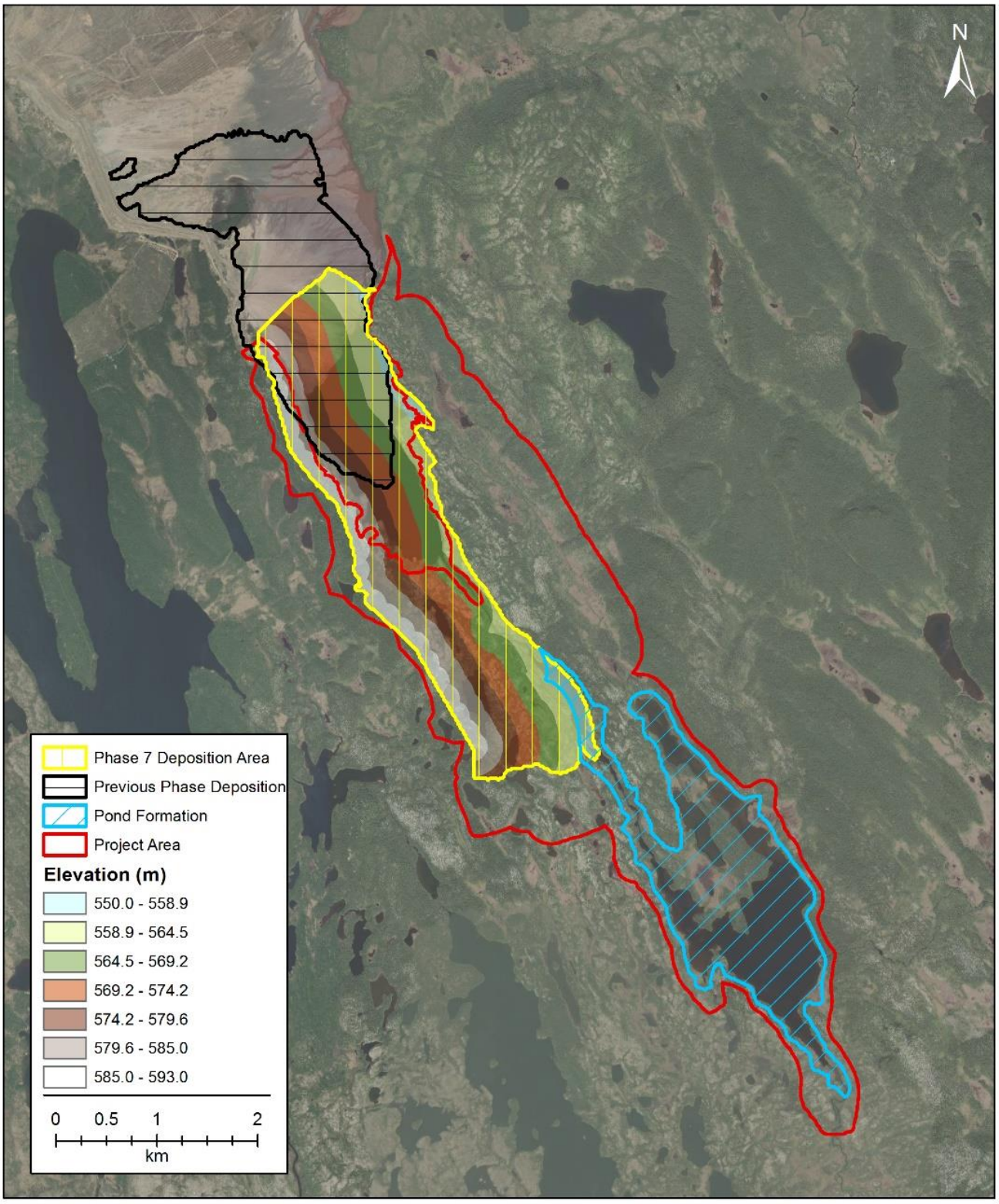
TACORA RESOURCES	Scully Mine TIA Expansion Project	PAGE NO: 3.7	PREPARED BY: sem
	Phases 4-6 - Tailings Deposition Plan	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

3.5.3 Tailings Deposition Phase 7

Phase 7 (Figure 3.8) will involve a significant extension of the tailings deposit south and it will be completed in two subphases with multiple dike raises over a 10-year period. The extension south will require development of a greenfield area with construction of the Starter Dikes with associated foundation stripping, underdrainage and tree clearing within the proposed extended basin area.

Phase 7 covers the time period approximately to February 2035, a period of 9.3 years (112 months). During this phase, a new dike will be constructed, the South Dike Extension, to an initial elevation of 594 m, which will extend approximately 5 km south from the Saddle Dike. The remainder of Flora South will be completely infilled and a new large lake will be created to an elevation of 560 m. Tailings deposition during this period will be to the east along the full extent of the South Dike Extension. The tailings pipelines will be extended along the South Dike Extension for approximately 4.5 km. The diversion channel will be created naturally and will extend from a bay to the north in the formed lake adding approximately an additional 5 km in length. Large areas of terrain including several lakes and interconnecting streams will be infilled. More information on this is included in Section 4.1, Fish and Fish Habitat.

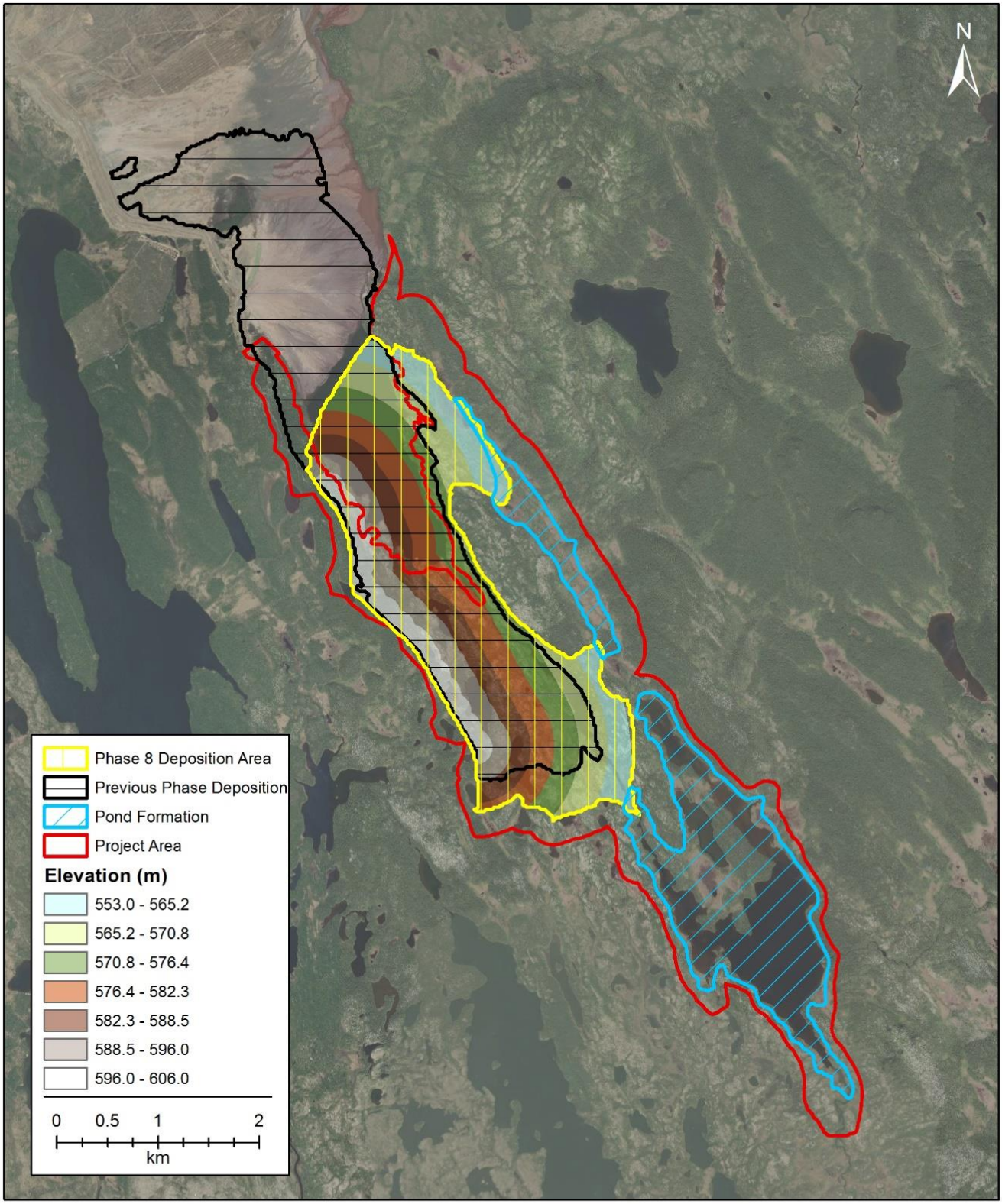
In mid Phase 7 (Year 2030), a second pumphouse (Pumphouse #10) with 12 pumps, two (2) pumps in series per tailings line, will be installed to serve the expansion up until the end life of mine. A total 6,150 m carbon steel piping will also be added to all three tailings lines during Phase 7.



TACORA RESOURCES	Scully Mine TIA Expansion Project	FIGURE NO: 3.8	PREPARED BY: sem
	Phase 7 - Tailings Deposition Plan	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

3.5.4 Tailings Deposition Phase 8

Phase 8 (Figure 3.9) covers the time period approximately to February 2044, an additional period of nine years from Phase 7. During this phase, the South Dike Extension will be raised to an elevation of 607 m. The newly created lake will rise in elevation to between 560 and 565 m resulting in further flooding of adjacent terrain. Tailings deposition during this period will continue to the east along the full extent of the South Dike Extension. The Diversion Channel will continue to extend from a bay to the north in the formed lake.

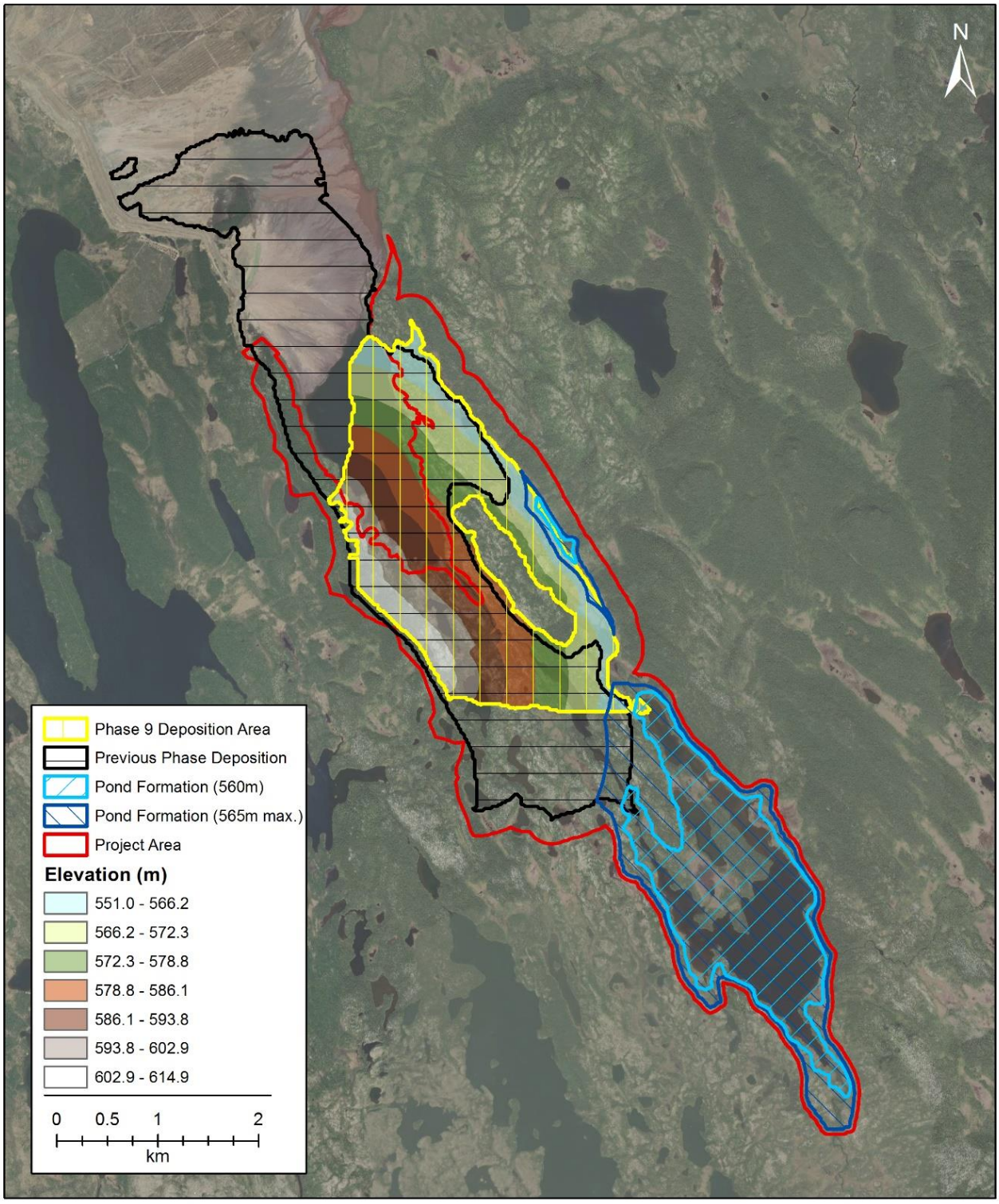


TACORA RESOURCES	Scully Mine TIA Expansion Project	PAGE NO: 3.9	PREPARED BY: sem
	Phase 8 - Tailings Deposition Plan	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

3.5.5 Tailings Deposition Phase 9

Phase 9 covers the time period approximately to August 2047, an additional period of 41.3 months from Phase 8 (Figure 3.10). During this phase, the South Dike Extension will be raised to an elevation of 617 m and tailings pipelines will be extended to the south. The newly created lake will remain at elevation to 560-565 m. Phase 9 will raise above the Phase 8 deposit area with additional 3 m dike raise in a series of sub-phases as follows:

- Phases 9a to 9c – The dike raised to El 614 m for deposition over previous Phases 7 and 8 areas.
- Phase 9d – The dike will be further raised to El 617 m for deposition over previous Phase 9b area. Prior to deposition, a deflector berm (4 m high) will be constructed on the tailings beach slope using construction methods similar to cut-to-fill of tailings dike raises. The deflector berm will be required to minimize pinching of the Diversion Channel by the raised tailings deposit which in turn avoids raising the large existing lake (south of the TIA) above its closure level of 560 m – 565 m.
- Phase 9e – The tailings deposit will be routed to the east side of a large knoll to fill in a low ponded area. This requires slurry pipeline extension along the constructed deflector berm. Given lower discharge outlet elevation relative to the last pumphouse, no additional pumphouse will be required besides an additional 1,700 m extension of main delivery pipelines. A discharge bench will be constructed on the existing knoll crest at El 580 m which would enable gravity flow of slurry pipeline discharge from the western dike crest. A pond formed during previous deposition phases on the east side of the knoll will be reduced by the deposited tailings to a small narrow geometry in order to maintain the flow path of the Diversion Channel.



TACORA RESOURCES	Scully Mine TIA Expansion Project	PAGE NO: 3.10	PREPARED BY: sem
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3.6 REHABILITATION AND CLOSURE

The Rehabilitation and Closure Plan (RCP) for the Scully Mine has been reviewed and approved by the Newfoundland and Labrador Department of Industry, Energy and Technology as required under the Newfoundland and Labrador *Mining Act*, Chapter M-15.1[x]. In accordance with the Act, the Plan details the rehabilitation processes to be implemented at Scully Mine up to and including closure.

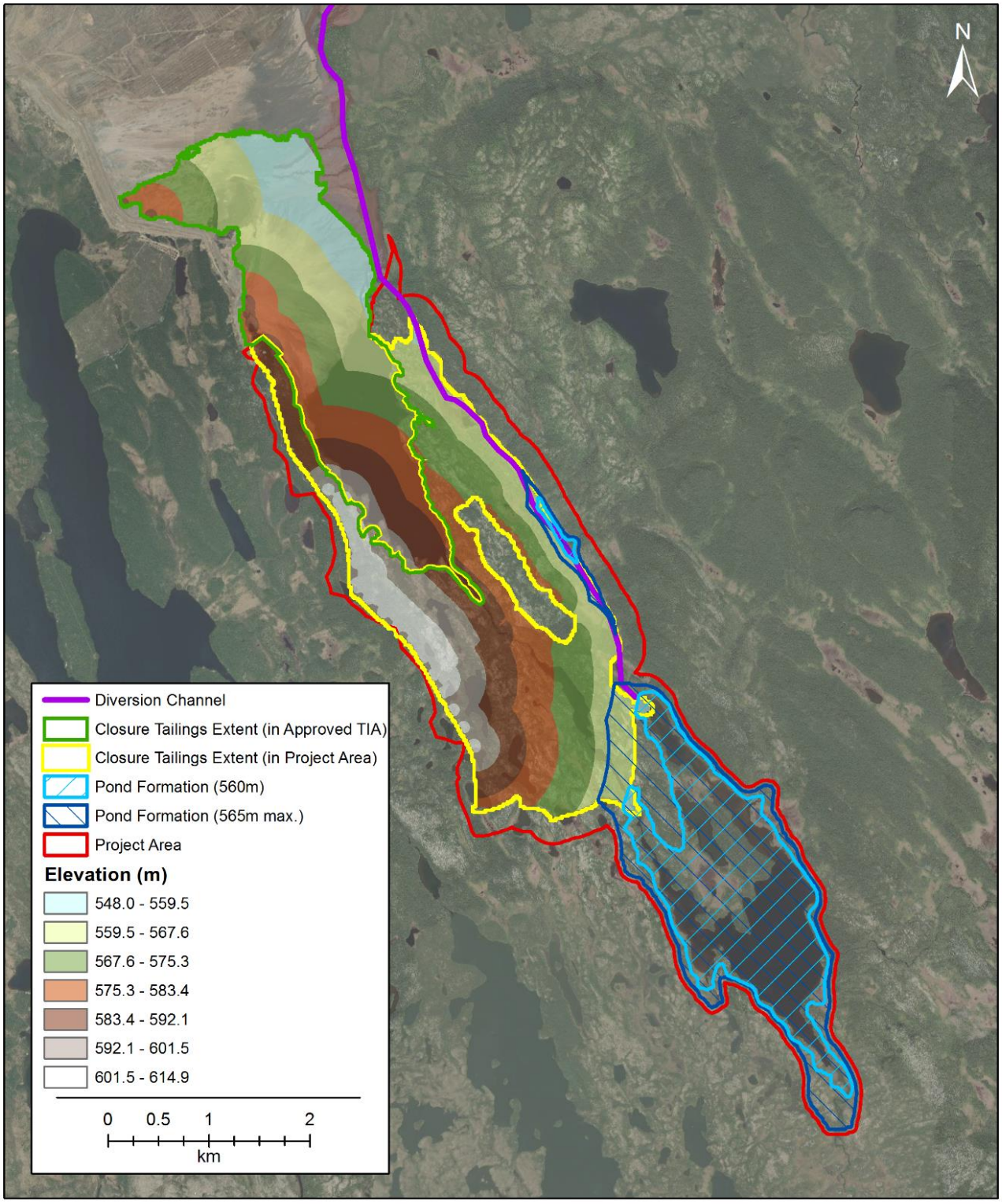
The plan is considered a living document that will be reviewed and updated as necessary throughout the project life; RCP updates are required at a minimum of every five years. Each year, operation work plans, outlining schedule and planned rehabilitation activities for the Project will be submitted to the Province in accordance with the provincial *Mining Act*. The RCP will be updated to include the activities associated with this Project.

The closure strategy of the TIA incorporates progressive rehabilitation of inactive areas where tailings deposition has been completed. The closure activities include the following:

- Rehabilitation of all exposed inactive tailings surfaces and disturbed areas with vegetation;
- Regrading of dike bench slopes where required mostly on the over-steepened bench slopes of the existing South and North Dikes;
- Construction of the engineered Diversion Channel with appropriate riprap erosion protection and conveyance capacity; and
- Construction of the surficial drainage ditches along the formed lows/creases of the tailings beach surface where concentration of runoff is anticipated.

Figure 3.11 shows the conceptual closure arrangement for the tailings impoundment area to include all reclaimed tailings surfaces and dikes, a proposed permanent Diversion Channel, and the lake formed upstream of the tailings deposition area. Operation of the Scully Mine to February 2014, had resulted in a tailings surface area of approximately 1,110 ha and 425 ha of vegetative cover had been created on inactive areas of the TIA. An additional 400 ha was vegetated in 2015-2016 while plant operations were curtailed and approximately 37 ha were vegetated in 2020.

Operations from 2021 to the ELOM of 2047 (Phases 1 through 9, Section 3) will result in a tailings surface area of approximately 1,119 ha. Of this 506 ha will be within the currently approved TIA (with overlap onto tailings disposed prior to 2021) and 613 ha will fall within the Project Area (Figure 3.11).



TACORA RESOURCES	Scully Mine TIA Expansion Project	PAGE NO: 3.11	PREPARED BY: sem
	Closure - Tailings Deposition Plan	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

3.6.1 Progressive Reclamation

The facility operations will continually vegetate inactive tailings areas as the tailing deposition advances in a southerly direction, reducing the amount of tailings that are exposed. Progressive reclamation of inactive areas will occur from the northern sector of the tailings beach as the active tailings deposition develops southward and along the upper Flora Lake valley. Reclamation will minimize fugitive dust emissions and formation of erosion gullies which could washout tailings solids. Progressive reclamation and revegetation of all exposed tailings beaches and disturbed areas will involve hydroseeding with select native species seed mix, spread of fertilizers, minor regrading of dike embankments and construction of ditches for management of surface drainage.

Experience has demonstrated that tailings can be seeded and fertilized using conventional agricultural equipment. Tailings revegetation in the past has established self-sustaining vegetation covers on all surfaces including gentle sloped areas, high sloped dikes and horizontal benches. After cessation of operations, the remaining exposed tailings surfaces, including any remaining areas of the external dam slopes and benches, will be revegetated using the same procedures developed through the progressive rehabilitation program conducted during mine operations.

A typical annual revegetation program will consist of seeding and fertilizing approximately 40 ha. The annual tailings revegetation program will keep pace with the tailings surface expansion, as much as possible, following the phased deposition plan. The approach will use a combination of direct seeding and hydroseeding. The typical materials used successfully have included a hay mulch (approximately 4,500 kilograms (kg) per ha), fertilization with poultry manure (approximately 400 kg/ha) and seeding with the contractor's seed mixtures (approximately 290 kg/ha). Dike slopes will also be addressed in this manner with hydroseeding applications.

3.6.2 Tailings Dikes

The tailings dikes along the western, northern and southern extents of the TIA will be inspected on a regular basis and the stability of dikes will be assessed in terms of static and dynamic (pseudo-static) stability and liquefaction. Ongoing vegetative cover growth will mitigate potential wind erosion issues. Prevention of surface water erosion has been and will continue to be addressed by slope contouring and drainage control to complement the vegetative cover. Implementation of the spigot method of tailings distribution will enhance the ability to create designed slope contouring. TACORA will conduct third party geotechnical stability investigations on the tailings dikes throughout the TIA prior to and after closure.

The stability of the tailings structures will be monitored throughout the operational life of the mine as part of normal operations. Additional geotechnical inspections will be conducted on a regular basis upon closure and also as needed if stability issues become apparent. The intent of these geotechnical studies will be to reclassify the TIA dike and basin itself as a landform,

precluding the need for future dike inspection. The emphasis of TACORA's closure efforts would be on maintaining geotechnical stability of the tailing dikes to prevent movement outside the TIA.

3.6.3 Permanent Diversion Channel to North Flora Lake

At closure (ELOM 2047), TACORA will construct a permanent water Diversion Channel with riprap erosion protection to ensure conveyance and stable pathway for the drainage of the Flora watershed passing along the eastern edge of the extents of the tailings beach and discharge into North Flora Lake. This channel will be designed to minimize the potential for TIA erosion and associated total suspended solid (TSS) effects in North Flora Lake and further downstream.

3.6.4 Tailings Impoundment Area Water Management

According to the Schedule 2 permit, tailings are not permitted to be deposited directly into the North Flora Lake which will serve primarily as a polishing system for the inflows from upstream active tailings deposition and runoff from the upper Flora Basin watershed. The lake will help prevent suspended sediments from being carried downstream towards Wabush Lake. There is no water reclaim pumping system at the TIA given there is no requirement for process water re-use. The natural runoff of the Flora Lake watershed including the TIA operation are routed via the Diversion Channel (drainage pathway).

Considering the side valley discharge approach of the TIA, there are effectively no cross-valley impounding dam structures, no decant pond formed and no spillway structure constructed for the operation of the TIA. Hence, the water management strategy considers the following requirements:

- Tailings deposition must be controlled to ensure the beach development does not impede the drainage pathway (i.e., Diversion Channel) for the upper Flora Lake watershed. Where topographic high points (knobs) exist, a channel construction through or around the knob will be necessary to maintain conveyance of the valley drainage pathway as the tailings deposit obstructs the original natural valley pathway.
- Maintain flow capacity of existing Flora Outlet Arm Culverts (Regulatory FDP of the TIA) at the Railway and Highway 500 crossings. It is also the outlet of the whole Flora Lake watershed including the TIA operation.

Water treatment associated with tailings management consists of natural (unaided) settling of solids initially in South Flora Lake and then further south in the watershed. Water quality from the TIA is measured at its discharge (FDP under *MDMER*) at the Flora Lake Outlet Arm which flows into Flora River and then into Wabush Lake. Upon closure, the discontinuation of disposal of tailings and the completion of the tailings revegetation, water quality discharging from North Flora Lake should be as good as or better than it typically is during mine operation. The creation of the engineered channel is also expected to further reduce TSS entering North Flora Lake. No water treatment is anticipated to be needed after closure.

TACORA will continue to monitor water quality at Flora Outlet Arm FDP for three years after closure as required under the MDMER until the Scully Mine becomes a recognized closed mine. TACORA will also conduct an environmental effects monitoring study during the three-year period after closure.

Post-closure monitoring will necessitate jointly operating with NLDEC the existing Real-Time Water Quantity/Quality Monitoring Station for a minimum of three years after site rehabilitation and closure activities are completed, or by mutual agreement, until the natural baseline conditions are restored, and/or it has been determined that Real-Time Water Quantity/Quality Monitoring is no longer warranted.

4.0 Physical and Biological Environment

4.1 FISH AND FISH HABITAT

The currently approved TIA includes the Flora South Basin, the Flora North Basin and associated tailings covered areas. Thickened tailings are deposited into Flora South Basin, which acts as a settling pond, with discharge through a 1.5 km-long, poorly defined, channel that enters Flora North Basin, where additional settling occurs. The tailings effluent and natural runoff from Flora North Basin enters into Flora Outlet Arm, then into Flora River and subsequently into Wabush Lake. The Flora TIA Discharge has been identified as the Scully Mine tailings effluent compliance point for the MDMER.

Available information on fish and fish habitat in the Flora Basins watershed has been compiled as background information to assess the potential interactions with the tailings expansion project. This includes information on the fish community in the Wabush Lake watershed generally, and more specifically for the Flora Basins watershed, Flora North and South, tributaries to Flora South, and the Flora Outlet Arm. Available fish and fish habitat information from the Flora Basins and tributaries collected between 1999 and 2002 in support of formal designation of Flora Basins TIA are included. Information on the fish community in the Flora Outlet Arm collected during six cycles of environmental effects monitoring is also included. Waterbodies outside of areas directly affected by the mine's operations included in habitat compensation and offsetting activities to offset impacts from the designation of the Flora Basins TIA are described.

4.1.1 Fish Community

4.1.1.1 Wabush Lake

A species list for Wabush Lake was compiled using data generated by the 1992 field survey (Beak 1993[xi]) in addition to information provided by Hicks (1974[xii]). A total of 12 species were historically identified in the Wabush-Julienne-Shabogamo Lake chain. The species include five salmonids: lake whitefish (*Coregonus clupeaformis*), round whitefish (*Prosopium cylindraceum*), lake trout (*Salvelinus namaycush*), land-locked Atlantic salmon (ouananiche, *Salmo salar*), and brook trout (*Salvelinus fontinalis*). Two catastomids were also present: longnose sucker (*Prosopium cylindraceum*), white sucker (*Catostomus commersonii*) as well as Northern pike (*Esox lucius*), burbot (Lota lota), lake chub (*Couesius plumbeus*), slimy sculpin (*Cottus cognatus*), mottled sculpin (*Cottus bairdii*), longnose dace (*Rhinichthys cataractae*) and logperch (*Percina caprodes*). The numerically dominant species include lake whitefish and longnose sucker. These species comprised 70 to 85% of the catch in 1992 (Beak 1993[xi]), 76% in 1998 (Beak 1999[xiii]) and 75% of the catch in 2001 (JWEL 2002[xiv]). Lake trout is the dominant predatory species in Wabush Lake. Land-locked Atlantic salmon (ouananiche) were reported by Hicks (1974[xii]) in Wabush Lake, however, EEM and Fish Habitat Compensation studies in 2005, 2010, 2013 and 2016 (EcoMetrix 2006[xv], 2011[xvi], 2014[xvii]; SEM 2017a[xviii] and b[xix]) were unable to confirm their presence. Ouananiche were last captured in Shabogamo Lake in EEM

Cycle 3 in 2010 (EcoMetrix 2011). Many of the species reported in Wabush Lake by Hicks (1974[xii]) and Beak (1993[xi]) have not been captured in fish sampling for the Wabush Lake Fish Habitat Compensation Monitoring in 2013 (Ecometrix 2014) and 2016 (SEM 2017b). In 2013, species captured included lake whitefish, round whitefish, lake trout, longnose sucker, white sucker, and lake chub. In 2017, the same species were captured with the exception of round whitefish.

4.1.1.2 Flora Basins and Flora Outlet Arm

In the Flora Basins watershed a total of 11 species have been documented including lake whitefish, lake trout, longnose sucker, white sucker, brook trout, burbot, lake chub, slimy sculpin, longnose dace, Northern pike and logperch. Studies in 1999 and 2002 reported five species each in Flora North and Flora South while nine species were captured in the tributaries. EEM studies have been completed at Flora Outlet Arm in 2004, 2007, 2010, 2013, 2016, and 2019 and from five to seven species have been captured in each year with a total of ten species captured over the six EEM cycles (Minnow 2005[xx], 2008[xxi], 2011[xxii], 2014[xxiii]; SEM 2017a and 2020[xxiv]). Brook trout have not been captured since 2004, while lake whitefish have not been captured since 2007. White sucker were last captured in 2010 while log perch were first captured in 2016 and Northern pike were captured for the first time in 2019. Table 4.1 summarizes fish species presence by waterbody.

Jacques Whitford Environment Limited, JWEL (2003[xxv]) indicated that there was no recreational or subsistence fishery in either of Flora North or South at that time. There are several cabins in the upper watershed of Flora South and it is likely cabin owners fish recreationally for brook trout and possibly other species.

Table 4.1 Fish Species in Wabush Lake and Flora Basins Watersheds.

Species	Wabush Lake Watershed (n=13)	Flora Basins Watershed (n=11)	Flora North (n=5)	Flora South (n=5)	Tributaries (n=9)	Flora Outlet Arm (n=10)
Lake Whitefish	X	X	X	X	X	X
Round Whitefish	X					
Longnose Sucker	X	X	X	X	X	X
White Sucker	X	X				X
Lake Trout	X	X	X			
Ouananiche	X					
Brook Trout	X	X			X	X
Burbot	X	X		X	X	X
Lake Chub	X	X			X	X
Slimy Sculpin	X	X	X	X	X	X
Mottled Sculpin						
Longnose Dace	X	X			X	X
Northern Pike	X	X	X	X	X	X
Logperch	X	X				

4.1.2 Tailings Impoundment Area

4.1.2.1 Background

The water resources and fish and fish habitat associated with Scully Mine include waterbodies that are directly associated with the mine's footprint and mining and processing infrastructure and those that are affected by tailings management activities including downstream receiving waterbodies.

Waste products (tailings) generated from Wabush Mines operations were historically deposited into Flora Lake under a license provided by the Government of Newfoundland and Labrador. Tailings were deposited on land in the Flora Lake watershed and allowed to dewater into the lake. Over time, solids accumulation has divided Flora Lake into distinct North and South Basins. In 2009, regulatory approvals designated Flora Lake as the Scully Mine's TIA. The approved Flora TIA included the South Basin, the North Basin and associated tailings covered areas. Thickened tailings are currently deposited into the South Basin, which acts as a settling pond, with discharge through a 1.5 km-long, poorly defined, channel that enters the North Basin. The tailings effluent and natural runoff from the North Basin enters into Flora Outlet Arm, then into Flora River and subsequently into Wabush Lake. The TIA FDP has been identified as the Scully Mine tailings effluent compliance point for the MDMER.

4.1.2.2 Flora (North and South) Basins

4.1.2.2.1 Habitat Description and Quantification

JWEL conducted surveys in 1999 and 2002 (JWEL 1999[xxvi], 2003) to quantify the harmful alteration, disruption, or destruction (HADD) of productive fish habitat in Flora South and Flora North Basins that would potentially result from mine operations and tailing deposition to ELOM 2025. Wabush Mines needed to be in compliance with the proposed Metal Mining Effluent Regulations (MMER, now the MDMER) and had to apply to have its existing tailings disposal area designated under the MMER by Environment Canada. Wabush Mines had to quantify the fish habitat effected by tailings deposition which included placement of tailings into Flora South Basin, the inundation of tributaries to that basin and the use of Flora North basin as a polishing pond. A fish habitat compensation plan to offset impacts from tailings deposition acceptable to DFO was developed and projects were implemented.

The lake habitat in Flora South and Flora North was characterized and quantified based on depth of the littoral zone, nature of the substrate and fish species present. Adjustments were made to the suitability of fish habitat to reflect the existing conditions in the basins. The quantification of habitat was completed following methods developed by DFO and described in Bradbury *et al*. 1999[xxvii] and 2001[xxviii]. Bathymetry was completed in 1999 and the littoral zone was defined based on Secchi depths (JWEL 1999). Substrate was described based on Bradbury *et al*. (1999), which in turn was based on the Wentworth classification (1922[xxix]), while the derivation of composite classification (coarse, medium, fine) was based on Bradbury *et al*. (2001). JWEL conducted fish sampling in the tributaries, Flora North, Flora South and Flora River to determine species present in 1999 (JWEL 1999) and 2002 (JWEL 2003). Lake habitat

suitability indices were derived from Bradbury *et al*. (1998) and composited using the methods described by Bradbury *et al*. (2001). Indices for Flora South and Flora North Basins were adjusted for the level of degradation at that time to provide site specific composite habitat suitability indices. Composite habitat suitability indices were used to derive the habitat equivalent units (HEUs) that may result in a HADD in the two Flora Basins.

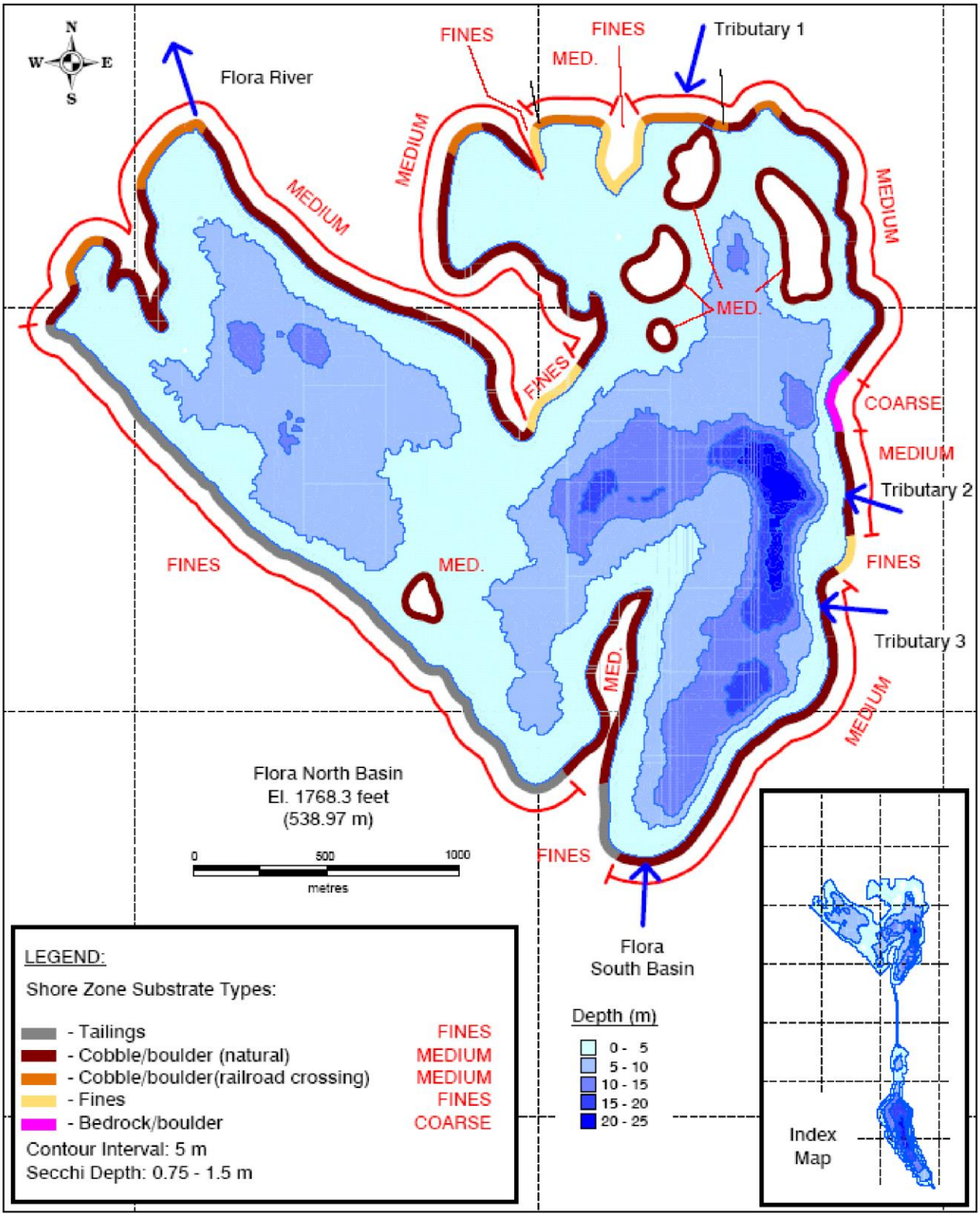
Riverine habitat in the lower reaches of the tributaries to Flora South was characterized and quantified in JWEL (1999) using Beak habitat classification (Sooley *et al*. 1998[xxx]) for salmonid species (Table 4.2) and standard terminology for characterizing substrate and meso-habitat type.

Table 4.2 Beak Riverine Habitat Types.

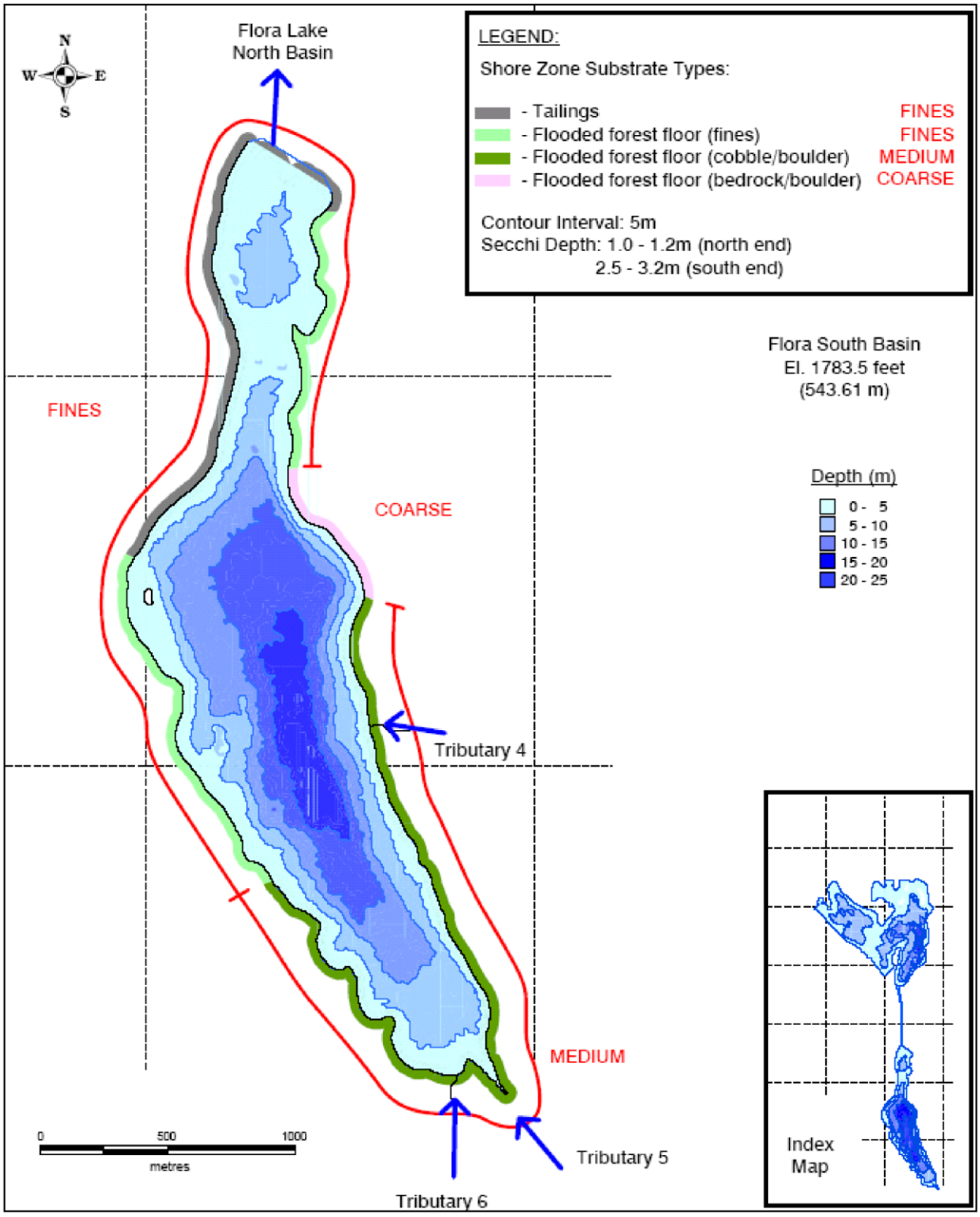
Habitat Type	Description	Mesohabitat Types
Type I	Good salmonid spawning and rearing habitat; often with some feeding pools for larger age classes	riffle, pool
Type II	Good salmonid rearing habitat with limited spawning, usually only in isolated gravel pockets; good feeding and holding areas for larger fish in deeper pools, pockets or backwater eddies	run, riffle, pocketwater, pool
Type III	Poor rearing habitat with no spawning capabilities, used for migratory purposes	run, pocketwater, cascades, falls
Type IV	Poor juvenile salmonid rearing habitat with no spawning capability, provides shelter and feeding habitat for larger, older salmonids (especially brook trout)	steady, pool, glide, flat

4.1.2.2.2 Lake Habitat

The lake habitat in Flora South and Flora North was characterized and quantified based on depth of the littoral zone, nature of the substrate and species present. JWEL only considered three habitat types (coarse substrate/no vegetation, medium substrate/no vegetation, fine substrate/no vegetation) in the littoral zone and one habitat type (fine substrate/no vegetation) in the pelagic zone. Maps showing the bathymetry and substrate distribution for Flora North and Flora South are provided in Figures 4.1 and 4.2, respectively. The quantity of lake habitat, by habitat type, for Flora North and South is provided in Table 4.3. The delineation of littoral zone in each lake was based on Secchi depth which was from 0.75 to 1.5 m in Flora North and subsequently a 2.0 m depth was used for the littoral zone. Secchi depth in Flora South was from 1.0 to 1.2 m and 2.5 to 3.2 m in the north and south ends, respectively and a 5 m depth was subsequently conservatively used to define the littoral zone.



TACORA RESOURCES	**Scully Mine TIA Expansion Project**	PAGE NO: 4.1	PREPARED BY: sem
	Bathymetry and Substrate of Flora North (from JWEL 2003)	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021



TACORA RESOURCES	**Scully Mine TIA Expansion Project**	PAGE NO: 4.2	PREPARED BY: sem
	Bathymetry and Substrate of Flora South (from JWEL 2003)	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

Table 4.3 Quantity of Lake Habitat Types in the Littoral and Pelagic Zones in Flora North and Flora South in 1999 (from JWEL 2003).

Habitat Zone/Type	Flora North (ha)	Flora South (ha)
Littoral Zone		
Coarse substrate/no vegetation	0.639	0.886
Medium substrate/no vegetation	68.477	6.873
Fine substrate/no vegetation	18.357	44.278
Total Littoral Zone	87.473	52.037
Pelagic Zone		
Fine substrate/no vegetation	353.568	139.378
Total Pelagic Zone	353.568	139.378
Total Lake	441.041	191.415

Only fish species that live most of their life stages in lakes or that were recreational fish species were considered in the habitat suitability index (HSI) analysis (i.e., lake trout, lake whitefish, longnose sucker, northern pike, slimy sculpin). HSIs were used for four life stages; spawning, young-of-the-year, juvenile, and adult. HSIs were derived for each species and life stage in each of the lacustrine habitat types. A composite habitat suitability index as then determined for each species/life stage which was then adjusted to reflect the existing habitat degradation in 1999 relative to natural conditions. The indices were then screened to determine the most sensitive index of all species/life stages for each habitat type. These HSIs were then used to determine the habitat equivalent units (HEQs = HSI times area) for each habitat type.

4.1.2.2.3 Riverine Habitat

JWEL completed surveys of five tributaries to Flora South and these tributaries are identified in Figures 4.1 and 4.2, above. The quantification of riverine habitat is provided in Table 4.4. unlike the quantification of lake habitat, there was no consideration of species/life stages and HSIs.

Table 4.4 Quantification of Riverine Habitat in Tributaries to Flora South (from JWEL 2003).

Tributary	Length (m)	Width (m)	Area (Units)[1]	Habitat Type[2]	Fish Species Present[3]
2	200	0.85	1.7	II	BT
3	75	4.5	3.4	II	BT, LS, SS, NP
	200			IV	
4	75	3	2.3	IV	BT, LS, SS, NP, B
	125	3	3.8	II	
	100	3.5	3.5	II	
5	75	12.5	9.4	III	BT, LS, SS, B, LD, WS
	100	15.0	15.0	II	
	150	60.0	90.0	IV	
	250	12.0	30.0	II	
6		0.6		IV	BT, LD
	60	0.6	0.4	I	
	60	0.6	0.3	II	

[1] 1 unit = 100 m^2
[2] Habitat Type based on Beak Classification
[3] Fish Species Present = BT = brook trout, LS = longnose sucker, SS = slimy sculpin, NP = Northern pike, B = burbot, LD = longnose dace, WS =white sucker

4.1.2.2.4 Flora Basins HADD

JWEL (2003) calculated the lacustrine and riverine HADD from the above habitat survey data and for the lacustrine HADD there was consideration for fish species and life stages present and their respective HSIs. The potential lacustrine HADD was determined to be 100.65 ha of equivalent lacustrine habitat units (70.1 ha in Flora North and 30.5 in Flora South). Flora North was subsequently removed from the HADD as the lake was to be used and a polishing pond and no tailings were to be directly deposited in the lake. The HADD for Flora South was subsequently revised to 33.7 ha of HEUs based on methodological changes to the calculation, as requested by DFO.

The potential riverine HADD was 52.08 habitat units (100 square meters, m^2) and this only included productive habitat types (Types I and II) as that was the approach adopted by DFO at the time. There was no adjustment to the HADD to consider species, life stages and HSIs, and as the habitats to be affected were pristine there was no adjustment based on degraded condition.

4.1.2.3 Flora Outlet Arm and River

The Flora Outlet Arm has been designated as the FDP for the Flora Basins Tailings Impoundment Area and the Arm and Flora River are the immediate receivers of the Scully Mine's tailings effluent discharge. The Flora Outlet Arm is separated from the TIA by a railway bed under which the water flows via two large culverts. The Flora Outlet Arm is approximately 2.2 km long and has a total surface area of 58 ha.

The Flora River drains the Flora Outlet Arm, flowing north approximately 1.56 km before discharging into Wabush Lake. The Flora River is a shallow, straight river, with an average width of approximately 18 m and a maximum depth of approximately 0.85 m during late summer. Flora River includes a combination of riffle (20%) and run (80%) habitat. At Wabush Lake, the Flora River system drains a total watershed of approximately 151 km^2, with annual average flow of approximately 4.6 cubic meters per second (m^3/s).

Six cycles of EEM studies as required under the MDMER have been conducted at the Flora Outlet Arm every three years since 2004. Detailed water quality studies were completed at Flora River in 2019. Studies indicated there are substantial differences in water quality at Flora River in comparison to other fluvial systems in the region. Higher total dissolved solids, hardness, alkalinity and conductivity indicate higher levels of dissolved constituents that may relate to underlying geology or weathering of exposed tailings. Higher levels of total suspended solids and turbidity are directly related to deposition of mine tailings and these parameters are typically highest in the spring. Daily turbidity at Flora River in 2019 was elevated and was highest on June 12, remained above 100 Nephelometric Turbidity Units (NTU) until July 4 and then remained less than 100 NTU for the duration of data collection period to mid-September. Flora River also had low levels of dissolved organic carbon which contributes to stream ecosystem productivity. The Scully Mine is considered to have a modest impact on water quality of the Flora River (SEM 2020).

EEM studies in 2019 included detailed habitat characterization of the Flora River downstream of the Trans Labrador Highway. Flora River had wetted widths averaging 30.03 ± 8.25 m, ranging from 23.0 to 47.9 m, and was dominated by cobble and rubble substrates with small proportions of gravel and sand with a substantial amount of fines in the interstices between substrate materials. There were small amounts of instream cover in the river while riparian vegetation was abundant and diverse while canopy cover was absent.

Depth and velocity data were collected from each of five riffle and five runs (Table 4.5) with each data point the mean of five independent measurements. Overall water depths were greater in run habitats as compared to riffles and this was greatest in the summer, while conversely water velocities were highest in riffles in both seasons.

Table 4.5 Depth and Velocity Data for Flora River by Season and Habitat Type, 2019.

Habitat Station	Summer July 16-18, 2019		Fall September 22-30, 2019	
	Average Velocity (m/s)	Average Depth (cm[1])	Average Velocity (m/s)	Average Depth (cm[1])
Riffle 1	0.86	27.0	0.36	24.4
Riffle 2	0.67	10.3	0.48	24.8
Riffle 3	0.91	15.0	0.66	28.8
Riffle 4	0.50	10.5	0.46	18.2
Riffle 5	0.41	4.8	0.58	27.6
Run 1	0.38	28.9	0.39	38.2
Run 2	0.54	26.3	0.43	38.4
Run 3	0.28	36.3	0.32	27.6
Run 4	0.39	57.1	0.19	34.8
Run 5	0.34	37.1	0.64	38.0
[1]cm=centimeter				

Fish have been captured in EEM studies over six cycles from 2004 to 2019 and in Cycles 3 through 6, fishing was completed in two seasons (Table 4.6). There has been variability in the fish community through the 6 cycles with slimy sculpin and longnose dace being most abundant in most cycles while lake chub and longnose sucker were also important in the fish community. Ouananiche have never been captured while brook trout were only captured in the first cycle and lake whitefish in the first two cycles.

Table 4.6 Catch Results and Catch Per Unit of Effort (CPUE) for the Flora River in EEM Programs from 2004 to 2019.

EEM Cycle	Cycle 1	Cycle 2	Cycle 3		Cycle 4		Cycle 5		Cycle 6	
Year	2004	2007	2010		2013		2016		2019	
Season	Sum[1]	Spr[2]	Spr	Sum	Spr	Sum	Spr	Sum	Sum	Fall
Effort (min.)	141	108	68	336	101	117	44	112	49	347
Catch										
Slimy sculpin	127	235	157	408	48	104	1	98	29	133
Longnose dace	111	109	12	118	7	169	3	135	20	277
Burbot	18	6	11	41	1	8	1	19	16	79
Lake chub	52	14	1	135	-	18	-	351	64	187
White sucker	-	10	1	7	-	-	1	-	-	-
Brook trout	2	-	-	-	-	-	-	-	-	-
Longnose sucker	43	-	2	162	3	7	-	144	26	280
Ouananiche	-	-	-	-	-	-	-	-	-	-
Lake whitefish	7	1	-	-	-	-	-	-	-	-
Logperch	-	-	-	-	-	-	-	1	1	8
Northern pike		-	-	-	-	-	-	-	-	1
Total Catch	**360**	**375**	**184**	**871**	**59**	**306**	**6**	**747**	**164**	**975**

Table 4.6 Catch Results and Catch Per Unit of Effort (CPUE) for the Flora River in EEM Programs from 2004 to 2019. (Cont'd)

EEM Cycle	Cycle 1	Cycle 2	Cycle 3		Cycle 4		Cycle 5		Cycle 6	
Year	2004	2007	2010		2013		2016		2019	
Season	Sum[1]	Spr[2]	Spr	Sum	Spr	Sum	Spr	Sum	Sum	Fall
Effort (min.)	141	108	68	336	101	117	44	112	49	347
Catch										
Catch per Unit of Effort (CPUE)										
Slimy sculpin	0.9	2.17	2.25	1.22	0.48	0.89	0.02	0.88	0.6	0.38
Longnose dace	0.79	1.01	0.18	0.35	0.07	1.44	0.07	1.21	o.41	0.8
Burbot	0.13	0.06	0.16	0.12	0.01	0.07	0.02	0.17	0.33	0.23
Lake chub	0.37	0.13	-	0.4	-	0.15	-	3.13	1.31	0.57
White sucker	-	0.09	-	0.02	-	-	0.02	-	0.16	-
Brook trout	0.01	-	-	-	-	-	-	-	-	-
Longnose sucker	0.31	-	0.03	0.48	0.03	0.06	-	1.29	-	0.81
Ouananiche	-	-	-	-	-	-	-	-	-	-
Lake whitefish	0.05	0.01	-	-	-	-	-	-	-	-
Logperch	-	-	-	-	-	-	-	0.01	0.02	0.02
Northern pike	-	-	-	-	-	-	-	-	-	0.01
Total CPUE	**2.56**	**3.47**	**2.71**	**2.6**	**0.59**	**2.61**	**0.14**	**6.67**	**3.37**	**2.81**

[1]Sum=summer
[2]Spr=spring

EEM studies have focused on two fish species which were designated as sentinel species for the monitoring program: slimy sculpin and longnose dace. The Cycle 4, 5 and 6 EEM studies have indicated that both slimy sculpin and longnose dace were shorter and lighter at the Flora River exposure area than at reference sites. In Cycle 6 EEM studies in 2019, longnose dace averaged 44.64 ± 6.67 (standard deviation, SD) mm in length, ranging from 28.99 to 62.79 mm, while weights averaged 0.84 ± 0.38 (SD) g and ranged from 0.22 to 2.25 g. Dace averaged 1.00 ± 0.85 (SD years in age, ranging from 0+ to 3+ years in age, with four age classes were represented in the population. The length and age distribution of longnose dace in Flora River in 2019 is provided in Figures 4.3 and 4.4, respectively. Slimy sculpin averaged 53.28 ± 12.60 (SD) mm and ranging from 32.95 to 103.34 mm in length while weights averaged 01.87 ± 1.98 (SD) g and ranged from 0.27 to 13.38 g in Cycle 6 studies. Sculpin averaged 3.2 ± 2.01 (SD) in age, ranging from 1+ to 7+ years in age, with seven age classes represented in the population. The length and age distribution of slimy sculpin in Flora River in 2019 is provided in Figures 4.5 and 4.6, respectively.

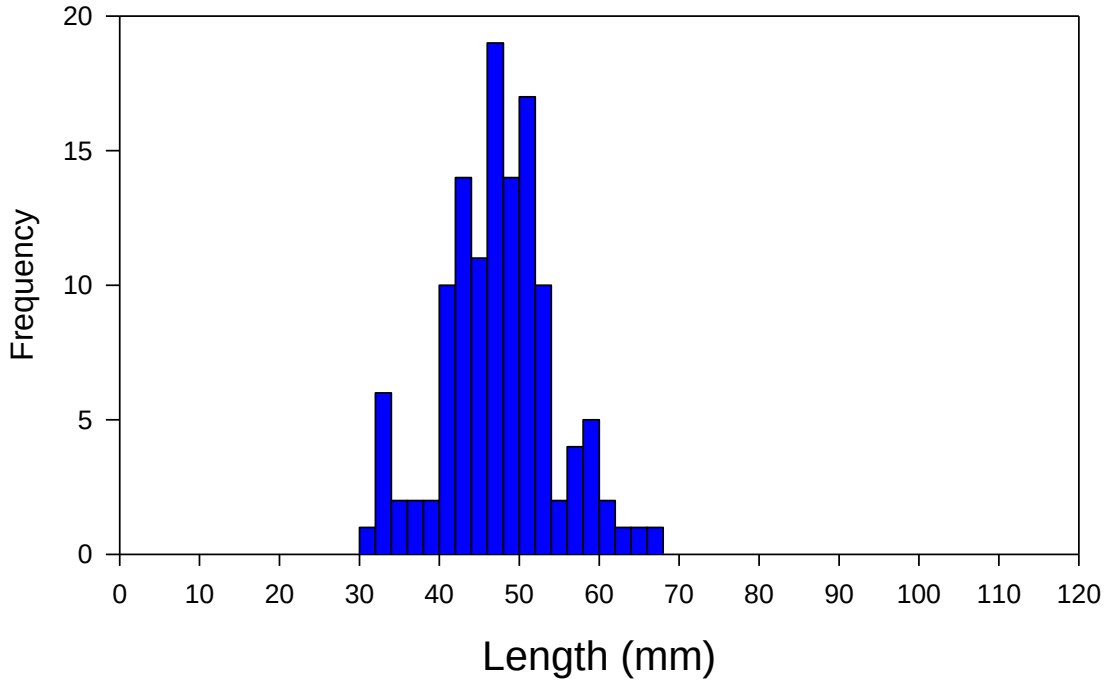


Figure 4.3 Length Distribution of Longnose Dace in Flora River in 2019.

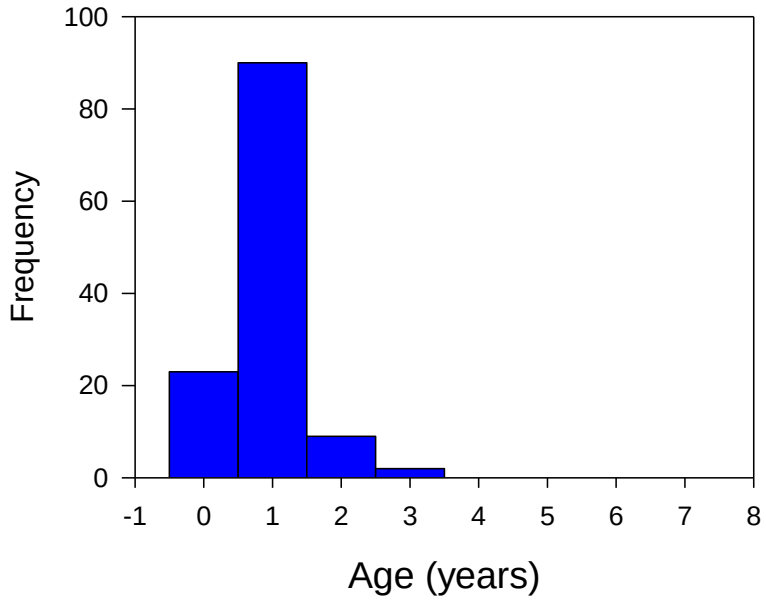


Figure 4.4 Length Distribution of Longnose Dace in Flora River in 2019.

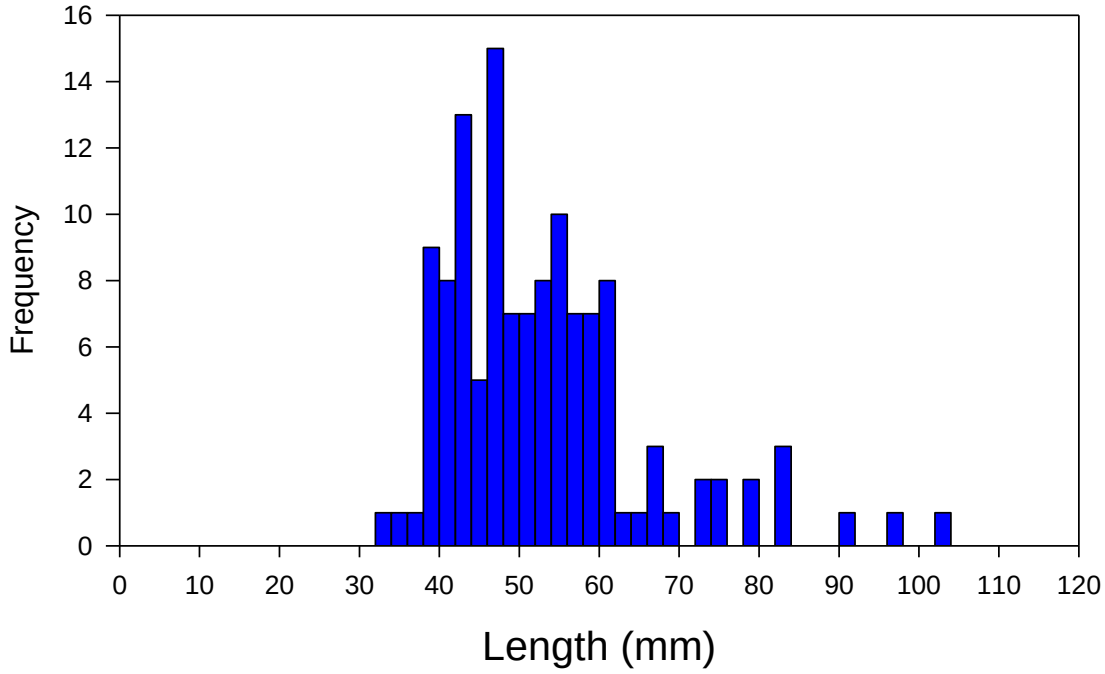


Figure 4.5 Length Distribution of Slimy Sculpin in Flora River in 2019.

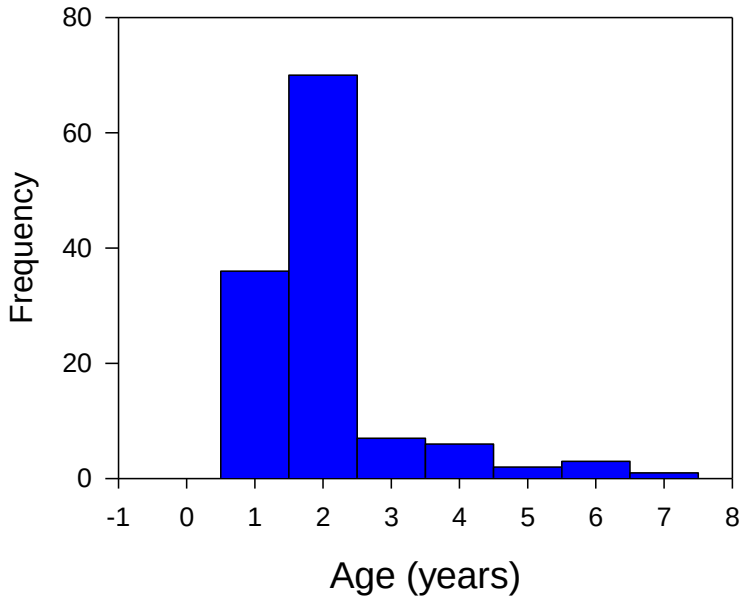


Figure 4.6 Age Distribution of Slimy Sculpin in Flora River in 2019.

4.1.3 Fish Habitat Compensation and Offsetting

Tailings deposition into the Flora Basins was determined by DFO to cause a HADD of habitat which included 34 ha of lacustrine habitat in Flora South and 52 of units (100 m^2) of riverine habitat due to inundation of three tributaries flowing into Flora South. Wabush Mines

compensated for the loss of lacustrine habitat by developing 34 ha of new lacustrine habitat adjacent to Loon Lake (Loon Lake Extension). The riverine HADD was compensated for by construction of 52 units of riverine habitat in an intermittent flow channel between an unnamed lake and Wahnahnish Lake (Flora Riverine Habitat Compensation Project).

4.1.3.1 Loon Lake Extension

Compensation for the loss of lacustrine habitat from the designation of the Flora Basins TIA involved excavation of a 34 ha extension to the existing 25 ha Loon Lake which was completed in 2010 with the extension joined to Loon Lake in September 2011. Loon Lake was originally part of the Flora Basins but was disconnected due to deposition of mine tailings. Loon Lake and extension has one small inlet stream while the outlet drains through a 1.5 m diameter culvert under the Trans Labrador Highway and the QNS&L Railway line into Wabush Lake. The culvert acts as a hydraulic control to maintain the lake level. Following connection of Loon Lake to the Extension, the area of the lake increased to approximately 59 ha and, during high water periods, a small pond is also temporarily connected to the north side of the Extension. Baseline studies of Loon Lake determined the fish community included northern pike, mottled sculpin, burbot and lake whitefish.

As part of the habitat compensation plan for the Flora Basins, DFO required annual monitoring of the effectiveness of the habitat compensation. In 2014, 20 fish were captured in Loon Lake while a total of 447 were captured in the Extension. Catches represented seven species including burbot, lake chub, longnose dace, longnose sucker, white sucker, Northern pike and sculpin species (sp.), with only dace missing from Loon Lake. No brook trout have ever been captured in Loon Lake or the Extension but brook trout have been captured by anglers in a small pond connected to Loon Lake. DFO determined that this compensation project had been effective in replacing the lost habitat from the TIA designation and released TACORA from monitoring in 2018.

A fish offset plan was developed for the Vern-Hay project and the accepted offsetting approach involved the construction of a spawning shoal in Loon Lake for brook trout and the transfer of an adult population of brook trout into Loon Lake. Previous studies had determined there were no brook trout resident in Loon Lake. The spawning shoal was constructed in the winter of 2016 through placement of appropriately sized spawning gravels on the ice surface at a pre-designated location. A total 208 adult brook trout fish were subsequently moved from approved donor sites and released live into Loon Lake in the summer of 2016. Brook trout have not been captured in Loon Lake in monitoring studies in 2016 to 2019. TACORA will continue monitoring the effectiveness of this habitat offsetting project and 2021 is currently the last scheduled year of the monitoring project.

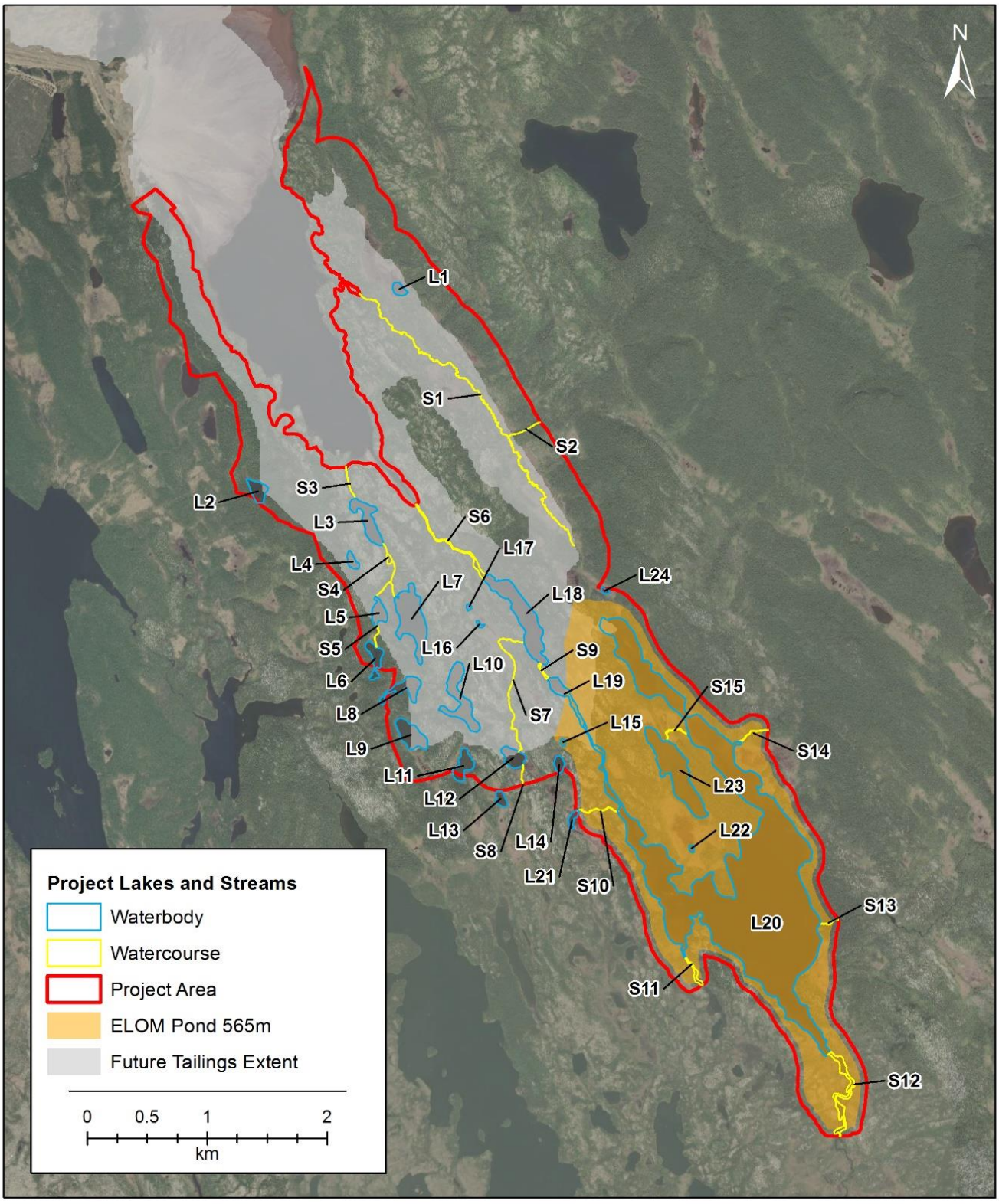
4.1.3.2 Flora Riverine Habitat Compensation Channel

The riverine HADD related to tailings deposition in the Flora Basins required that 52 units (1 unit = 100 m^2) of riverine habitat be created as compensation. A total of 56.5 units of fluvial habitat containing a sinusoidal combination of pools (n=23) and riffle/run reaches (n=24) was subsequently constructed in an intermittent flow channel between and unnamed lake and

Wahnahnish Lake. Other habitat features included addition of substrates for fish spawning and rearing; creation of depth and velocity conditions suitable for brook trout; and provision of undercut bank structures and root wads to provide shade and cover/shelter for adult trout. Wabush Mines and TACORA monitored the effectiveness of this habitat compensation project. Monitoring confirmed that this project was very effective in replacing lost habitat from the TIA designation and DFO released TACORA from monitoring in 2018.

4.1.4 Fish Habitat Associated with the Tailings Expansion Project

The Project will require the use of natural, fish-frequented water bodies for the disposal of mine waste beyond the currently approved TIA as described in Schedule 2 of the MDMER. SEM has completed a desktop analysis of the aquatic habitats to be affected and these include 20 existing lakes totaling 56.29 ha that will be infilled while an additional 4 lakes totaling 180.01ha will be flooded for a total of 236.29 ha of affected lake habitat. There are a total of 6.59 ha of stream habitat to be affected including 2.83 ha that will be infilled and 3.77 ha that will be flooded., (Figure 4.7 and Table 4.7). Lakes range in size from 0.19 to 166.08 ha (Table 4.8) and it is possible several of the smaller lakes may be very shallow and may not contain fish. Similarly, some of the smaller streams may be intermittent and not permanent fish habitat and some headwater streams may be obstructed with no fish above barriers. TACORA will undertake detailed baseline studies in 2021 to characterize and quantify the fish habitat and fish community associated with these potentially affected water bodies. At the outset it is assumed all water bodies are fish bearing and the fish community could contain any of the species listed in Table 4.1.



TACORA RESOURCES	**Scully Mine TIA Expansion Project**	PAGE NO: 4.7	PREPARED BY: sem
	Project Lakes and Streams	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

Table 4.7 Habitat Areas for Streams Associated with TACORA's Proposed Tailings Expansion Project.

Stream ID	Area (ha)
Infilled	
S1	0.74
S2	0.06
S3	0.03
S4	0.32
S5	0.04
S6	1.31
S7	0.13
S8	0.03
S9	0.17
Total	2.83
Flooded	
S10	0.11
S11	0.51
S12	2.90
S13	0.05
S14	0.08
S15	0.12
Total	3.77
Total Affected	**6.59**

Table 4.8 Habitat Areas for Lakes Associated with TACORA's Proposed Tailings Expansion Project.

Lake ID	Area (ha)
Infilled	
L1	0.91
L2	2.06
L3	4.20
L4	0.87
L5	1.95
L6	2.14
L7	9.42
L8	2.96
L9	4.08
L10	6.41
L11	2.62
L12	2.46
L13	0.91
L14	0.88
L15	0.22
L16	0.21
L17	0.19
L18	11.05
L19	2.54
L24	0.23
Total	56.29
Flooded	
L20	166.08
L21	0.68
L22	0.22
L23	13.03
Total	180.01
Total Affected	**236.29**

4.1.5 Baseline Aquatic Studies in 2021

A full aquatic survey of lakes and streams that will eventually be included in the tailings expansion area as well as those that will be flooded will be conducted in 2021. Desktop analysis indicates that there are 24 lakes accounting for 236.29 ha of potential habitat loss, as well as additional stream habitat accounting for 6.59 ha of potential habitat loss, making a total of 242.88 ha of aquatic habitat area to be assessed. Lakes L20 to L23 may potentially be included in a habitat offsetting project and would not be considered a habitat loss if this offsetting is completed.

Detailed fisheries and habitat assessment studies will include the following components:

- Fish community and fish populations;
- Bathymetry;
- Secchi depth and littoral/profundal zone mapping;
- Water quality (field parameters and samples collected for analyses);
- Phytoplankton, zooplankton, and chlorophyll 'a';
- Sediment quality;
- Benthic community;
- Bottom/sediment mapping; and
- Shoreline/vegetation assessment.

Lakes that are outside of the tailings expansion footprint and that will be included in the residual watershed will have a more general description of the habitat completed including:

- Approximate depth;
- Secchi depth and extent of littoral zone;
- Presence/absence of fish and species (short gill net sets);
- Watershed connectivity; and
- Overview of substrate and vegetation.

4.1.5.1 Lake Aquatic Surveys

The fish population assessment in the waterbodies would include a proposed ten-week fishing program. All other components of the aquatic assessment would be completed during the fishing program while nets were passively soaking.

Habitat quantification in lakes, prior to 2013, typically followed the methodology described in Bradbury *et al*. (2001) which was developed to provide information to support the determination of HADD of habitat in terms of quantity of habitat potentially affected by a proposed action or development. DFO's current approach for fish habitat management has returned to the HADD concept and DFO will likely require quantification of fish habitat for the lakes included in the new expansion area and offsetting area as described above. TACORA submitted to DFO a detailed work scope to get their feedback on the acceptability of the proposed aquatic assessment methods and approach to determining habitat offsetting requirements. DFO has indicated that the program as outlined is expected to achieve required data collection to support future permitting requirements related to *Fisheries Act* Authorization (FAA).

TACORA will complete the task as per Bradbury *et al*. (2001). Quantifying fish habitat in the lakes would be primarily based on lake bathymetry, Secchi depth and determination of distribution of substrate and aquatic vegetation. TACORA will survey the substrate/vegetation distribution in the littoral zone during the field work to determine the fish populations in the lake (see below). Secchi disk depths would also be collected using standard methods (raising and lowering the Secchi disk) to confirm (or not) the previous Secchi depths. TACORA will then quantify the areas of substrate/vegetation for each of the littoral and non-littoral zones in the lake. The habitat equivalent units would then be determined for all species and life stages in the lake as determined from the fisheries surveys following Bradbury *et al*. (2001).

Surface water samples will be collected for Rapid Chemical Analysis Package™ (RCAP) which includes the full metal scan and conventional parameters including nutrients at three stations throughout each lake (one station in small lakes). Field water quality data will be collected at the same time. A temperature and oxygen profile will be collected to determine the presence or absence of a thermocline and to determine whether there are any anoxic zones within the lake.

Quantitative zooplankton samples will be collected at three stations in each lake (one station in small lakes) using a vertically integrating tube sampler fitted with a 100 micron (µm) mesh Nitex net, to determine the zooplankton community. Subsurface water samples will also be collected for phytoplankton analyses and determination of chlorophyll 'a'.

Benthic community analysis will be quantitatively assessed by collecting three samples from three stations for a total of nine (9) samples in each lake (three (3) samples from one station for a total of three (3) samples in small lakes). A minimum of 2 liters (L) of sediment will be collected using a Petite Ponar grab and sieved through at 500 µm mesh. Invertebrates will be sent for taxonomic identification, enumeration and determination of biomass. A small subsample of sediment will be collected from each station and analyzed for metals, organic carbon and particle size.

TACORA will determine the fish populations in each lake through completion of a mark-recapture program using fyke nets, a passive, non-lethal gear type, supplemented with minnow traps and short tended gill net sets. The use of gill nets are to determine if there are fish species in the lake that may not be susceptible to fyke netting (e.g., lake trout). Based on the size of each lake, between three and ten fyke traps would be deployed. Fyke nets will be set along the shoreline (typically parallel to the shoreline) and will be allowed to fish for at least 16 hours, or up to 24 hours for population estimation, prior to checking. This will allow the nets to fish during the dawn and dusk periods when fish are more actively feeding and moving. All captured fish would be identified to species and length (1 mm) and weight (1 gram) measurements collected. Fish would then be marked using a hole punch on the caudal fin and released close to their point of capture but away from the nets. The field team would continue fishing until 10% of the total captures have been marked (i.e., re-captured), to have data sufficient for a population estimate with reasonable confidence intervals.

Population estimates will be determined using the Schnabel multiple mark-recapture method based on the numbers of marked and unmarked fish captured each day. The total number of net nights (nights x nets) of sampling effort in each lake will be variable and related to lake size.

An experimental gill net may be set to target species not susceptible to fyke traps such as lake trout or whitefish species. Gill net sets will be tended and set for very short durations. Gill nets will be set to fish in the pelagic zone and will be checked frequently (every hour) and will not be set overnight. All live fish captured will be marked and released as above. Gill nets may be set in very small, shallow lakes to quickly determine presence/absence of fish to determine if a more extensive fyke netting effort is warranted.

4.1.5.2 Streams Aquatic Surveys

Habitat characterization and fisheries productivity of streams, including lake outlets, associated with the tailings expansion area and offsetting project will also be determined. Any streams/outlets deemed to be permanent fish habitat would then be surveyed following standard DFO methods. Stream habitat would be classified, by reach, on a meso-habitat basis as: (i) riffle; (ii) run; (iii) pool; (iv) steady; and (v) rapids/cascades/chutes/falls. For each major stream segment, the following information will be collected:

- Measurement of depth, water velocity, wetted width and channel width at representative transects;
- Classification of meso-habitat type (McCarthy, Grant, and Scruton, 2007[xxxi]);
- Classification of substrate types (Wentworth [1917] classification);
- Classification of cover types (Scruton *et al*. 1997[xxxii]); and
- Identification of potential obstructions to fish migration and description of each.

Fisheries productivity would be determined for representative habitats using a backpack electrofisher. Representative sites will be selected in riffle/run habitats and a minimum of one to two sites (100 to 200 m^2 in area) would be selected in permanent fish habitats. Quantitative electrofishing will be completed using the removal method consistent with methods described in Scruton and Gibson (1995[xxxiii]). All fish will be identified to species and measured for length (1 mm) and weight (0.1 gram). The number of passes required will depend on the depletion patterns observed during electrofishing. The MicroFish 3.0 software program will be used to generate population estimates from the quantitative electrofishing results. Estimates will be adjusted per unit of habitat (100 m^2). The population estimates would then be applied to the quantification of fish habitat in the entire stream/outlet to get a total estimate of fisheries productivity for each stream reach.

Flow profiles using a Hach FH950 Flow Meter will be collected for descriptive purposes at one or more times during the field program depending on whether flow changes due to rainfall. Substrate types will be classified using the Wentworth [1917] classification and estimated as a percentage over the reach being assessed. Cover types will be classified after Scruton *et al*. (1997) and estimated as a percentage over the reach being assessed. Potential obstructions to fish movement and migration will be identified and assessed as complete or partial barriers. The GPS location of each barrier will be collected.

4.1.5.3 Habitat Description of Streams and Lakes Outside Expansion Area

Lakes and streams outside of the tailings expansion footprint (i.e., waterbodies included in the ELOM flooded area) and the possible offsetting project will have a general description of the habitat completed that will be sufficient for the purposes of fish habitat offset planning. Lakes would be assessed for approximate depth to determine the potential for winter fish refuge and Secchi depth would be collected to determine the extent of the littoral zone. Similarly, lakes would be fished by gill net while studies were ongoing and for one night using fyke nets to determine the presence or absence of fish and, where appropriate, species composition. A visual description of the habitat would be provided including the surrounding vegetation,

shoreline substrate composition and connectivity to other waterbodies. Streams will similarly be assessed for meso-habitat distribution, vegetation, substrate composition and relative flow rates in various sections. Index electrofishing using similar methods as previously described would be utilized to determine the presence or absence of fish and species, if present. The presence of barriers to fish migration would also be identified wherever noted.

4.1.5.4 Fish and Fish Habitat Study Report

TACORA will prepare a detailed technical report documenting all aspects of the fish and fish habitat study. All methods utilized in the study will be fully described including the fishing effort expended in the study and methods used to determine fishery productivity. All study results will be reported including the following:

- Summary of habitat quantification for lakes (after Bradbury *et al*. 2001) and associated streams and outlets (after McCarthy, Grant, and Scruton 2012[xxxiv]).
- Fishing effort, by gear type, for lakes and streams.
- Fish catches including CPUE, by gear type, for lakes and streams. Catches in lakes will also be summarized by day and include proportion of recaptures each day.
- Calculation and summary of fish populations in the lakes and streams, including confidence intervals. Detailed data will be included in an appendix to the report.
- Determination of fishery productivity for lakes and streams as derived from the population estimates.
- Summary of interconnectivity of lakes and streams, including any limitations to fish movements.
- Water and sediment quality data including a comparison with Canadian Council of Ministers of the Environment (CCME) guidelines and a comparison with past data and regional databases, wherever possible.
- Bathymetric maps overlain with the littoral and non-littoral zones and substrate distribution.
- Benthic invertebrate community assessment, including determination of relevant benthic metrics, with a comparison with past and regional data, wherever possible.
- Representative photographs will be included; and
- Summary of results with respect to a HADD and fisheries productivity determination, for discussion of offsetting requirements with DFO.

4.2 WATER RESOURCES

4.2.1 Surface Water

With the proposal to expand the TIA there are no plans to create any new final discharge points (i.e., the impacted water will still flow through the existing FDP at Flora North).

Daily discharge data was examined for the existing Real-Time Water Quantity/Quality Monitoring Station at Flora Creek Below Trans Labrador Highway (03OA015), operated jointly

by TACORA and NLDEC. Mean, minimum and maximum daily discharge from 2013 through 2019 are provided in Figure 4.8. Similarly, the mean monthly flows from 2013 to 2019 are provided in Table 4.9. Data were available for a 10-year period of record from 2012–2021, however, data for 2012 and 2020 were incomplete.

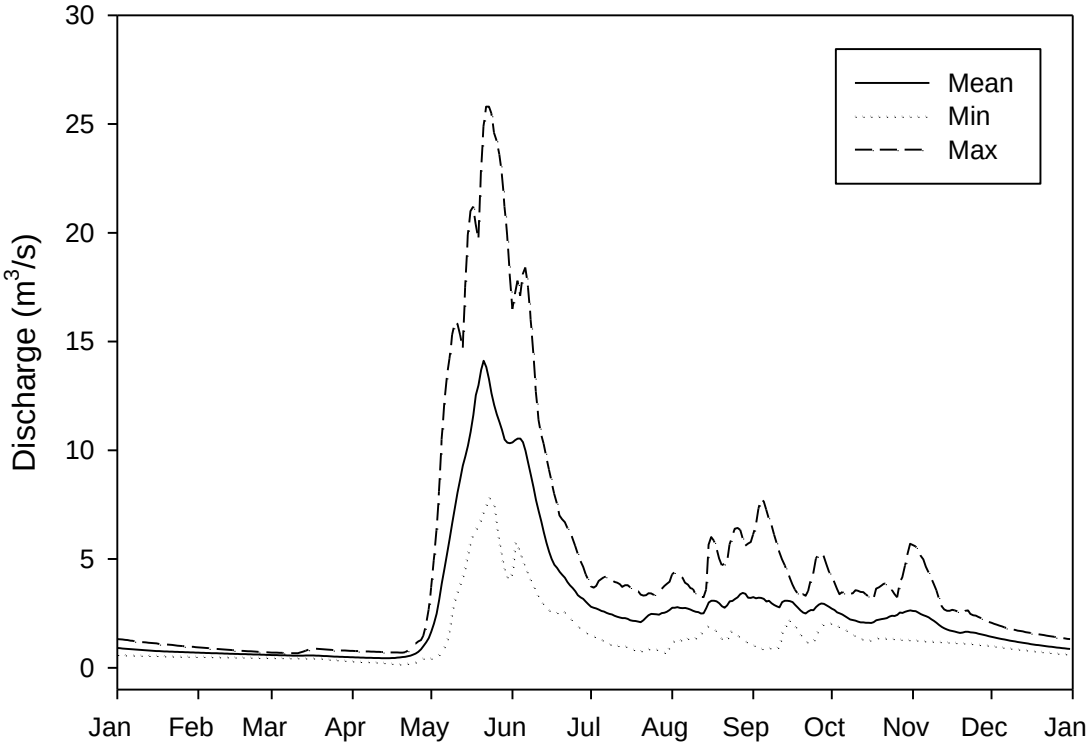


Figure 4.8 Mean, Minimum and Maximum Daily Discharge for Flora Creek Below Trans Labrador Highway (03OA015) from 2013 to 2019.

Table 4.9 Mean Monthly Flows for Flora Creek Below Trans Labrador Highway (03OA015) from 2013 to 2019.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	0.89	0.74	0.76	0.87	9.69	3.81	1.11	2.94	2.67	2.51	2.41	1.25
2014	0.63	0.49	0.45	0.67	12.10	6.35	1.74	2.56	2.64	3.21	1.43	0.88
2015	0.71	0.58	0.44	0.56	9.04	5.31	3.55	2.98	3.16	1.85	1.28	0.80
2016	0.56	0.52	0.51	0.56	7.44	5.30	3.03	2.75	2.56	2.09	2.07	1.35
2017	0.74	0.61	0.52	0.46	9.75	3.58	2.94	3.94	4.54	3.40	3.26	1.62
2018	1.11	0.81	0.60	0.57	5.84	9.60	2.99	3.56	2.80	1.57	1.17	0.98
2019	0.84	0.73	0.53	0.31	9.72	9.35	1.62	1.65	1.99	1.72	1.64	0.88

This monitoring station was installed under the MDMER to measure discharge at TACORA's FDP before discharging into Flora Outlet Arm. Flows at Flora Creek include natural runoff from

the Flora basins watershed as well as water form TACORA's tailings management operations. Water treatment associated with tailings management consists of natural (unaided) settling of solids in Flora South, and water then goes to Flora North where further settling occurs. It is important to note that this period of record includes periods when the Scully Mine was operating at normal capacity, when the mine went into warm idle in February 2014 and tailings lines were maintained by pumping water and when the mine shut down and tailings lines were not used. The mine was then restarted in third quarter of 2018 and has been slowly returning to full production.

The flow data shows a typical pattern for Labrador rivers of very low flows in winter months (from late November through to mid-May), followed by a large peak in discharge in late May or early June, coincident with snow melt and high runoff, with peaks flows subsiding by late June, and flows then decline to lower levels for the summer and fall months but not as low as winter flows. Extreme peak flow events are evident in the maximums flows for the period of record.

4.2.2 Surface Water Studies

4.2.2.1 Water Quality

A comprehensive water quality sampling program will be conducted for any waterbody that will be impacted by the tailings expansion in baseline studies in 2021. The objective will be to characterize the water quality of these waterbodies to support determination of the quantity and quality of affected fish habitat. Samples will be collected and analyzed for conventional parameters, nutrients, major anions and cations, organic carbon, chlorophyll 'a', and other characteristics. A temperature and water quality profile will be collected in lakes to look for evidence of thermal or chemical stratification. TACORA will engage regulators in discussion as to if any further monitoring beyond baseline is required and if so, the data collected for lake and stream characterization will assist in site selection.

Monitoring will be continued at the Flora Outlet Arm FDP as per the parameters outlined in the existing CoA (#AA18-015646) and MDMER requirements. Expanded efforts to monitor for Radium-226 will also be undertaken in 2021. As the tailings expansion project will not result in the creation of any new final discharge point, continued monitoring at the Flora Outlet Arm will satisfy all regulatory water quality monitoring under the MDMER and the mine's CoA.

4.2.2.2 Surface Water Hydrology (Pressure, Temperature, and Flow)

As part of the baseline program, data loggers will be installed to measure surface water hydrology in streams to be affected by the Project. Van Essen Mini Diver water level loggers (Mini Divers) will be installed in the three main tributaries above Flora South (streams labelled S1, S3, and S6, Figure 4.7). The data loggers will be installed in relatively straight stream reaches just above their confluence with Flora South, but far enough upstream that they will not be affected by any rise in lake level. Mini Divers will be deployed at the start of the field program and retrieved in late fall prior to freeze-up to capture as much as possible during the open water period in 2021. Metal T-posts will be hammered into the streambed and used to hold staff gauges in place. Staff gauges will be constructed by fastening a graduated ruler to a

1 m length of 7.6 cm diameter polyvinyl chloride (PVC) pipe. Mini Divers will be installed at the base of staff gauges within 0-2 cm from the streambed.

Mini Divers measure the pressure of the column of water above them as well as the pressure of the atmosphere above the water column (i.e., atmospheric pressure). Data will be recorded on an hourly basis and in addition to pressure, each diver will record temperature in degrees Celsius (°C; 0.1°C accuracy). Data will be corrected by using a pressure compensation Baro Diver installed in tandem with the Mini Divers. The Baro Diver will be installed above the surface of the water to record the atmospheric pressure which will then be used to compensate the Mini Diver data at the same location.

Water depth and velocity measurements will be recorded along three to five transects at each site using a Hach FH950 acoustic Doppler velocity flow meter with wading rod. Depth and velocity measurements will be used to calculate discharge for each profile. Discharge will be measured four times (or more) during the open water period and will be timed to capture a range of flows. The mean discharge from each stream will be plotted against the staff gauge measurements to produce a trend line for each stream (stage-discharge relationship).

Mini Diver data will be downloaded and displayed with a date and time for each measurement with the corresponding pressure and temperature reading. Corresponding barometric pressure from the Baro Diver will be used to compensate the Mini Diver data for calculation of water depth in centimeters. The daily mean depth data will be used to interpolate (or extrapolate) stream discharge using the stream stage-discharge relationship.

4.2.3 Groundwater

TACORA employs open pit mining methods to extract iron ore, which often entails lowering the groundwater table for pit dewatering. Deposits in Labrador consist of oxidized forms of iron, and acid rock drainage and heavy metal enriched tailings are uncommon. Impacts to surface water quality are usually in the form of total suspended solids and iron and impacts to groundwater are typically minimal (NLDEC 2013[xxxv]).

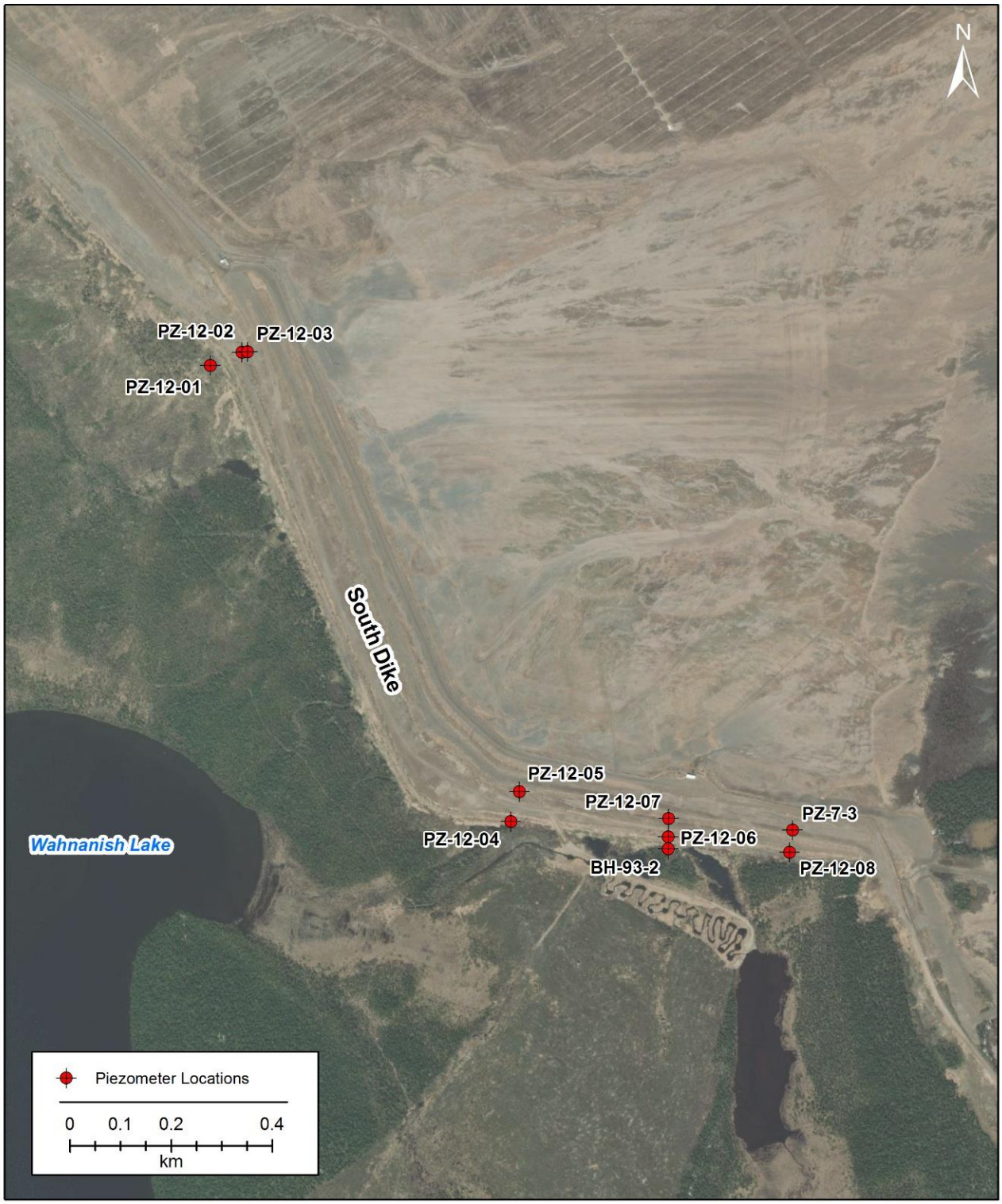
TACORA participates in Real-Time Water Quantity/Quality Monitoring, a provincial and federal initiative, to monitor for impacts of operations to surface water or groundwater. The data compiled from this program can be used to detect trends and pollutants and act as a collective indicator of the health of the ecosystem.

Regionally, there is generally a scarcity of data regarding groundwater quality and quantity in Labrador West, and in Labrador as a whole. Currently there are ten (10) vertical boreholes with piezometers deployed along the tailings South Dike, and two (2) along the tailings North Dike at Scully Mine (Table 4.10, Figure 4.9).

Table 4.10 Piezometers Located Along the Tailings South Dike (PZ-12-01 to BH-93-2) and North Dike (BH-93-5 and BH-93-6).

ID	Ground Elevation (m)	Northing	Easting
PZ-12-01	561.4	N 52°54'28.6	W 066°50'17.6
PZ-12-02	567.2	N 52°54'29.4	W 066°50'14.2
PZ-12-03	575.2	N 52°54'29.4	W 066°50'13.6
PZ-12-04	561.4	N 52°53'58.8	W 066°49'47.2
PZ-12-05	574.9	N 52°54'00.7	W 066°49'46.2
PZ-12-06	563.3	N 52°53'57.5	W 066°49'30.6
PZ-12-07	573.0	N 52°53'58.7	W 066°49'30.5
PZ-12-08	565.4	N 52°53'56.3	W 066°49'17.8
PZ-7-3	573.0	N 52°53'57.7	W 066°49'17.4
BH-93-2	553.2	N 52°53'56.7	W 066°49'30.6

These piezometers were installed in June 2012 to collect data on groundwater pressure to facilitate the establishment of seasonal groundwater fluctuations under different operational conditions, as part of a program to monitor stability of the TIA dikes. The dike inspections and water level elevations were monitored at varying frequencies from installation during 2012 until mine closure in 2014. Water level elevations were monitored again in August of 2016 during closure. After the mine was reactivated in 2018-2019, monitoring of the water level elevations resumed on a monthly basis beginning in June 2020 until December 2020. A summary of water elevation data is presented in Figures 4.10 and 4.11.



TACORA RESOURCES	Scully Mine TIA Expansion Project	PAGE NO: 4.9	PREPARED BY: sem
	TIA Piezometer Locations	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

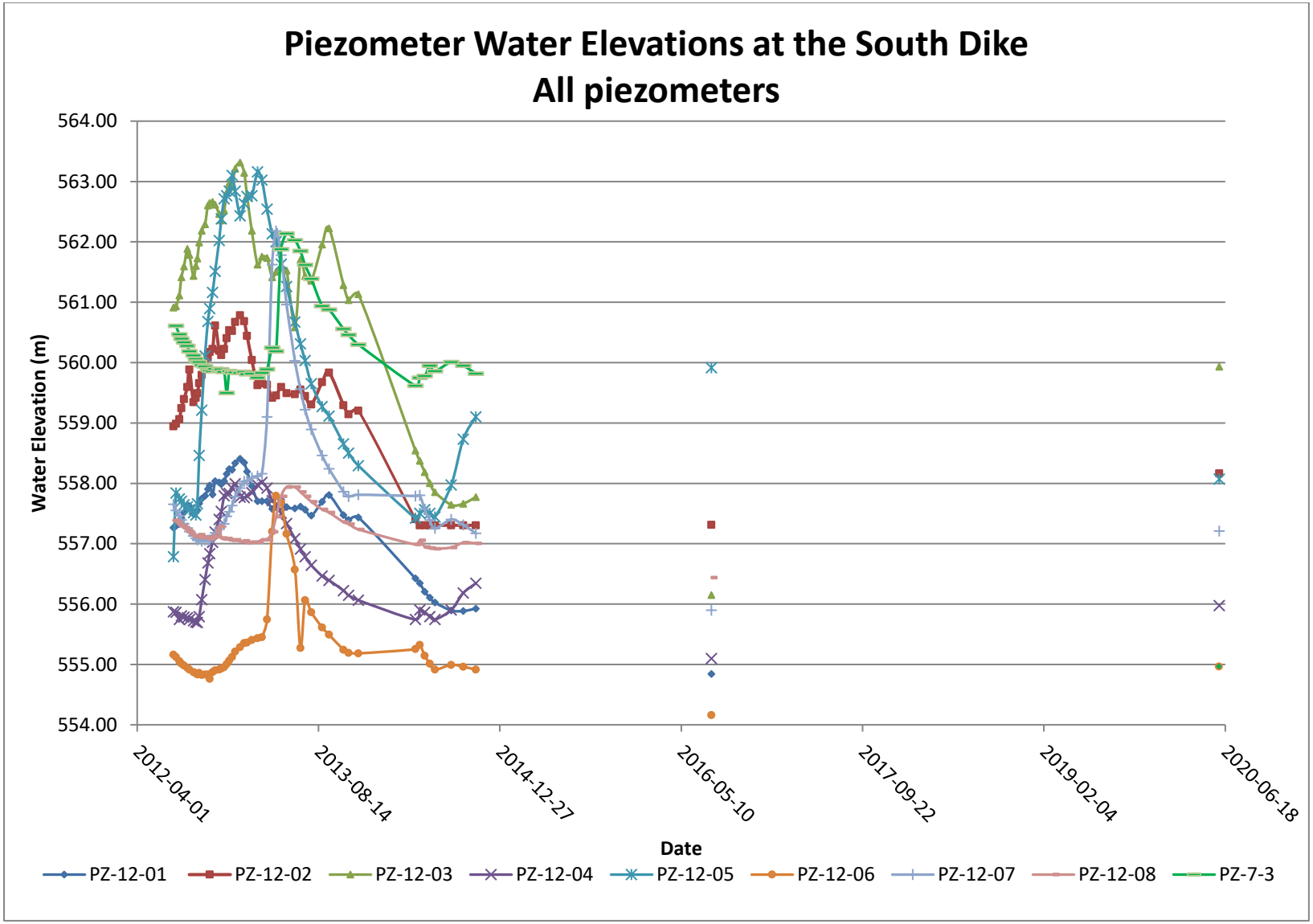


Figure 4.10 Piezometer Water Elevations at the South Dike.

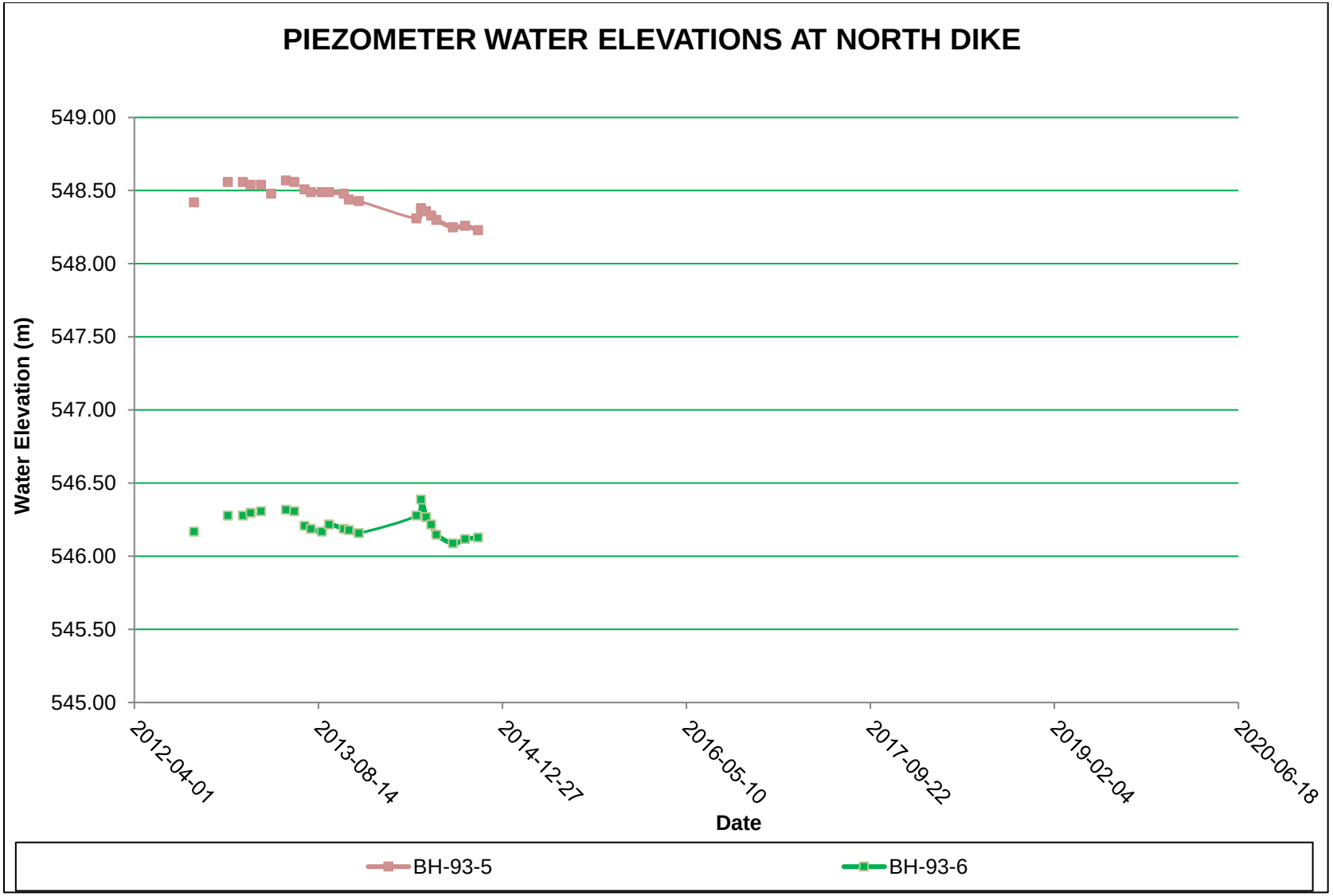


Figure 4.11 Piezometer Water Elevations at the North Dike.

Ongoing monitoring of piezometers will be conducted by TACORA as part of annual inspections. Inspections will be completed by a suitably qualified professional and will be consistent with the CDA Dam Safety Guidelines.

4.3 TERRESTRIAL ENVIRONMENT

The Project Area is located in western Labrador in the "Mid Subarctic Forest" ecoregion, characterized by moist, spruce-dominated forests, string bogs and fens, and open spruce-lichen forests with upland rocky outcrops (Protected Areas Association of NL, 2008[xxxvi]). The region has a relatively brief growing season with short summers; winters tend to be long and frigid, limiting the formation of soil. Soils are primarily ortho humo-ferric podzols and stony fibrisols (Protected Areas Association of NL, 2008).

The planned expansion of the current TIA and deposition of tailings into the Flora South watershed would result in the conversion of approximately 823 ha of terrestrial land to areas of deposition and inundation (from associated flooding).

Several terrestrial ecosystem components were evaluated to produce a comprehensive depiction of the existing environment. The subsequent sections were created by employing information from various sources, including extensive literature reviews at the local and regional scales, combined with data from field surveys by TACORA and others. Robust, empirical data was sought for each component where possible and gaps in knowledge were identified for ongoing field efforts.

4.3.1 Ecological Land Classification (ELC)

An Ecological Land Classification (ELC) will be conducted for the Project Area using universally accepted methodologies. Ecological classification can be defined as the practice of categorizing naturally occurring entities according to their ecological attributes (Government of Nova Scotia, 2017[xxxvii]). A comprehensive literature review will be conducted as a first step to compile any existing ecological information on the Project Area at regional and local scales. Detailed ELC mapping will follow, employing high-resolution imagery collected with Remotely Piloted Aircraft System (RPAS) and Geographic Information Systems (GIS) analysis. The imagery dataset will be comprised of a series of digital color images captured in stereo, with a spatial resolution of 5 cm/pixel, to be analyzed in ArcGIS. In addition, digital stereo-viewing software will aid in interpretation and facilitate digitization of ecotype polygons. The definition of an ecotype is "a landscape area that is uniform in plant community, soil and site properties, and in the ecological drivers and interactions that determine species composition, structure, function, and landscape distribution" (McLennan 2012[xxxviii]).

Interpretation of the imagery will be completed at a scale of 1:5,000 using the high-resolution digital imagery (from the RPAS) and from 2021 field survey information. Field survey verification will be conducted on predetermined sampled points. Field verification will also

provide a more detailed characterization of ecotypes including horizontal/vertical structure and species composition. Information gathered in the field may also help refine ecotype boundaries and aggregate ecotypes based on common characteristics.

4.3.2 Wetlands

Through a 2021 desktop exercise it was determined that there may be up to 106 hectares of wetland area within the Project Area comprising several wetland types, including several ribbed fens and/or string bogs and several riparian fens. Extensive field surveys will be conducted throughout the wetlands of the Project Area to classify wetlands using the Canadian Wetland Classification System (CWCS), according to wetland class, form and type. Surveys will be conducted by an expert botanist documenting features, vegetation species, inflows/outflows, and the form of each wetland. Additional information will be collected opportunistically on wetland functions including water storage and cooling, sediment retention/stabilization, public use, stressors, phosphorus retention, nitrate removal, and habitat for fish, amphibians, waterbirds, songbirds, /raptors, /mammals, pollinators, and rare plants.

4.3.3 Vegetation and Rare Flora

Vegetation surveys will be conducted to inform and verify the ecotypes of the ELC. In addition, rare flora surveys will be conducted concurrently to maximize efficiency.

Prior to field surveys a comprehensive literature review will be conducted, as well as a data request to the Atlantic Canada Conservation Data Centre (ACCDC) who will query their database and develop a preliminary list of rare plants species known to occur in or near the Project Area. The aim of the rare flora component of this survey is to identify and map known, or likely occurrences of plant species listed under the federal *Species at Risk Act* (*SARA*) and/or the Newfoundland and Labrador *Endangered Species Act* (*NL ESA)* within and/or adjacent to the Project Area. The study will also consider species that are currently ranked regionally rare to uncommon (i.e., ranked S1 to S3) by the ACCDC. Flora species can be deemed “rare” if abundances are relatively small within a given area. However, records of rare plants in Labrador are often incomplete due to a paucity of surveys/effort. At this time, there are 14 plants (including lichen and moss species) listed under SARA and/or the *NL ESA* that are known to occur in Newfoundland and Labrador, to date none have been found in the Labrador West region.

The field surveys will be conducted at an appropriate time to maximize the number of species in flower (i.e., August for the Labrador West region). A targeted approach will ensure sufficient stratification by habitat type and that the Project Area can be covered in a reasonable time frame. Habitats will be traversed with continual transects, with the rare flora survey component focused on unique habitats such as rock outcrops, talus slopes, cliffs, watercourses, wetlands and mature forest. These habitats typically have elevated potential for the occurrence of rare species. Locations of rare plants will be recorded using a handheld global positioning system (GPS) and the number of individuals will be estimated at each location. Specimens may be

collected if a species cannot be identified in the field and will be identified in the laboratory using various botanical keys, a hand lens and online resources.

4.3.4 Avifauna

Breeding bird surveys will be conducted for Passeriformes (Perching Birds), Piciformes (Woodpeckers), Accipitriformes (Raptors), Strigiformes (Owls), Anseriformes (Waterfowl), Charadriiformes, and Gaviiformes (Loons).

Prior to field surveys a desktop habitat assessment will be completed to determine the avian species that are likely to occur in the Project Area, based on the habitat types available and the spatial extent of each. Field survey maps will be generated using GIS, with boundaries outlined and broad habitat types identified to ensure proper coverage in the field. In addition, a literature and information search will be conducted to determine the bird species typical of the region and known locally. A preliminary search produced a list of species known from the eBird website (Appendix A).

4.3.4.1 Breeding Bird Surveys

The survey method for the 2021 dedicated breeding bird surveys will be an amalgamation of survey types and techniques to maximize the likelihood of detecting breeding evidence. Systematic “atlassing” transects will be employed throughout the Project Area targeting all the available habitat types and will be combined with observations of breeding evidence (e.g., singing males, nest material, fledglings, etc.), the practice of “pishing” to attract birds to closer proximity, playbacks (if necessary) and nest searching. Survey transects will be located along the full length of the Project Area, which will be surveyed with 100% coverage of habitat types. Surveys will begin just after sunrise and the end time will depend on the weather, temperature and the perceived activity/singing of birds. Surveys will not be conducted in inclement weather as such weather can reduce the detectability of birds and can also compromise the safety of eggs or nestlings if nests were disturbed in poor weather conditions.

When breeding is confirmed for a given pair of birds, the observer will mark the vicinity of the nest site with a 30 m avoidance buffer around the nest location, as per the Newfoundland and Labrador Wildlife Division recommendations for other projects. Surveyors will exercise extreme caution around nests and ensure the avoidance of nest abandonment by limiting agitation to the parent birds to a minimal period.

The following general protocols will be followed during breeding bird surveys (adopted from Bird Studies Canada’s Nest Monitoring Code of Conduct):

1. Surveyors will minimize disturbance to nests and birds during nest searching and nest monitoring. Confirmation of breeding using accepted atlas codes will be preferred over locating the specific nest location.
2. Confirmation of breeding evidence will be considered paramount, as most species in the region are migratory and protected by federal legislation. This precautionary

approach (i.e., to assume protection for all birds) to breeding bird surveys ensures a maximum number of breeding birds are protected.

3. Surveys will not be conducted immediately following a rain event, so as to avoid risk to nestling disturbance at vulnerable times.
4. Surveyors will leave nest sites quickly after finding a nest (within one minute) and record information at least 20 m from the nest site. Breeding information will be recorded as per codes established by Bird Studies Canada.

4.3.4.2 Raptor and Owl Surveys

Raptors and owls are protected by Provincial legislation under the *Newfoundland and Labrador WildLife Act*. This Act forbids the hunting, taking, killing, or possessing of any eagle, falcon, hawk, osprey or owl.

Several species of raptors and owls are known from the Labrador West region, including:

- American Kestrel (*Falco sparverius*)
- Bald Eagle (*Haliaeetus leucocephalus*)
- Boreal Owl (*Aegolius funereus*)
- Golden Eagle (*Aquila chrysaetos*)
- Great-horned Owl (*Bubo virginianus*)
- Merlin (*Falco columbarius*)
- Northern Goshawk (*Accipiter gentilis*)
- Northern Harrier (*Circus cyaneus*)
- Northern Hawk Owl (*Surnia ulula*)
- Osprey (*Pandion haliaetus*)
- Red-tailed Hawk (*Buteo jamaicensis*)
- Rough-legged Hawk (*Buteo lagopus*)
- Short-eared Owl (*Asio flammeus*)

To survey for large raptor and owl nests in the Project Area, RPAS equipped with high-definition cameras will conduct low-level flights of the entire area (eBee fixed wing RPAS), and of the areas of special interest like taller trees, cliffs, transmission lines, or other suitable nesting substrates (using a DJI Matrice 210 rotary RPAS with thermal imaging). Nest site fidelity across years is common for many raptor and owl species and nests of large raptors can easily be identified from the resulting high definition videos. This method has been accepted by Government of Newfoundland and Labrador Department of Fisheries, Forestry and Agriculture, Wildlife Division to minimize disturbance to breeding raptors and owls while also recording a permanent record of the survey for review. Surveys will be flown at a speed that is slow enough facilitate robust observation of all the treetops and structures in the area. The resulting imagery will be thoroughly investigated for areas of interest (i.e., large stick nests atop trees, etc.) and subsequent surveys using the rotary RPAS will follow. In addition, during the avifauna breeding bird survey all sites of interest identified from the imagery and video will be surveyed on the

ground. Nest of raptors and owls will be reported by TACORA and guidance will be requested from the NL Wildlife Division regarding protection measures.

4.3.4.3 Waterfowl and Waterbird Surveys

There are several known wetlands and waterbodies present within the Project Area. As such, there will be waterfowl and water-associated birds utilizing those habitats for foraging, breeding, or staging. These species are protected federally by the *Migratory Birds Convention Act* (*MBCA* 1994). Waterfowl species known from the region of the Project Area include (but are not limited to) the following:

- American Black Duck (*Anas rubripes*)
- Canada Goose (*Branta canadensis*)
- Common Goldeneye (*Bucephala clangula*)
- Common Loon (*Gavia immer*)
- Common Merganser (*Mergus merganser*)
- Green-winged Teal (*Anas crecca*)
- Northern Pintail (*Anas acuta*)
- Red-breasted Merganser (*Mergus serrator*)
- Ring-necked Duck (*Aythya collaris*)

In addition to waterfowl species there are several species of waterbirds that are known from the Labrador West region, including:

- Greater Yellowlegs (*Tringa melanoleuca*)
- Solitary Sandpiper (*Tringa solitaria*)
- Spotted Sandpiper (*Actitus macularia*)
- Least Sandpiper (*Caladris minutilla*)
- Wilson's Snipe (*Gallinago gallinago*)
- American Golden Plover (*Pluvialis dominica*) (non-breeding in Labrador, migration only)
- Dunlin (*Caladris alpina*) (non-breeding in Labrador, migration only)
- Semipalmated Plover (*Charadrius semipalmatus*) (non-breeding in Labrador, migration only)
- Semipalmated Sandpiper (*Caladris pusilla*) (non-breeding in Labrador, migration only)
- White-rumped Sandpiper (*Caladris fuscicollis*) (non-breeding in Labrador, migration only).

To assess the presence of waterfowl and other waterbirds in the Project Area, a two-method survey approach will be conducted. Each wetland and waterbody present within the boundaries of the Project Area will be visited, and a 15-minute scan of the shorelines and open water using high quality optics will be conducted. Observations will be made of species, sex, breeding evidence (i.e., presence of young), and staging (i.e., resting during migration, often in groups). Secondly, a habitat assessment for waterfowl and waterbirds will be conducted with imagery

from the RPAS raptor survey component, to ensure all adequate habitat was surveyed with adequate coverage.

4.3.5 Amphibians

An amphibian survey will be conducted concurrently with the breeding bird survey to determine the presence of amphibian species and amphibian habitats. Species known from the region include American toad (*Anaxyrus americanus*), wood frog (*Lithobates sylvaticus*), mink frog (*Lithobates septentrionalis*), Northern leopard frog (*Lithobates pipiens*), spring peeper (*Pseudacris crucifer*), blue-spotted salamander (*Ambystoma laterale*), and Northern two-lined salamander (*Eurycea bislineata*). The frog species and American toad can be surveyed by sound while conducting the bird surveys as the period of maximum detectability (late June-early July) would coincide with the temporal window for breeding bird surveys. Since wetlands will be one of the ecotypes targeted during bird surveys, there will be efficiency in also surveying amphibians in the appropriate locations near wetlands and waterbodies. Salamanders will be surveyed by opportunistically searching in appropriate microhabitats (i.e., under logs, rocks, etc.) in suitable macrohabitats (i.e., forest ecotypes) and by searching wetlands for egg masses.

4.3.6 Mammals

The Project Area is comprised of many different ecotypes, all of which would be potential habitat (i.e., for foraging, breeding, roosting, hibernation, travel, etc.) habitat for various species of mammals.

Mammal species known or suspected from the Labrador West region include black bear (*Ursus americanus*), Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), moose (*Alces alces*), muskrat (*Ondatra zibethicus*), red fox (*Vulpes vulpes*), red squirrel (*Tamiasciurus hudsonicus*), snowshoe hare (Lepus americanus), marten (Martes americana), short-tailed weasel (Mustela *ermine*), northern flying squirrel (*Glaucomys sabrinus*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), American mink (*Neovison vison*), cinereus shrew (*Sorex cinereus*), pygmy shrew (*Sorex hoyi*), eastern heather vole (*Phenacomys ungava*), least weasel (*Mustela nivalis*), fisher (*Martes pennanti*), little brown bat, meadow jumping mouse (*Zapus hudsonius*), meadow vole (*Microtus pennsylvanicus*), deermouse (*Peromyscus maniculatus*), otter (*Lontra canadensis*), northern bog lemming (*Synaptomys borealis*), southern red-backed vole (*Clethrionomys gapperi*), and star-nosed mole (*Condylura cristata*).

Species occurrence within the Project Area will be determined by track survey transects throughout the area and by utilizing information from databases available from the ACCDC, Newfoundland and Labrador Wildlife Division, the Nature Conservancy of Canada, ECCC, and from local ecological knowledge from trappers. Transect data will be combined with information from literature searches to give a comprehensive list of wildlife that use the area. However, to detect the presence/abundance of several of the aforementioned species, specialized surveys would likely be required, such as the use of bat detectors, small mammal trapping grids and/or hair snags. Bat detectors will be deployed in 2021 in probable foraging areas.

Transects will pass through all habitat types present in the Project Area, ensuring proportional representation of all habitats and additional transects will be added on all trails and travel corridors, as anthropogenic corridors are known to be extensively used by many species of wildlife (Latham and Boutin 2015[xxxix]). Wildlife biologists will record all evidence of wildlife, including that of small mammals, furbearers, black bear and ungulates. Evidence of the presence of these animals may consist of observations of tracks, scat, browsing evidence, den construction, tunneling and auditory detections.

4.3.7 Species at Risk

There are several habitat types within the Project Area which contain potential habitat for several Species at Risk (SAR) and/or Species of Conservation Concern (SCC). SAR and SCC, due to their compromised population levels or sensitivity, can be susceptible to anthropogenic disturbance and habitat removal or fragmentation. Given their significance to local and/or regional biodiversity, they warrant comprehensive and robust evaluation during projects that could impact their abundance, reproduction and movement.

SAR will be defined as those protected under provincial or federal legislation (i.e., the *NL ESA* and/or the Canadian *SARA*). Many species exist on both lists, but there are some differences. SCC will comprise those that are listed by the ACCDC. The ACCDC compiles provincial lists of plants and animals and assigns an "S-rank", or conservation status rank, along with the legal status for each species if they are also a SAR. The S-rank definitions are as follows:

- S1 - Extremely rare: May be especially vulnerable to extirpation (typically five or fewer occurrences or very few remaining individuals);
- S2 - Rare: May be vulnerable to extirpation due to rarity or other factors (six to 20 occurrences or few remaining individuals);
- S3 - Uncommon, or found only in a restricted range, even if abundant at some locations (21 to 100 occurrences);
- S4 - Usually widespread, fairly common and apparently secure with many occurrences, but of longer-term concern (100 + occurrences);
- S5 - Widespread, abundant and secure under present conditions;
- SNR - Unranked: provincial conservation status not yet assessed; and
- SU - Unrankable: Possibly in peril, but status is uncertain (more information is needed).

There are three mammal SAR that could potentially occur in Labrador West, as determined from the *NL ESA* (2001) and the federal *SARA* Public Registry (2017), including wolverine, woodland boreal caribou and little brown bat. Each is discussed below. Wolverine is listed as Endangered in the federal *SARA* registry and under the *NL ESA*, but it has not been verified in Labrador since 1950 and there is no evidence to suggest this species exists in the vicinity of Labrador West. Wolverines have extremely large home ranges and require pristine and unfragmented habitat. The Project Area, adjacent to an active mine, is highly unlikely to meet the habitat needs of the wolverine. Similarly, the woodland boreal caribou, currently listed as

Threatened under the *NL ESA* and under the federal *SARA*, would be unlikely to inhabit lands in such proximity to mining operations. A study by Weir *et al*. (2007[xl]) determined that caribou avoid mine areas by as much as 4 km and group sizes were impacted up to 6 km from mine sites. The Project Area will not overlap the current ranges of the woodland boreal caribou. Given the population declines and historical avoidance of western Labrador since the origins of the mine, it is unlikely caribou would have any interactions with this project. However, one SAR is quite likely to occur within the Project Area; the little brown bat, which was given an emergency listing of "Endangered" by *SARA* in 2014 because of rapid population declines in Canada due to a deadly wildlife disease known as white-nosed syndrome. Another bat species, Northern myotis, is also possibly using the Project Area, as it is known from Labrador West.

In addition to the three mammalian species, three avian SAR may also be possible in the Project Area. Olive-sided Flycatcher is listed as Threatened under both the *NL ESA* and *SARA*, Rusty Blackbird is listed as Vulnerable under the *NL ESA* and Special Concern under *SARA*, and Short-eared Owl is listed as Vulnerable under the *NL ESA* and Special Concern under *SARA*. Dedicated surveys will be conducted in appropriate habitats to determine the presence/absence of these species within the Project Area. Given the habitat types present, including several wetland areas that would suffice as Olive-sided Flycatcher and/or Rusty Blackbird habitat and the large open areas for potential Short-eared Owl habitat, it is possible that any of these bird species exists within the area. In addition to field surveys, a data request will be submitted to ACCDC to establish any S-ranked species with records within or near the Project Area.

4.4 ATMOSPHERIC ENVIRONMENT

Iron ore mining forms the industrial base for the Towns of Labrador City and Wabush and is the main industry affecting the quality of the local atmospheric environment. Aspects of the atmospheric environment are discussed below.

4.4.1 Regional Climate

The Project is located east of the Town of Wabush, near the current Flora Lake TIA. The site is located within the extensive Mid Subarctic Forest ecoregion (Meades 1989[xli]; 1990[xlii]), which encompasses the upland plateaus of central and western Labrador. This area has a continental, subarctic climate with cool, short summers and long cold winters. At Wabush Airport, daily averages temperatures range from -27.8°C in January to +19.1°C in July, with 502.9 mm of rainfall and 428.7 cm of snowfall per year and prevailing westerly winds (Environment Canada https://climate.weather.gc.ca/ accessed 2021-03-25[xliii]).

Climate information for the Project Area presented in Table 4.11 is based on data recorded from 1981-2010 at the Wabush Lake Airport climate station (Environment Canada https://climate.weather.gc.ca/ accessed 2021-03-25). The Project Area, at an elevation of approximately 560 meters above sea level (MASL), is located approximately 8.6 km southeast of the Wabush Airport, which is located at an elevation of 551 MASL.

The average monthly temperature in the area is -3.1°C. The average monthly temperature range from October to April is 0.5 to -22°C and 4.0 to 13.8°C from May to September (Environment Canada https://climate.weather.gc.ca/ accessed 2021-03-25).

Monthly average rainfall ranges from 53.5 to 113.9 mm from May to September and monthly average snowfall ranges from 39.0 to 77.5 cm from October to April. Almost half of the annual precipitation falls in the June to September period.

Table 4.11 Wabush Airport Climate Normals (1981-2010).

Parameter	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rain	mm	0.6	1.6	2.6	12.1	40.4	80.6	113.9	103.4	92.3	42.0	10.9	2.5	502.9
Snow	cm	63.8	50.9	65.9	44.3	14.4	2.1	0.0	0.1	4.4	39.0	77.5	66.2	428.7
Precip.	mm	49.2	40.3	54.1	48.8	53.5	82.7	113.9	103.5	96.5	75.7	70.9	50.4	839.5
Avg. Temp.	°C	-22.2	-20.6	-13.3	-4.3	4.0	10.3	13.8	12.5	7.6	0.5	-8.2	-17.5	-3.1

4.4.2 Air Quality

Releases of air contaminants are generally classified into criteria air contaminants (CACs) and greenhouse gases (GHGs). CACs are a set of criteria pollutants that cause smog, acid rain and other health hazards, and include particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x) and carbon monoxide (CO). Table 4.12 provides a list of typical sources of CAC emissions from iron ore operations.

Table 4.12 Iron Ore Mining – Sources of CAC Emissions.

Source of Emissions	Type of Emission
Use of large trucks and excavators to mine iron ore	PM, NO_2, SO_2 and CO
Blasting	PM, NO_x and SO_2
Fugitive emissions from active quarries and tailings piles	PM
Rock crushers	PM
Concentrator Plants	PM, metals, NO_2, SO_2 and CO
Pelletizing Plants	PM, metals, NO_2, SO_2 and CO
Transport - Rail	PM, NO_2, SO_2 and CO
Use of smaller service trucks onsite	PM, NO_2, SO_2 and CO

TACORA maintains two air quality monitoring stations at their Wabush operations that are within the local community, namely on Bond Street near the Provincial Building and on Cabot Drive near the J. R. Smallwood School (Figure 4.12). Data from the monitoring stations is compiled by the Pollution Prevention Division of the NLDEC[xliv], and the results are compiled and published in annual Air Quality reports. These reports can be viewed at the following web address:

https://www.gov.nl.ca/ecc/publications/env-protection/

The most recent report published in May 2020 includes results from the 2019 monitoring programs (https://www.gov.nl.ca/ecc/files/2019-Air-Quality-Annual-Report.pdf[xlv]). The 2019 results indicate no annual concentration exceedances of SO_2, particulate matter under 2.5 microns (PM2.5), or total particulate matter (TPM) at established monitoring locations. TACORA believes that given the distance of the Project from both Labrador City and Wabush, and prevailing westerly winds, which would direct air pollution away from the residential areas, there are unlikely to be adverse effects to the air quality data during construction or operations of the various Project components. Air quality monitoring will continue and the data analyzed to verify these predictions. No new or modified air quality monitoring or modeling is planned given the results of the on-going air quality monitoring and given the distance of the Project from residential areas.

Figure 4.12 TACORA Resources Ambient Air Quality Monitoring Stations.

TACORA is working to control fugitive dust at Scully Mine. Efforts include progressive rehabilitation and revegetation of inactive sections of the TIA and this has led to reductions in fugitive dust. Some minor revegetation also occurs within the mining area at berms and other small areas no longer in use. TACORA has also installed a dust suppression system to mitigate the fugitive dust in the concentrator loadout area. Mitigations such as regular road watering also contribute substantially to reducing fugitive dust levels at the mine sites and in neighboring communities. All applicable mitigations will be implemented as necessary during development and operation of the Project.

5.0 Potential Effects and Mitigations

The Project is comprised of activity, tailings disposal, that is already ongoing as part of Scully Mine's operations. Environmental interactions as a result of the Project will not change substantially because the work required under the Project is a continuation of activities that already occur. The project will result in these activities being conducted over a larger area and for an increased time period. However, under existing approvals it has been demonstrated that these activities are conducted without any significant negative environmental effects. TACORA's execution of the Project will follow already established environmental permits and approvals (e.g., EEM under MDMER, water quality monitoring), although these will require updating for the new area (see Section 7).

Project activities will implement mitigation measures in accordance with the rigor and success of previous and ongoing tailings disposal activities. For example, TACORA has carried out successful lacustrine and riverine fish and fish habitat offsetting plans that have demonstrated very positive results and work is already underway to identify and advance offset options for the fish and fish habitat that will be affected by the Project.

In all cases, TACORA's site wide Environmental Protection Plan (EPP, located in Appendix B) will apply to the Project. Based on the long standing information collected as part of the historical mine operations and from the efforts of TACORA since 2017, all activities related to the expansion of the TIA will be closely monitored and will have mitigation measures put in place to reduce or eliminate negative environmental interactions. TACORA will work to minimize environmental effects while working to progressively reclaim tailings areas as the deposition area moves further south over time.

In the following sections, TACORA provides an overview of anticipated environmental effects and, where applicable, specific mitigation measures it will follow.

5.1 FISH AND FISH HABITAT

To achieve TACORA's requirements for expanded tailings storage capacity, the Project took into consideration the potential effects to fish and fish habitat. The Project Area will be maintained within the watershed already impacted by current and historic tailings disposal by the mine. Successful fish and fish habitat assessments, compensation (offsetting) projects and follow up monitoring have demonstrated that effects of the mining activity on fish and fish habitat are well mitigated and/or offset by the efforts of previous operators and the proponent.

Following release from EA, the next major approval required for the Project will be amendment to Schedule 2 of the MDMER, to list the Project Area as the expanded TIA. In order for this to occur, TACORA must present detailed information for fish and fish habitat assessments, affected fish habitat and its' concept for offsetting habitat lost due to the Project. Work on the

assessment will be completed in 2021 and work is underway to develop fish habitat offsetting concepts for the Project. Important considerations will include fully replacing fish and fish habitat that is lost due to tailings deposition and ensuring that the offsetting plan selected maintains fish species occurrence, abundance and productivity.

TACORA utilizes the most recent offsetting concepts and works closely with DFO to identify, select, implement and monitor fish and fish habitat offsetting programs. TACORA will build on this success and understands the importance of mitigating and offsetting fish and fish habitat effects through the regulatory process. Fish habitat offsetting plan concept development is underway and TACORA has met with DFO officials to discuss plans for upcoming 2021 field season studies to address all data gaps that exist with respect to fish and fish habitat in the lakes and streams that will be affected by the Project. Once a concept is approved by DFO, TACORA will follow the terms and conditions of the FAA that DFO will issue to govern the implementation and multi-year monitoring of the offsetting plan. The FAA will also contain requirements to augment the offsetting plan should initially agreed upon targets not be met at the end of the required monitoring.

TACORA is committed to meeting the fish and fish habitat offsetting requirements to ensure there are no significant, negative long terms effects to fish and fish habitat as a result of the Project. TACORA is confident that the concepts in development will result in another successful fish and fish habitat offsetting program for the mine.

5.2 HYDROLOGY

5.2.1 Surface Water

The Scully Mine site has conducted surface water monitoring for many years and there is a long, well documented history of water quality monitoring results. Water quality monitoring has been conducted to address requirements under the federal MDMER and includes monitoring effluent quality and water quality in receiving waters and at reference locations on a schedule as specified in the MDMER. This also includes sub-lethal toxicity testing annually for the Flora Lake FDP. Monitoring results are reported to ECCC through their online Mine Effluent Reporting System *(*MERS). EEM is also conducted under the MDMER on a three-year cycle with the most recent cycle (Cycle 7) to be conducted in 2022.

EEM monitoring data are also submitted into the MERS maintained by ECCC. TACORA has reviewed historical data in MERS for exposure in Flora Outlet Arm and reference sites (Walsh River and Jean River) for exceedances of MDMER authorized limits of arsenic, copper, lead, nickel, zinc, radium-226 and TSS. The only exceedances in that database for the period 2004 to 2019 are for TSS (> 30 mg/L) at Flora Outlet Arm and Jean River.

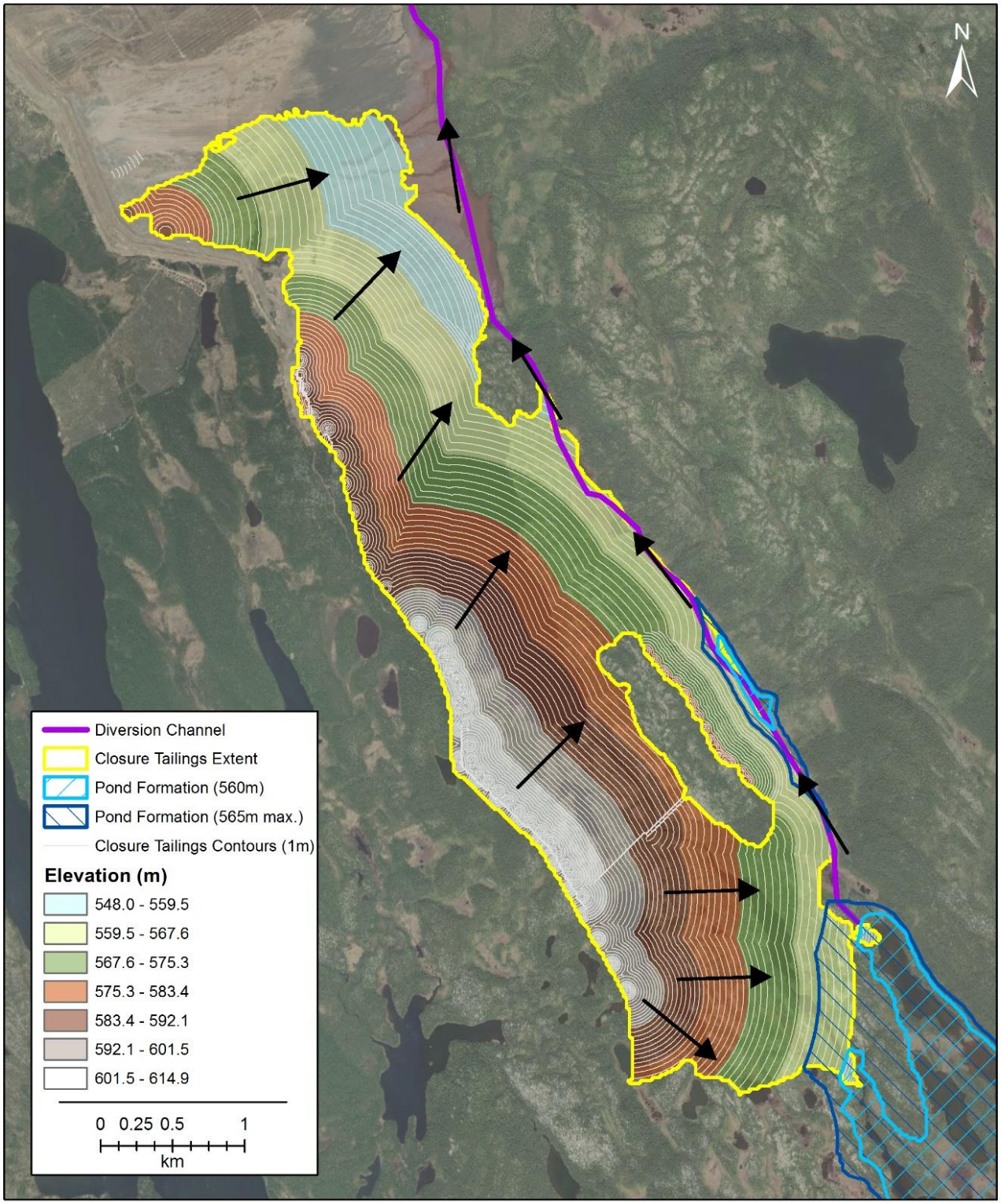
Water and effluent quality monitoring is conducted under the mine's CoA, including acute lethality biological testing. Monitoring results are reported to the NLDEC through their Environmental Database Management System (EDMS).

TACORA will continue to implement the existing sampling and reporting program in effect with the current mine operations, including the Real Time Water Quality Monitoring Station at the Flora Lake Outlet. The sampling locations currently monitored for tailings disposal will continue to be monitored throughout the Project. The specific parameters and sampling frequency may change, depending on the final CoA for plant operations issued by NLDEC.

Surface water drainage patterns will not materially change during the Project. As a result of the Project, tailings deposition will eventually fill in Flora South Basin and push water further south as per the Phases described in Section 3. However, overall surface drainage patterns will be maintained. Flows will occur southerly as well as easterly over the tailings beach depending on surface contours and ultimately drain into the Diversion Channel. All flows will drain northward into Flora North, maintaining existing drainage patterns from there to Flora River. Figure 5.1 depicts natural surface water drainage patterns over the maximum tailings extents of the Project, these general drainage patterns (to the south and east, and ultimately to the north) will be consistent throughout Project development.

Water treatment associated with tailings management consists of natural (unaided) settling of solids in Flora Lake, approved under MDMER for tailings management. Water quality in Flora Lake, as measured at its discharge (FDP under MDMER) at the Flora Lake Outlet Arm to Flora River and then Wabush Lake, is consistently in compliance with the metal and suspended solids criteria in the MDMER and Environmental Control Water and Sewer Regulations (ECWSR) and the acute lethality criteria in the MDMER. Typical water quality as measured and reported also meets or exceeds the CCME criteria for Protection of Freshwater Aquatic Life.

The Project will not be expected to cause any changes to water quality at the FDP which would negatively affect receiving waterbodies and the track record of achieving environmental compliance for surface water discharge is expected to be maintained through Project implementation.



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	Surface Water Drainage	COORDINATE SYSTEM: NAD 83 UTM Zone 19	DATE: 27/05/2021

5.2.2 Groundwater

Groundwater quality has not been monitored in the TIA area during previous operations. The Town of Wabush's water supply is surface water from Wahnahnish Lake. The Flora Lake TIA is adjacent to the watershed of Wahnahnish Lake however, all of the tailings dewater into the Flora Basins. Over the fifty years of the facility's operations and use of the TIA, there has been no indication that the TIA has had any adverse impact on the Town of Wabush's potable water supply.

The approved tailings disposal methods currently allow for the discharge of the tailings slurry without any requirements for the treatment of the decanted water. This is based on analysis which demonstrated the only deleterious substance in the tailings water was the suspended solids, which settle out into the Flora Basin. Since there are no contaminants of concern entering the environment as the result of tailings disposal to surface water and since the solids settle out in surface water basins, it is not anticipated that any negative effects to groundwater in the expanded TIA will occur.

5.3 WETLANDS

The Project Area occurs in a region where wetlands, in the form of bogs and marshes, are a widespread landscape feature. Labrador bogs are characterized as low productivity areas and are not unique in terms of habitat features that support rare or endangered species. Other than the loss, over time, of the bogs within the Project Area, the Project is not expected to affect other wetlands outside the Project Area. Effects to wetlands will be confined to the watershed area already affected by the Project and the areas affected are very abundant in a regional context. Therefore, the effects to wetlands within the Project Area are not expected to be significant.

5.4 VEGETATION AND RARE FLORA

The existing vegetation within and near the Scully Mine reflects the effects of other past and ongoing human activities in the region. Recent baseline surveys for the Kami Project (Alderon 2013[xlvi]) and the Wabush 3 Project (IOC 2013[xlvii]) did not detect any plant species listed as species at risk within their respective project areas. A rare plants survey will be conducted within the specific Project Area in 2021. Based on the results of that survey, appropriate measures will be taken in the unlikely event any rare flora are encountered.

Revegetation of tailings currently focuses on soil building to convert tailings to a soil capable of supporting plants. Climate is also a challenge requiring revegetation species to have outstanding winter hardiness and be able to survive minus 45^0C. Microelements are also abundant limiting plant species that could tolerate high content in soil. TACORA has developed various hydroseeding techniques, depending on the slope and surface conditions. The main approach involves broadcast spreading of seeds after harrowing the terrain with subsequent addition of fertilizer. A second approach involved spreading hay mulch coupled with direct, precision drill-seeding with broadcast fertilization. A third approach, when terrain did not permit

safe equipment travel, was direct hydro-seeding applied as a number of coats of hydro-seeding slurry. Recent experience indicates irrigation can be limited to the year that seeding is done with good success. Over the years of revegetation, the tailings area has established self-sustaining vegetation covers on all surfaces including gentle sloped areas, high sloped dikes and horizontal benches. A typical annual revegetation program consists of seeding and fertilizing an area of approximately 40 ha and this will be an ongoing component of TACORA's progressive rehabilitation of the TIA. In addition to this, in 2021 TACORA will be working on biodiversity investigations to augment these revegetation efforts.

As tailings deposition areas migrate southward, trees and shrubs will be chipped and left at site to allow unimpeded flow of the tailings discharges. The organic materials will be covered by tailings. Over time, the lake area to the south will gradually expand and affect vegetation in the inundated area resulting in the loss of this vegetation. Effects to vegetation will be confined to the Project Area and affected vegetation types are abundant in the region. No significant negative effects to vegetation are expected as a result of the Project.

5.5 AVIFAUNA

Activities associated with the Project will be very similar to historic and current tailings disposal routinely conducted by TACORA. As the Project unfolds, that activity will gradually evolve southward over an extended period of time. Avifauna utilizing habitat within or near the Project Area will be acclimated to the human disturbance in the region. As tailings disposal work progresses, TACORA will continue its routine activities and measures for the protection of wildlife as outlined in the site wide EPP. If at any time during its operations TACORA encounters a rare or endangered avifauna species, it will consult with NLDEC regarding appropriate actions. Finally, chipping of vegetation will be timed to not coincide with avifauna nesting periods in the region. If for any reason this cannot be achieved, dedicated avifauna surveys will be conducted in specific areas to be cleared to ensure no disruption to active avifauna nests will occur.

No significant negative effect to avifauna is expected as a result of the Project.

5.6 AMPHIBIANS

Activities associated with the Project will be very similar to historic and current tailings disposal routinely conducted by TACORA. Amphibians utilizing habitat within or near the Project Area will likely be acclimated to the human disturbance in the region. Expansion of tailings deposition into the Project Area will occur slowly over an extended time period and it is expected that there will not be significant negative effects to amphibians as a result.

5.7 MAMMALS

Several mammal species are known to occur in the Project Area, however, none of them rely on it for critical breeding or foraging habitats. Mammals that do utilize the Project Area have likely

acclimated to the levels of human activity and disturbance that historically occurred and continue near the Project Area.

The Project Area also overlaps with the range of the migratory George River Caribou Herd (GRCH). Specifically, this area of western Labrador overlaps a portion of the herd's historic winter range (Jacobs et al. 1996[xlviii]). Straddling the Quebec-Labrador peninsula (Ungava peninsula), the George River Herd was once one of the world's largest caribou populations, with estimates peaking at almost 800,000 individuals in the 1980's (Couturier *et al*. 1996[xlix]; Russell *et al*. 1996[l]; Rivest *et al*. 1998[li]). More recently, a 2004 survey estimated the GRCH at 300,000 animals (Couturier *et al*. 2004[lii]) and a 2010 survey of the herd noted a substantial decline to approximately 74,000 animals (NLDEC 2010[liii]). A photo census completed in July 2012 estimated the herd at 24,300 animals, with projections for late fall 2012 around 22,000 animals (NLDEC, 2017[liv]). Further estimates based on surveys showed a further decline to 14,200 and 8,938 individuals in 2014 and 2016, respectively (NLDEC News Release, August 29, 2016). The initial decline can likely be attributed to wolf predation and both legal and illegal hunting (Hearn *et al*. 1990[lv]). Emigration to other herds has also been suggested as a possible reason for the decline (Boulet *et al*. 2007[lvi]).

The severity of this downward trend, indicators of poor herd health and the potential for the combined effects of hunting, disease, predation, range condition, human activities and climate change, add complexity to the situation. The results of the census, biological health indicators, population modeling projections, and consultations with stakeholders have prompted the Provincial Government to initiate a caribou hunting ban in Labrador for conservation purposes. The hunting ban is intended to safeguard the viability of the herd and allow it to recover to a point where sustainable harvest can occur. The response of the remaining population to the closure of hunting will be monitored and an initial review of results conducted (NLDEC 2017[lvii]).

Although there is no evidence of sedentary caribou near the Project Area at present, they were reported historically (e.g., Caniapiscau or McPhadyen Herds) (LWCRT 2005[lviii]; Bergerud *et al*. 2008[lix]). The sedentary herds of this region have declined or disappeared since the 1960s with the advent of the snowmobile allowing greater access for hunting. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed the sedentary caribou populations of Labrador as "Threatened" (COSEWIC 2008[lx], *SARA* 2008[lxi]). Hunting of sedentary herds is illegal.

As land near the Project Area has been subject to mining activity over the past five decades, the area has not been utilized by woodland or migratory caribou for any sensitive life cycle stages (e.g., breeding or calving). Furthermore, the Project Area does not contain any critical habitat.

Activities associated with the Project will be very similar to historic and current tailings disposal routinely conducted by TACORA. As the Project unfolds, that activity will gradually evolve southward over an extended period of time. No significant negative effects to mammals are expected as a result.

5.8 SPECIES AT RISK

In Canada, since May 2000, the woodland caribou were designated as threatened, with the designation applying only to a widespread population ranging across the boreal forests of northern Canada (COSEWIC, 2008[lxii]). The same status has been given in 2002 by NLDEC. The boreal population has decreased throughout most of the range and is threatened from habitat loss and increased predation, the latter possibly facilitated by human activities (Festa-Bianchet *et al*., 2011[lxiii]).

There has been no evidence that the study area was used by sedentary Woodland Caribou of the boreal population during the pre-calving period in recent years.

Wolverine (*Gulo gulo*) was designated endangered in Canada and in Newfoundland and Labrador in May 2003. Historically wolverine were trapped throughout most of Labrador; however, numbers of animals trapped declined early in the 20th century. There have been no confirmed records in Labrador since the 1950s, although there continue to be occasional unconfirmed sightings (NLDEC 2017[lxiv]).

5.9 ATMOSPHERIC ENVIRONMENT

5.9.1 Airborne Emissions

The Project will result in airborne emissions from operation of equipment required for tailings disposal. The overall emissions have been associated with the mine for the past 50 years, and airborne emissions at the mine site itself (i.e., the plant and pits) are known, documented and managed to minimize any potential adverse environmental impacts. While the emissions of equipment used at the tailings represents a very small portion of overall air emissions as a result of the mine operations (e.g., the plant itself), TACORA is committed to ensuring that equipment used for tailings disposal is well maintained and equipped with proper exhaust systems to minimize air emissions.

5.9.2 Fugitive Dust

Fugitive dust emissions from the Scully Mine occur from wind erosion at the TIA, and at times, these particulate emissions may exceed allowable ambient air quality standards.

TACORA remains committed to properly managing potential fugitive dust emission from tailings to the extent reasonably possible. To achieve this goal, TACORA is working to progressively reclaim dried portions of the TIA that lack sustained vegetative cover.

5.9.3 Greenhouse Gas

Greenhouse gases, including carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) can be emitted via a myriad of biogenic and anthropogenic sources. GHG emissions impact yield global impacts and thus require far-reaching mitigation measures. As such, the federal and

provincial governments have committed to reducing GHG emissions by 30 percent below 2005 levels by 2050. The federal and provincial governments have made this commitment as part of the Paris Agreement and The Way Forward on Climate Change, respectively. To ensure reduction targets are met, the Government of Newfoundland and Labrador has implemented the Made-in-Newfoundland and Labrador Carbon Pricing Plan and facility specific GHG emission reduction targets. The Made-in-Newfoundland and Labrador Carbon Pricing Plan was developed to satisfy the 2016 PanCanadian Framework on Clean Growth and Climate Change, which included commitments to introduce carbon prices across all provinces and territories (ECCC 2016[lxv]). Facility specific greenhouse gas emission reduction targets are developed based on baseline emissions. Since TACORA is still in the process of building a baseline, Scully Mine is not yet subject to emission reductions. However, the Government of Newfoundland and Labrador Office of Climate Change has developed a framework for emission reduction targets after the baseline has been established. TACORA is fully committed to reducing emissions to mitigate climate change impacts of Scully Mine operations. A long-term emissions reduction strategy is currently under development at Scully Mine. This plan is being developed to ensure GHG emission intensity undergoes a 12% reduction by 2027.

At Scully Mine, dominant GHG emission sources include fuel combustion and explosive detonation. TACORA follows prescribed methods as required by the Newfoundland and Labrador *Management of Greenhouse Gas Act* (*MGGA*) and its Regulations (MGGAR) to calculate site-wide GHG emissions (Government of Newfoundland and Labrador 2019[lxvi]). Calculations involve developing an inventory of fuel and explosive consumption across activities and sources to estimate GHG emissions. An annual GHG report is generated for submission to provincial regulators and subjected to independent third-party verification.

In 2019, GHG emissions at Scully Mine accounted for 1% of total Newfoundland and Labrador GHG emissions (expressed as carbon dioxide equivalents (CO_2e)) (Government of Newfoundland and Labrador 2020[lxvii]). It should be noted that emissions calculated in 2019 represented six months of start-up operations. Furthermore, the activities related to tailings disposal would only have been a very small fraction of this GHG tabulation.

The berm construction component of the Project has been identified as a potential emission source. Since berm construction will use existing equipment and employment resources, no new greenhouse gas emissions are expected from this component of the Project. It should be noted that additional fuel consumption associated with berm construction will be accounted for and used in site-wide greenhouse gas emission estimates.

Expanding the Flora South Basin may also result in greenhouse gas emissions. This Project will require the conversion of 284 ha of land into flooded land over the course of 22 years to achieve a basin footprint of 468 ha; the remaining basin footprint is comprised of existing waterbodies (184 ha). While a portion of land will be flooded, the main ecosystem in the footprint of the expanded basin is a regulated water body. Because of this, the area is not considered flooded land from the viewpoint of GHG emission calculation methodology and is thus not anticipated to generate material greenhouse gas emissions (MELCC 2019[lxviii]).

5.10 SOLID WASTE

The mine site has an approved landfill that currently operates under a Certificate of Approval (LB-WMS08-01001E) and cannot accept highway tires, hazardous materials, petroleum contaminated soil and liquid phase petroleum. Special wastes disposal must be approved by the Department of Digital Government and Service NL (DDGSNL) and shall be disposed of in a selected area designated for this purpose only.

The TIA generates only a small proportion of the mine's solid waste. Any solid waste that is generated at the TIA will be disposed of in accordance with TACORA's waste management practices established for mine operations, including the Waste Management Plan (WMP).

5.11 HAZARDOUS WASTE

It is not expected that the Project will generate significant quantities of hazardous waste. However, should any hazardous wastes be generated, they will be stored, transported, and disposed of according to federal and provincial regulations.

As part of ongoing operations, employees and contractors engaged in tailings disposal will follow TACORA's requirements for training and use of materials such as fuels and lubricants. Spill kits will be available at key locations and workers will be trained in their use and other emergency response procedures.

Discarded tires will be handled according to the requirements of the provincial tire recycling program established by the *Waste Management Regulations*. Only minor repairs would occur at the TIA, any major repairs would occur at TACORA's or contractor's maintenance shops. Any scrap metals will be taken to a scrap metal recycling operation. All hazardous waste will be handled in accordance with the WMP and EPP.

5.12 NOISE

Noise is not expected to differ from current tailings disposal operation levels. The use of industry standard equipment compliant with all applicable noise regulations and effective maintenance systems including regular inspections of all noise suppression equipment will be conducted.

5.13 POTENTIAL RESOURCE CONFLICTS

The potential resource conflicts during construction and operation include interactions with wildlife, water resources, fish and fish habitat, land use and vegetation.

5.13.1 Wildlife

Given that the area has been subjected to industrial activity for over 50 years, wildlife has adapted to either avoid the area or to conduct some or all of their life cycle stages within the

suitable areas of the TIA. Large mammals rarely occur in the Access to the TIA is restricted to the public, therefore no wildlife conflicts are anticipated.

5.13.2 Water Resources, Fish and Fish Habitat

The Project Area is situated in a region with abundant aquatic resources including many small and large lakes, rivers and associated streams and fish communities within the Project Area are typical of the region. The area affected by TACORA's operations has been subjected to industrial activity for over 50 years and fish resources have been able to conduct some or all of their life cycle stages within suitable areas of the TIA. TACORA will be fully compliant with all fisheries compensation and offsetting required under the *Fisheries Act. T*ACORA is also continuing all required monitoring of effluent discharges and water quality as required under the federal (MDMER, CCME guidelines) and provincial (CoA) criteria including acute and sub-lethal biological testing. Access to the TIA is restricted to the public, therefore no conflicts associated with fishing or other water resource use are anticipated.

5.13.3 Land Use

The site has been used for mining and related industrial activities for over 50 years, as mining is the primary industry in the immediate area. The Government of Newfoundland and Labrador considers that the Wabush/Labrador City area will remain as a mining center for many years into the future, well beyond the mineral reserves indicated for the Scully Mine. This site has always been and remains zoned for this type of land use. The town of Wabush municipal plan for 2016 – 2026 shows the mine site and tailings management area designated as a combination of General Industrial or Mineral Workings.

As stated in the Rehabilitation and Closure Pan, it is not practical or feasible that the site be returned to its pre-mining condition. Therefore, the RCP objectives include rehabilitation efforts to ensure that the site has been rehabilitated to a condition that protects public safety and health and to a condition where no further environmental degradation takes place. The post-closure rehabilitated mine site will, over time, blend into the surrounding environment and will become increasingly more visibly compatible with the existing surrounding land use. Disturbances caused by mining such as the open pits, waste rock dumps and TIA will remain following the cessation of mining. However, one of the objectives proposed in the RCP is to implement appropriate reclamation measures that will see the areas disturbed by mining activity both physically and chemically stabilized. This will minimize post closure intervention and/or maintenance by either TACORA, any successors, or by the Province of Newfoundland and Labrador.

The existing land use of the area surrounding the mine is primarily wilderness land supporting a variety of natural wildlife. The area is remote and consequently is not currently being used for other resource harvesting or recreational purposes with the exception of harvesting of firewood and recreational use by local residents who are typically living in the area due to their employment at the local iron ore mines or in the service sector providing support to these

mines. There are a couple of cabins within the Project Area and TACORA has initiated discussions with their owners to avert unexpected negative outcomes. No land use conflicts are anticipated as a result of the Project.

5.14 CUMULATIVE EFFECTS

The Project does not introduce new activities or environmental interactions that are cumulative to existing operations activities at Scully Mine. The Project will interact with a larger area and over a longer time period than would occur if the Project did not proceed.

Mitigation measures, Environmental Effects Monitoring and water quality monitoring are all in place and functioning as required as part of existing activities at Scully Mine. The Project will fall under the same requirements for environmental protection as those currently in action. TACORA will also meet DFO requirements for Fish and Fish Habitat protection that will be put in place to compensate for effects to waterbodies and streams within the Project Area. Because the Project activities will occur very gradually and have in place the mitigation measures described in the sections above, it is anticipated that the Project will not result in significant negative cumulative effects.

6.0 Socioeconomic Environment

The Project will ensure positive socioeconomic benefits that Scully Mine brings to the Labrador West region and for the Province will be extended by 22 years. In effect, the Project will maintain the employment and related economic benefits for the direct hire work force at the mine. Beyond the direct impact of increased duration of employment opportunities in the Labrador West region, this Project will positively influence the associated support service sector (contractors, suppliers, etc.) that exist in the area.

6.1 OCCUPATIONS

The Project will maintain many family supporting careers in the Labrador West region. Expansion of the TIA to allow full utilization of the ore reserve at Scully Mine will extend by over two decades the mining related work force demands of the region. As a result of the Project, occupations required to support the mine currently will remain in place for 22 years after the existing approved TIA reaches capacity.

6.2 EMPLOYMENT

The Project is unique in that it does not directly create new employment as a result of its implementation. The primary employment benefit is that the Project extends existing employment benefits created by Scully Mine by a significant period of time. Table 6.1 below identifies the current work force at the mine operations. Employment levels at or near these levels will be required to maintain mining activities. Therefore, the Project would be expected to create 15,283,840 person hours of employment after the current TIA area reaches capacity (based on 334 people at 40 hours a week over a period of 22 years).

Table 6.1 Employee Summary, Operations.

Concentrator			Mine		
NOC[1]	140 Positions	Qty	NOC	149 Positions	Qty
0811	Concentrator Manager	1	0811	Mine Manager	1
0714	Head of Operations Centre	2	0714	Technical Services Superintendent	2
7302	Ops Supervisor	7	8221	Mine Supervisor	10
1122	Master Data Specialist	1	1525	Mine Dispatch	5
9611	Operators	64	0714	Mine Operations Superintendent	1
9241	Power Engineer	13	8614	Mine Operators	99
0114	Technical Services Manager	1	7312	Diesel Mechanics	5
2141	Operations Coordinator	3	7372	Drill & Blast	1
0714	Concentrator Superintendent	4	2143	Mine Engineer	1
0714	Maintenance Planner	3	2113	Geologist	1
7301	Maintenance Supervisor	4	2212	Mine Engineer Tech	1
0711	Project Manager	1	0714	Mine Maintenance Superintendent	1

Table 6.2 Employee Summary, Operations. (Cont'd)

Concentrator			Mine		
NOC[1]	140 Positions	Qty	NOC	149 Positions	Qty
2133	Electrical Supervisor	1	7301	Maintenance Supervisor	5
2133	Electrical Engineer	1	0714	Electrical Service Superintendent	1
7242	Electrical Maintenance	8	7242	Electrical Maintenance	5
2134	Process Engineer	1	0714	Mine Maintenance Planner	2
2211	Lab Supervisor	1	9211	Student	8
2212	Lab Techs	16			
	Student	8			
General Operating			**Finance**		
NOC	19 Positions	Qty	NOC	26 Positions	Qty
0013	Chief Executive Officer	1	1123	Communications Advisor	1
0013	Vice President General Manager	1	0111	Accounting Manager	1
0013	Vice President Projects	1	0111	Controller	3
0014	Relations Manager	1	2141	Reliability Engineer	3
0016	General Manager	2	0714	Warehouse Manager	1
1122	Master Black Belt	1	2281	I. T. Tech	2
2141	Safety Area Manager	1	0714	Materials Superintendent	1
2263	Safety Tech	4	2142	Materials Specialist	1
0112	Human Resources Manager	1	1225	Procurement Specialist	2
1121	Human Resources Representative	2	1552	Warehouse Operators	7
0714	Environment Superintendent	1	1241	Administrative Assistant	2
2263	Environment Coordinator	3	0811	Student	4
Total Employees: 334					
[1]NOC=National Occupational Classification					

6.3 EMPLOYMENT EQUITY

TACORA's leadership and hiring practices are firmly rooted in the philosophy of finding the best qualified person for a specific position and is blind to any discriminatory influences on that process, discrimination is simply not tolerated. TACORA defines discrimination as "Any action, inaction or behaviour which intentionally or unintentionally denies a right, benefit or opportunity or status of an employee, or the unequal treatment of an employee or harassment on the basis of prohibitive grounds as defined under the Human Rights Act[lxix] including race, religion, religious creed, political opinion, source of income, color, nationality, ethnic origin, social origin, age, sex, sexual orientation, marital status, family status, disfigurement, disability, age, gender identity, gender expression, and conviction of a criminal offence unrelated to employment."

Workplace diversity is achieved when all employees, regardless of sex, gender, race, ethnicity, ability, sexual orientation, and age, receive equal respect and recognition and are able to access and benefit from the same rewards, resources and opportunities. TACORA strives to

enhance workplace diversity is all aspects of the business; recruitment, work force development, promotion opportunities, the working environment and business access for external companies.

Although efforts have been made generally to improve the participation of women in the workplace, inequity persists particularly in science, trade and technology occupations. Much of what is needed to address the challenges that women face in securing employment in non-traditional occupations requires an integrated strategy in which all stakeholders have a role to play. TACORA is cognizant of the need to participate along with others, in developing concrete initiatives targeted at addressing the underlying issues which have contributed to this situation. TACORA also recognizes that over time women will take up opportunities presented in non-traditional occupations. TACORA is also committed to working with governments, educational institutions, women's organizations, organized labour and industry associations to advance gender diversity in the workplace and to see that more women take advantage of employment opportunities in the Canadian mining industry. Child and elder care is often cited as a major constraint to women's employment in Newfoundland and Labrador, with a limited availability of good quality facilities. Given this, TACORA will assist its employees in accessing appropriate, affordable, quality child and elder care to the extent feasible.

6.4 CULTURAL AND HISTORIC RESOURCES

There are no known historic and heritage resources within the Project Area, however, there are no existing environmental studies that focus on cultural or historical resources. The site has already been heavily impacted and is located within an area that has been subject to on-going mining activity for the past five decades. It is therefore unlikely that the area contains, or that the Project will result in the disturbance or destruction of historic and heritage resources. Public access to the Project Area is restricted so land and resource use and other activities do not currently take place on the site. No interactions with, or adverse effects upon, commercial, municipal, traditional or recreational activities in the area are therefore anticipated.

7.0 Approvals

7.1 APPLICABLE FEDERAL AND PROVINCIAL REGULATIONS

Criteria are established in the following Newfoundland and Labrador and Federal legislation:

- *Water Resources Act*
  - *Environmental Control Water and Sewer Regulations, 2003* (ECWSR)
- *Environmental Protection Act*
  - *Air Pollution Control Regulations, 2004*
  - *Storage and Handling of Gasoline & Associated Products Regulations*
  - *Used Oil Control Regulations*
  - *Waste Management Regulations*
- *Occupational Health and Safety Act*
  - *Occupational Health and Safety Regulations, 2012*
- *Mining Act*
  - *Mining Regulations*
  - Mining Act Guidelines (2020)
- Federal *Fisheries Act*
  - *Metal and Diamond Mining Effluent Regulations* (MDMER)

7.2 REGULATORY AUTHORIZATIONS

The Project requires several regulatory authorizations before mining operations can resume. Table 7.1 lists these approvals, applicable dates and issuing authority.

Table 7.1 Project Permits and Approvals and Related Activities.

Issuing Department	Title
Federal	
Environment and Climate Change Canada (ECCC)	Amendment to the Metal Mining Effluent Regulations Designating applicable water bodies as Tailings Impoundment Area (TIA). This is the Schedule 2 Amendment referenced throughout this EA Registration Document
	Alternatives Assessment
Fisheries and Oceans Canada (DFO)	*Fisheries Act* Authorization (FAA)
	Fish Habitat Offsetting Plan
	Experimental License (for fisheries baseline studies, fish removal and relocation and future monitoring studies)
Provincial	
Department of Environment and Climate Change (NLDEC)	Environmental Assessment Release
	Water Use License – Industrial (Mining)
	Certificate of Approval (C of A), (#AA18-015646) Amendment
	Permit to Alter a Body of Water (for Instream Works)
Department of Industry, Energy and Technology (NLDIET)	Surface Lease
	Development Plan Amendment
	Rehabilitation and Closure Plan Amendment
	Commercial Operating/Cutting Permit
Municipal	
Town of Wabush	Building Permit (General Development Application)

8.0 Schedule

Subject to regulatory and environmental approvals, the expansion of tailings disposal beyond the currently approved TIA is anticipated to start in 2025; identified as Phase 5 in Section 3. Ultimate timing will depend on when the currently approved TIA reaches full capacity.

The schedule is also subject to further geotechnical engineering study and ongoing resource estimation, mine planning and additional financing.

9.0 Funding

The Project will be funded by share capital and will not involve any government funding.

10.0 Consultations

Consultation is a central objective of the environmental assessment process, with the goal of identifying and addressing issues and concerns related to the Project.

Since the Scully Mine was acquired by TACORA on July 18, 2017, TACORA has been in regular contact with the non-Aboriginal communities as well as with the Indigenous governments and organizations having a stated interest to the area. These community and stakeholder consultation activities have included meetings with Mayors and Councils, local businesses, Indigenous leaders, local provincial and federal political representatives, local interest groups and provincial and federal regulators. TACORA is dedicated to providing early and clear information to the community and working with all communities towards the common goal of positive, respectful and sustainable development in the area.

Project design and implementation will include consideration of information resulting from ongoing consultation with the communities, traditional environmental knowledge, engineering considerations and best management practices. These consultations will ensure a close working relationship with the local communities with respect to their involvement in the provision of labour and in the supply of goods and services to the Project.

TACORA has initiated dialogue regarding the Project with concerned stakeholders including early initiation of contact with identified Indigenous groups with claims overlapping the site; local community groups, regulators and cabin owners. The information below provides an outline of the groups involved.

10.1 LOCAL COMMUNITIES

Discussions with the local communities has been detailed and are ongoing. Through regular meetings with Mayors, Councils, town administrators, other representatives and community organizations, the communities have been informed of the on-going development of the Project.

10.1.1 Municipal, Provincial, and Federal Government

TACORA met with the following municipal, provincial, and federal government officials, regulators and stakeholders:

Engagement Description	Date
Federal Government –Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), Impact Assessment Agency of Canada (IAAC)	15-Apr-21
Provincial Government – Department of Environment and Climate Change	20-Apr-21
Town of Wabush	20-May-21
Government of Canada - MP Yvonne Jones	25-May-21
Government of NL - MHA Jordan Brown	25-May-21

10.1.2 Local Cabin Owners

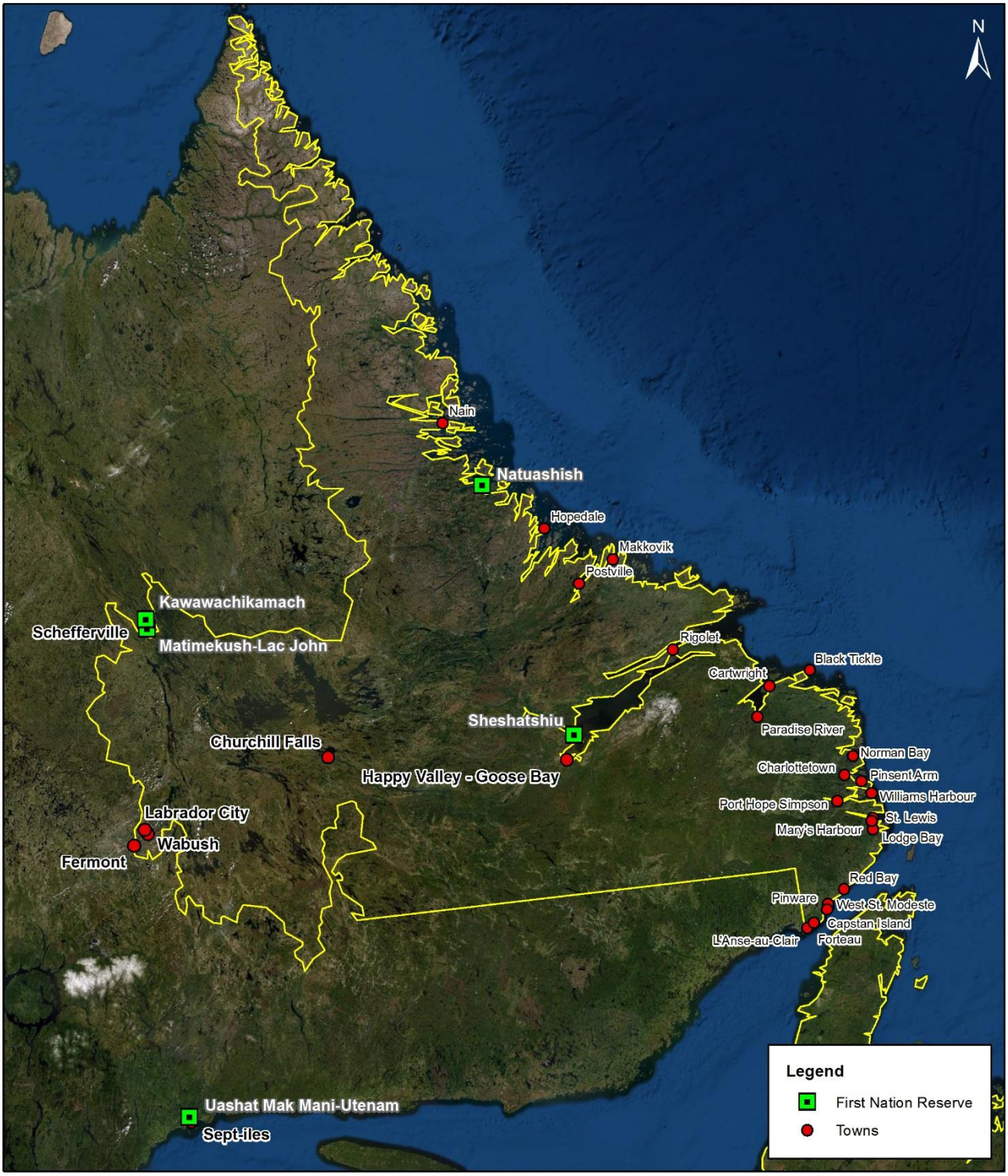
TACORA met with local cabin owners on May 20, 2021, to introduce the Project and discuss any potential concerns of the individuals who may be impacted.

10.2 ABORIGINAL GOVERNMENTS AND ORGANIZATIONS

The Quebec-Labrador Peninsula area has five distinct Aboriginal groups claiming traditional and Aboriginal rights to all or part of the Project Area. The communities served by these groups and organizations are shown in Figure 10.1. Several of the Aboriginal governments and organizations have overlapping territorial or land claims. This regional overlapping of Aboriginal rights prompted the Government of Canada to establish an Overlapping Commission in November 2010. This Commission will provide a forum to address the issues of jurisdictional overlap for the territories and the sharing of economic development initiatives as a result of mining and hydro-electric development in the region.

The Aboriginal governments/organizations potentially affected by the Project are the Innu Nation of Labrador, the Naskapi Nation of Kawawachikamach (NNK), the Innu Nation of Matimekush-Lac John (MLJ), the Innu Nation of Takuaikan Uashat Mak Mani-Utenam (ITUM) and NunatuKavut Community Council (NCC, formerly the Labrador Métis Nation). These groups may have overlapping land claims covering western Labrador. The Naskapi Nation is the only group with a finalized comprehensive land claim agreement; the others are in various stages of negotiation with the federal and provincial governments. However, the land claims of Quebec Aboriginal groups in Labrador have not been accepted for negotiation by the Government of Newfoundland and Labrador.

This Project involves work at an existing mine site that has operated for over 50 years. TACORA has focused the consultation process on Project awareness to ensure that no Aboriginal rights have been infringed upon as a result of the Project following indigenous consultation guidelines recommended by the Government of Newfoundland and Labrador, Intergovernmental and Indigenous Affairs Secretariat. TACORA issued letters via email to each of the five Indigenous groups on May 19, 2021 outlining the plans for register the Project with NLDEC and to offer an information session to each group to provide Project details and initiate consultations.



TACORA RESOURCES	Scully Mine TIA Expansion Project	FIGURE NO.: 10.1	PREPARED BY: sem
	Community Reference	COORDINATE SYSTEM: **NAD83 UTM Zone 19**	DATE: **05/06/2021**

10.2.1 Labrador Innu Nation

The Innu of Labrador primarily reside in two communities in central and coastal Labrador: the coastal community of Natuashish, and the Upper Lake Melville community of Sheshatshiu. Members of the Mushuau Innu First Nation reside in Natuashish and members of Sheshatshiu Innu First Nation reside in Sheshatshiu. Each community is governed by an elected Chief and Band Council. The two communities are represented by the Labrador Innu Nation, which is led by an elected Grand Chief.

The Labrador Innu claim Aboriginal rights and title to most of Labrador. Their land claim was accepted for negotiation by the Government of Canada and the Government of Newfoundland and Labrador, with formal negotiations beginning in 1991. An Agreement-in-Principle was signed in November 2011, and a Final Agreement is presently being negotiated.

In 1998, the Mushuau and Sheshatshiu Band Councils formed the Innu Development Limited Partnership, a for profit corporation registered with the Province. It is committed to creating opportunities for employment and economic development for private Innu businesses by creating and managing equity ownership and partnerships in strategic industries.

The following is a summary of consultations to date, it is an ongoing process.

- 19-May-2021: TACORA sent a letter to the Chief and others as identified by the Government of Newfoundland and Labrador, Intergovernmental and Indigenous Affairs Secretariat.

10.2.1.1 Issues / Resolution

To date, there have been no issues identified with the Labrador Innu Nation.

10.2.2 Innu Nation of Matimekush-Lac John

The MLJ, also known as the Montagnais Innu, live primarily in the northeastern Quebec towns of Matimekush and Lac-John, near Schefferville. The community is governed by an elected Band Council consisting of a Chief and Councilors.

The Montagnais Innu voluntarily moved to the Schefferville region in the early 1950s when the QNS&L Railroad was completed. The people were traditionally members of the ITUM located adjacent to Sept-Îles. Initially, the Montagnais shared the community at Lac-John with the Naskapi who arrived in the region at the same time. The Montagnais have historical and traditional interests in the region, having historically travelled to the region from Sept-Îles to trap and hunt. The community includes the reserve of Matimekush, adjacent to Schefferville, and the reserve of Lac-John, 3.5 km from Matimekush. When IOC's Schefferville mines closed in the early 1980s, the Montagnais extended the reserve of Lac-John into the town of Schefferville, to avail of the existing infrastructure no longer in use by the town (sewer and water system, school and arena).

The following is a summary of consultations to date, it is an ongoing process.

- 19-May-2021: TACORA sent a letter to the Chief and others as identified by the Government of Newfoundland and Labrador, Intergovernmental and Indigenous Affairs Secretariat.

10.2.2.1 Issues / Resolution

To date, there have been no issues identified with the Innu Nation of Matimekush-Lac John.

10.2.3 Innu Nation of Takuaikan Uashat Mak Mani-Utenam

The ITUM are closely related to the Montagnais Innu of Matimekush-Lac John. The former have historical and traditional interests in the Project Area, as do the latter, having traditionally used the area for hunting and trapping. The ITUM live in two settlements within their reserve, Uashat and Maliotenam, both on the Quebec North Shore, near Sept-Îles. The communities are administered by a Band Council comprised of an elected Chief and Councilors. In addition to typical administrative duties, the Band Council also operates the local police force.

The ITUM joined the Matimekush-Lac John Innu in 2005 to create the Ashuanipi Corporation initially to represent them in comprehensive claims negotiations. This arrangement has been dissolved but the corporation has been revived by the ITUM to pursue economic development opportunities.

Together with the NNK and MLJ, the ITUM have acquired in interest in Tshiuetin Rail Transportation Inc. (TSH), an Indigenous-owned corporation which owns and operates the northern portion of the former QNS&L rail line between Ross Bay Junction and Schefferville.

The following is a summary of consultations to date, it is an ongoing process.

- 19-May-2021: TACORA sent a letter to the Chief and others as identified by the Government of Newfoundland and Labrador, Intergovernmental and Indigenous Affairs Secretariat.

10.2.3.1 Issues / Resolution

To date, there have been no issues identified with the ITUM.

10.2.4 Naskapi Nation of Kawawachikamach

The NNK was originally a small nomadic tribe, settling in Fort Chimo in the mid-1800s, before moving to Schefferville in the 1950s. The Naskapi relocated to the present site of Kawawachikamach, approximately 16 km north of Schefferville in the 1980s following the James Bay Settlement.

Between 1981 and 1984, self-government legislation was negotiated with the federal government. These negotiations resulted in the Cree-Naskapi (of Quebec) Act and led to the formation of the

Naskapi Band of Quebec in 1984. The Naskapi Band of Quebec was one of the first self-governing Bands in Canada. The name was changed to NNK in 1999.

The community of Kawawachikamach is administered by the Band Council, consisting of an elected Chief and Councilors. In addition to typical municipal duties, the Band Council is responsible for maintaining the local police force, the local volunteer fire department, local childcare center, and local school.

The following is a summary of consultations to date, it is an ongoing process.

- 19-May-2021: TACORA sent a letter to the Chief and others as identified by the Government of Newfoundland and Labrador, Intergovernmental and Indigenous Affairs Secretariat.

10.2.4.1 Issues / Resolution

To date, there have been no issues identified with the NNK.

10.2.5 NunatuKavut Community Council

Membership of the NCC, also identified as NunatuKavut, self-identify as Southern Inuit, as per the 2010 land claim document entitled Unveiling NunatuKavut. NunatuKavut states that its 6,000 members live in 23 Labrador communities, seventeen of which are on the southeast coast from Paradise River to L'Anse au Clair. It also states that members reside in six other communities in central and western Labrador, including Happy Valley-Goose Bay and Labrador City.

NunatuKavut is led by a President and Council. Since its formation as a society in 1981 (as LMN – Labrador Metis Nation), and its incorporation under provincial law in 1985, NunatuKavut has grown to become the largest Aboriginal group in Labrador. As a not-for-profit organization, NunatuKavut is committed to promoting and ensuring the basic human rights of its members as Aboriginal persons, and the collective recognition of these rights by all levels of government. NunatuKavut is an affiliate of a national Aboriginal organization, the Congress of Aboriginal Peoples.

NunatuKavut has filed a comprehensive land claim with the province of Newfoundland and Labrador as well as with the Federal government of Canada.

The following is a summary of consultations to date, it is an ongoing process.

- 19-May-2021: TACORA sent a letter to the President and others as identified by the Government of Newfoundland and Labrador, Intergovernmental and Indigenous Affairs Secretariat.

10.2.5.1 Issues / Resolution

To date, there have been no issues identified with the NCC.

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APPENDIX A

List of Species Known
From eBird Website

eBird Checklist for the Labrador West Area

Waterfowl
- Snow Goose
- Brant
- Cackling Goose
- Canada Goose
- Wood Duck
- Northern Shoveler
- Eurasian Wigeon
- American Wigeon
- Mallard
- Mallard (Domestic type)
- American Black Duck
- Mallard x American Black Duck (hybrid)
- Mallard/American Black Duck
- Northern Pintail
- Green-winged Teal
- Ring-necked Duck
- Greater Scaup
- Lesser Scaup
- Greater/Lesser Scaup
- Aythya sp.
- Common Eider
- Harlequin Duck
- Surf Scoter
- White-winged Scoter
- Black Scoter
- Long-tailed Duck
- Bufflehead
- Common Goldeneye
- Barrow's Goldeneye
- Hooded Merganser
- Common Merganser
- Red-breasted Merganser

Grouse, Quail, and Allies
- Ruffed Grouse
- Spruce Grouse
- Willow Ptarmigan
- Rock Ptarmigan

Pigeons and Doves
- Mourning Dove

Nightjars
- Common Nighthawk

Swifts
- Chimney Swift

Rails, Gallinules, and Allies
- Sora

Shorebirds
- Black-bellied Plover
- American Golden-Plover
- Semipalmated Plover
- Killdeer
- Ruddy Turnstone
- Sanderling
- Dunlin
- Purple Sandpiper
- Baird's Sandpiper
- Least Sandpiper
- White-rumped Sandpiper
- Pectoral Sandpiper
- Semipalmated Sandpiper
- Short-billed Dowitcher
- Wilson's Snipe
- Spotted Sandpiper
- Solitary Sandpiper
- Greater Yellowlegs
- Lesser Yellowlegs
- shorebird sp.

Gulls, Terns, and Skimmers
- Bonaparte's Gull
- Ring-billed Gull
- Herring Gull
- Iceland Gull
- Lesser Black-backed Gull
- Glaucous Gull
- Great Black-backed Gull
- gull sp.
- Common Tern
- Arctic Tern
- Common/Arctic Tern

Loons
- Red-throated Loon
- Common Loon

Cormorants and Anhingas
- Double-crested Cormorant

Herons, Ibis, and Allies
- American Bittern
- Great Blue Heron

Vultures, Hawks, and Allies
- Black Vulture
- Osprey
- Golden Eagle

Northern Harrier
Sharp-shinned Hawk
Northern Goshawk
Bald Eagle
Red-tailed Hawk
Rough-legged Hawk

Owls

Great Horned Owl
Snowy Owl
Long-eared Owl
Short-eared Owl
Boreal Owl

Kingfishers

Belted Kingfisher

Woodpeckers

American Three-toed Woodpecker
Black-backed Woodpecker
Downy Woodpecker
Hairy Woodpecker
Northern Flicker
woodpecker sp.

Falcons and Caracaras

American Kestrel
Merlin
Peregrine Falcon

Tyrant Flycatchers: Pewees, Kingbirds, and Allies

Olive-sided Flycatcher
Yellow-bellied Flycatcher
Alder Flycatcher

Least Flycatcher
Eastern Kingbird

Vireos

Blue-headed Vireo
Red-eyed Vireo

Shrikes

Northern Shrike

Jays, Magpies, Crows, and Ravens

Canada Jay
American Crow
Common Raven

Tits, Chickadees, and Titmice

Black-capped Chickadee
Boreal Chickadee

Larks

Horned Lark

Martins and Swallows

- Tree Swallow
- Bank Swallow
- Barn Swallow
- swallow sp.

Kinglets

- Golden-crowned Kinglet
- Ruby-crowned Kinglet

Nuthatches

- Red-breasted Nuthatch

Starlings and Mynas

- European Starling

Catbirds, Mockingbirds, and Thrashers

- Northern Mockingbird

Thrushes

- Gray-cheeked Thrush
- Swainson's Thrush
- Hermit Thrush
- American Robin

Waxwings

- Bohemian Waxwing
- Cedar Waxwing

Wagtails and Pipits

- American Pipit

Finches, Euphonias, and Allies

- Evening Grosbeak
- Pine Grosbeak
- Purple Finch
- Common Redpoll
- Hoary Redpoll
- Red Crossbill
- White-winged Crossbill
- Pine Siskin
- American Goldfinch

Longspurs and Snow Buntings

- Lapland Longspur
- Snow Bunting

New World Sparrows

- Chipping Sparrow
- American Tree Sparrow
- Fox Sparrow
- Dark-eyed Junco
- White-crowned Sparrow
- White-throated Sparrow
- Savannah Sparrow
- Song Sparrow
- Lincoln's Sparrow
- Swamp Sparrow

Blackbirds

- Red-winged Blackbird
- Rusty Blackbird
- Common Grackle

Wood-Warblers

- Northern Waterthrush
- Black-and-white Warbler
- Tennessee Warbler
- Orange-crowned Warbler
- Northern Parula
- Yellow Warbler
- Blackpoll Warbler
- Yellow-rumped Warbler
- Wilson's Warbler
- warbler sp. (Parulidae sp.)

Cardinals, Grosbeaks, and Allies

- Rose-breasted Grosbeak

APPENDIX B

TACORA Environmental Protection Plan

Environmental Protection Plan

Scully Mine Operations

Prepared for:

Government of Newfoundland & Labrador
Department of Environment and Climate Change
50 Elizabeth Avenue
P.O. Box 8700
St. John's, NL, Canada
A1B 4J6

TACORA Resources, Inc.
Scully Mine
Wabush, NL

July 9, 2021

Prepared by:

Tacora Resources, Inc.
102 NE Third Street, Suite 120
Grand Rapids, Minnesota, USA
55744

Sikumiut Environmental Management Ltd.
79 Mews Place
St. John's, NL, Canada
A1B 4N2

www.tacoraresources.com

Environmental Policy

July 2021

Tacora Resources Inc. is a sustainable mining company globally recognised for iron ore mining and processing abilities. We commit to responsible mining and environmental stewardship, making every site more capable of performing to expectations and regulations set by our stakeholders.

We strongly believe that our operations must build a sustainable future for our employees, partners, stakeholders, and the communities in which we operate. We respect and consider the rights, interests, concerns, traditional land uses, and cultural activities of Indigenous peoples within our sphere of influence.

The extraction and processing of iron ore provide raw materials essential for modern society, but they also impact the environment. We commit to reducing hydrocarbon consumption and carbon gas emissions, conserving water, improving air quality, and reducing our generation of waste.

At Tacora, we hold ourselves accountable to our sustainability obligations, strive towards a high level of performance, lead by example, and take action to protect the health of our employees, our community, and our planet. It is a shared responsibility, requiring the active commitment and participation of all our leaders, employees, and contractors. Working together, we will create a sustainable future.

OUR GUIDING PRINCIPLES

1. We commit to responsible mining and environmental stewardship and firmly believe that our operations must be accomplished in a manner that minimizes our environmental footprint.
2. We work towards optimising energy use, reducing emissions from the business, and substituting fossil energy with green electricity.
3. We will consider compliance with laws and regulations, permits, and related agreements to be a minimum and build on this foundation.
4. We will reduce the consumption of freshwater in our operations.
5. We will inform all employees and contractors of their responsibility to comply with this policy and to be sensitive to the effects of Scully Mine's operations on the environment. We encourage and empower employees to suggest improvements.
6. We will contribute to developing and administering technically and economically sound environmental standards, regulations, and compliance procedures through interaction with professional and trade groups, legislative bodies, regulatory agencies, and citizens' organizations.
7. We will establish procedures for reporting, responding to, and correcting any conditions or incidents with the potential for adverse environmental impact.
8. We will maintain open and transparent communication with the community and any concerned stakeholders about Tacora's environmental policy, plans, and environmental performance.
9. We will ensure state-of-the-art and innovative reclamation practices are incorporated into the planning and operations for sites and facilities where appropriate.
10. We respect and consider the rights, interests, concerns, traditional land uses, and cultural activities of Indigenous peoples within our sphere of influence.

Thierry Martel
President and CEO

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List of Acronyms & Abbreviations

CCG	Canadian Coast Guard
CofA	Certificate of Approval
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
ECWSR	Environmental Control Water & Sewer Regulations
EHS	Environmental, Health & Safety
EPP	Environmental Protection Plan
FAA	Fisheries Act Authorization
km²	square kilometers
MDMER	Metal and Diamond Mining Effluent Regulations
MoA	Memorandum of Agreement
NLDECC	Newfoundland and Labrador Department of Environment and Climate Change
NLDNR	Newfoundland and Labrador Department of Natural Resources
OHS	Occupational Health & Safety
PAO	Provincial Archaeology Office
QNS&L	Quebec North Shore & Labrador
RHL	revision history log
RNC	Royal Newfoundland Constabulary
SEM	Sikumiut Environmental Management Ltd.
SDS	Safety Data Sheet
TACORA	Tacora Resources Inc.
TDG	Transportation of Dangerous Goods
TIA	Tailings Impoundment Area
WDF	Waste Disposal Facility
WHMIS	Workplace Hazardous Materials Information System
WMP	Waste Management Plan
WWTP	Waste Water Treatment Plant

1.0 Introduction

TACORA Resources Inc. (TACORA) is committed to the mitigation of the environmental impacts of their activities during the operation of the Scully Mine. An Environmental Protection Plan (EPP) has been developed for this mine to document practices and procedures that will serve to minimize or eliminate potential environmental impacts resulting from the mine. This EPP has been written to satisfy requirements by Fisheries and Oceans Canada (DFO) under the *Fisheries Act,* and the Newfoundland and Labrador Department of Environment and Climate Change (NLDECC) under the *Environmental Protection Act.*

1.1 PURPOSE

Environmental protection is a key consideration during project operation. The EPP demonstrates a practical understanding of the environmental regulations, practices and procedures required to reduce or eliminate the potential environmental effects of the project. The EPP is a reference document that serves as a tool in achieving environmental management objectives and ensuring environmental regulatory compliance during the operation of the project. The EPP is also a field document to provide guidance in the undertaking of specific tasks outlined therein.

This document provides descriptions of applicable environmental protection measures against which performance can readily be assessed and the need for additional corrective measures can be determined. It is to be available to all relevant staff and contractors in order to ensure that each is aware of their responsibilities and of the procedures to be used in the management of this work.

1.2 ORGANIZATION OF THE EPP

The EPP guides the implementation of environmental protection procedures for both routine activities and unplanned events associated with the project. The style and format of the EPP is intended to facilitate usage by field personnel, as well as those wishing to revise or expand the document.

Section 1.0 is an introduction to the EPP, including the main purpose, its organization, an outline of roles and responsibilities, and guidelines for revising and updating the document.

Section 2.0 presents an overview of the general activities associated with the operation of the Scully Mine.

Section 3.0 provides a list of the permits and approvals required for the Project.

Section 4.0 provides descriptions of environmental concerns associated with project activities, as well as environmental protection procedures designed to address these concerns and mitigate potential impacts.

Section 5.0 is an overview of contingency plans for accidental or unplanned events.

Section 6.0 provides the contact information for key environmental and emergency personnel.

Section 7.0 presents a list of references consulted in the creation of this EPP.

1.3 ROLES AND RESPONSIBILITIES

TACORA Resources Inc. will:

- Develop an approved EPP and keep it current through subsequent revisions to those specified in the EPP Distribution List (Appendix A);
- Monitor and inspect work to ensure compliance; and
- Liaise with stakeholders and relevant government agencies as required.

The Environmental Technician/Coordinator will:

- Distribute the EPP and any revised versions;
- Ensure the implementation of the EPP;
- Act as TACORA's representative on-site;
- Report to Environment Superintendent;
- Review revision requests;
- Conduct a review of the EPP on an as-needed basis;
- Maintain document control;
- Hold an environmental orientation session for the contractor and its personnel, and any other personnel to be involved in the mine on an as-needed basis;
- Ensure EPP holders and their staff are familiar with the EPP and its procedures;
- Ensure that all applicable approvals, authorisations and permits are obtained;
- Monitor or designate a representative to monitor project work to ensure compliance with the EPP, and all regulatory requirements and commitments;
- Report to the Environment Superintendent and or Health, Safety and Environmental (HSE) Manager, and/or appropriate agency all incidents of non-compliance.
- Confirm that TACORA workers and contractors/sub-contractors are familiar with the EPP and its procedures and maintain a master file of all EPP orientation efforts and signature sheets;
- Implement the EPP on site and confirm that all workers are aware of the EPP and their responsibilities under the plan;
- Monitor or designate a representative to conduct environmental compliance monitoring; and

- In the event of an emergency, contact the appropriate reporting agency as indicated in the EPP immediately, as well as the Environmental Superintendent.

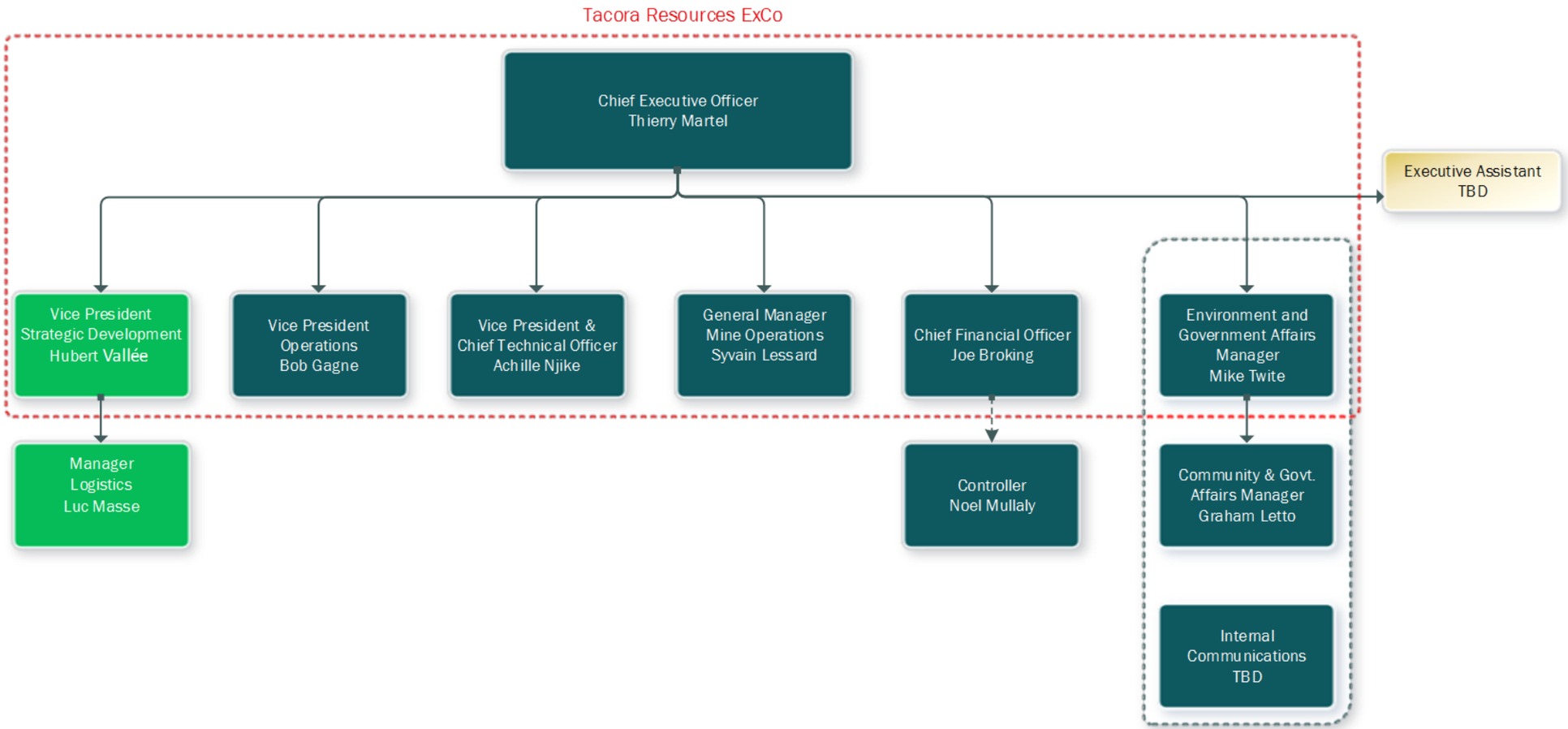
The Environmental Superintendent will:

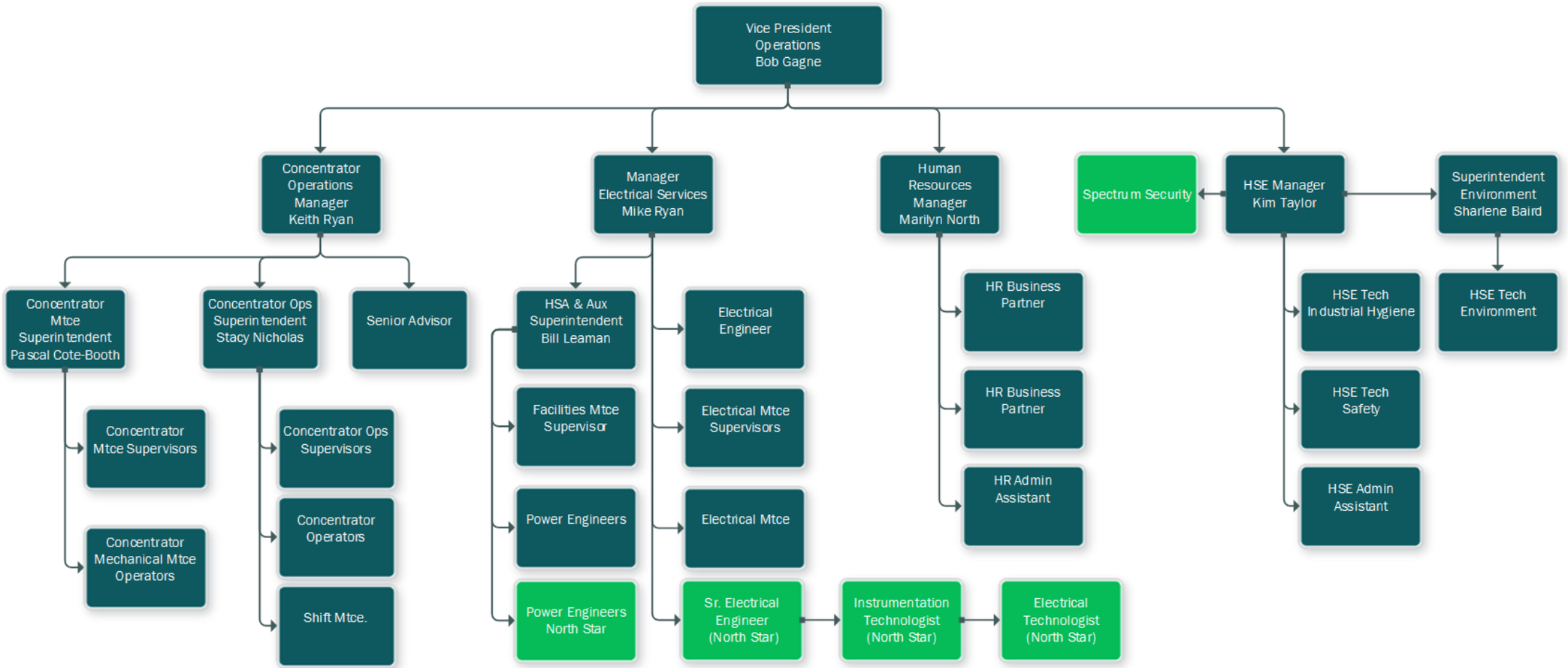
- Act as TACORA's representative on-site;
- Be responsible for environmental protection and report any environmental concerns or cases of non-compliance to the HSE Manager; and
- Communicate with the Environmental Technician/Coordinator about proposed work activities so that all applicable approvals, authorizations and permits can be obtained.

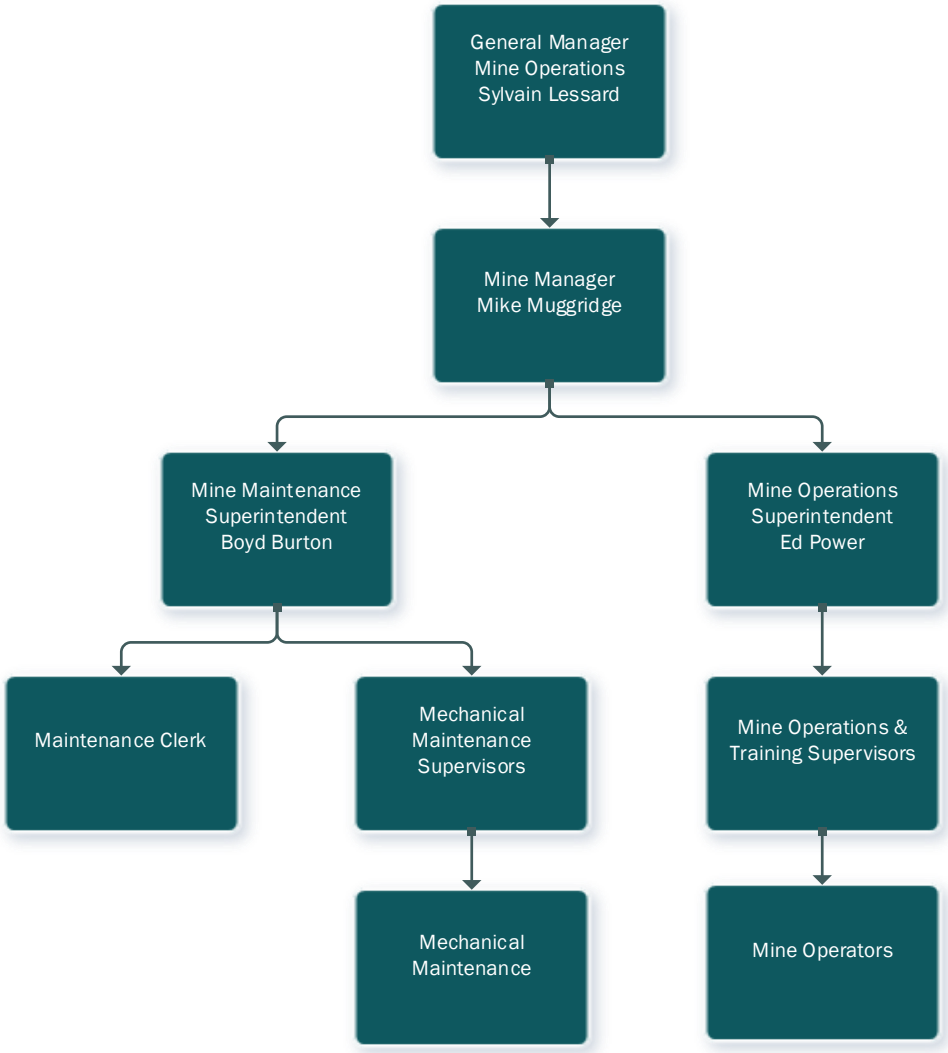
All contractors, subcontractors, TACORA representatives, and site personnel will:

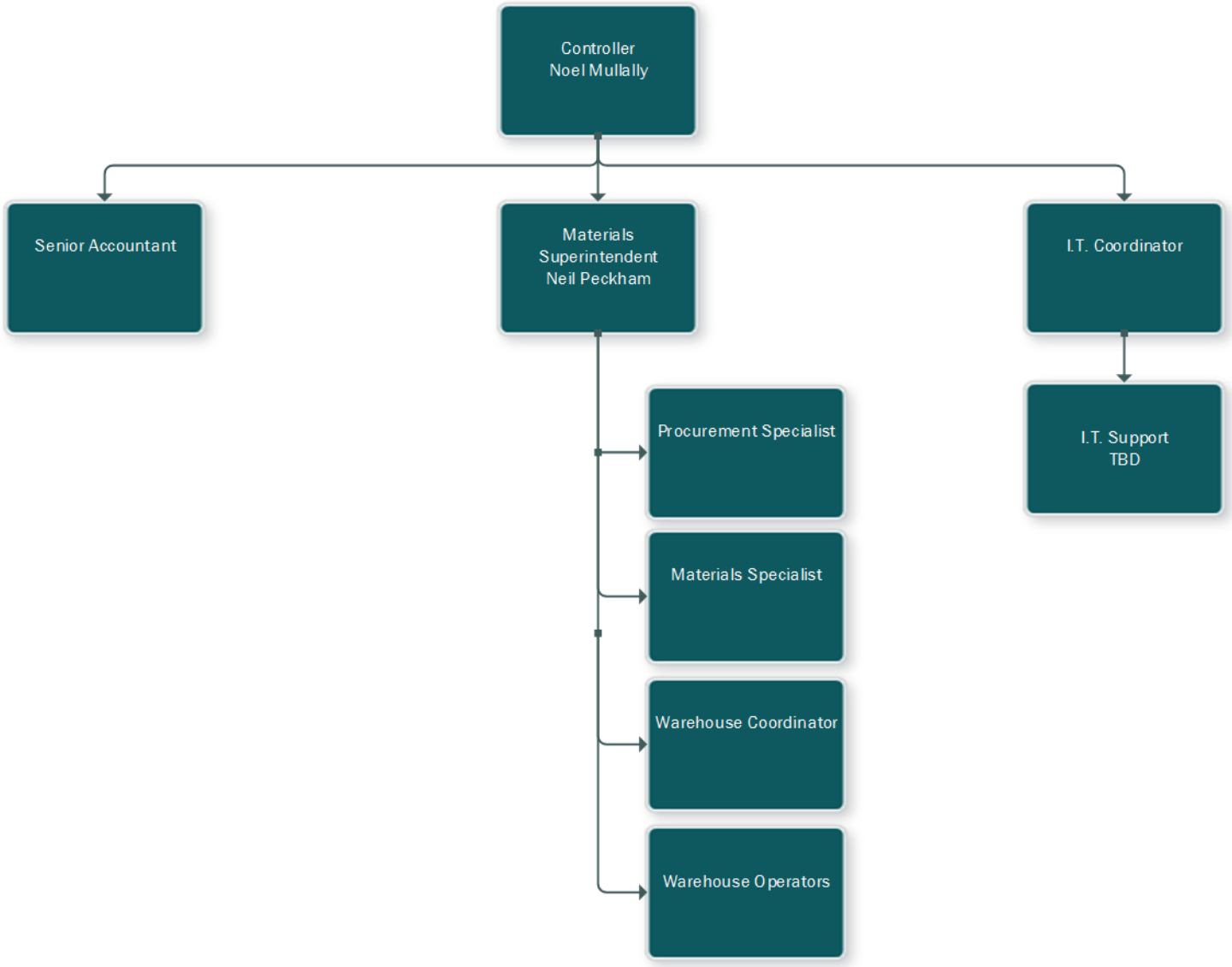
- Familiarize themselves with the EPP and any revisions;
- Sign that they have read, understood, and accept the conditions of the EPP prior to being approved to conduct work;
- Implement the EPP commitments;
- Confirm all personnel and subcontractors comply with the EPP, all requirements of the contract and with all applicable laws and regulations;
- Maintain a training record (record of names and dates when training was administered) and provide it to the Environmental Superintendent upon request;
- Obtain all applicable approvals, authorizations and permits required to conduct the work and provide copies to the HSE Department;
- Implement any conditions outlined in approvals, authorizations and permits;
- Carry out clean-up, reclamation or restorative measures as directed by the Environment Team and/or appropriate government agency; and
- Contribute feedback to the Environmental Team any changes/comments they feel would improve the quality of the EPP.

1.4 ORGANIZATIONAL CHARTS




Vice President Operations Bob Gagne
Concentrator Operations Manager Keith Ryan
Manager Electrical Services Mike Ryan
Human Resources Manager Marilyn North
Spectrum Security
HSE Manager Kim Taylor
Superintendent Environment Sharlene Baird
Concentrator Mtce Superintendent Pascal Cote-Booth
Concentrator Ops Superintendent Stacy Nicholas
Senior Advisor
HSA & Aux Superintendent Bill Leaman
Electrical Engineer
HR Business Partner
HR Business Partner
HR Admin Assistant
HSE Tech Industrial Hygiene
HSE Tech Safety
HSE Admin Assistant
HSE Tech Environment
Concentrator Mtce Supervisors
Concentrator Mechanical Mtce Operators
Concentrator Ops Supervisors
Concentrator Operators
Shift Mtce.
Facilities Mtce Supervisor
Electrical Mtce Supervisors
Power Engineers
Electrical Mtce
Power Engineers North Star
Sr. Electrical Engineer (North Star)
Instrumentation Technologist (North Star)
Electrical Technologist (North Star)


General Manager
Mine Operations
Sylvain Lessard
Mine Manager
Mike Muggridge
Mine Maintenance
Superintendent
Boyd Burton
Mine Operations
Superintendent
Ed Power
Maintenance Clerk
Mechanical
Maintenance
Supervisors
Mine Operations &
Training Supervisors
Mechanical
Maintenance
Mine Operators


Controller
Noel Mullally
Senior Accountant
Materials
Superintendent
Neil Peckham
I.T. Coordinator
Procurement Specialist
Materials Specialist
Warehouse Coordinator
Warehouse Operators
I.T. Support
TBD

1.5 EPP DEVELOPMENT AND IMPLEMENTATION

This EPP focuses on the activities occurring during the operation of the Scully Mine. The EPP is structured in such a way that revisions and additions to the document will require minimal effort to allow changes as work progresses.

To effectively manage and implement the EPP, several mechanisms have been identified: adequate communication among field and office personnel, environmental orientation, and regular job hazard analyses and toolbox meetings which incorporate environmental issues.

1.5.1 EPP Revisions and Updates

The EPP will be revised as necessary to reflect site-specific environmental protection requirements and allow updates as work progresses. All EPP holders may initiate revisions by forwarding proposed revisions to the Site Manager and/or the Environmental Superintendent. The following information will be provided on a Revision Request Form (Appendix B) for all revision requests:

- section to be revised;
- nature of the revision;
- rationale for the revision (i.e., environment/worker safety); and
- who submitted the revision request.

Revisions to the EPP must be approved by TACORA prior to distribution by the Environmental Superintendent and/or Technician/Coordinator. Approved revisions will be documented in a revision history log (RHL, Appendix C) and accompanied by:

- revision instructions;
- list of sections being superseded; and
- updated Table of Contents indicating the status of each section in the EPP.

When EPP Holders receive a revision, they will:

- confirm that all the listed pages have been received;
- read the text of the revision;
- update their copy of the EPP; and
- confirm that their personnel are familiar with the revisions.

At the end of each calendar year, a review and update of the EPP will be conducted by the Environmental Superintendent and/or Technician/Coordinator. In the event of a change in work activities, legislation or the terms and conditions of permits and approvals, specific sections of the EPP will be reviewed and updated as necessary by the Environmental Superintendent.

1.5.2 Environmental Orientation

Through an environmental orientation and ongoing awareness training throughout the Project, TACORA will confirm that all employees understand the potential environmental effects of the overall project and their specific work activities in addition to their roles and responsibilities. The orientation will include a presentation on environmental protection procedures to be applied to all work. All necessary precautions will be taken during the work program to reduce the potential for spills. To achieve this, employees will receive orientation in spill response and reporting procedures. To report environmental emergencies, 24 hour security number will be clearly posted in all work areas.

1.5.3 Job Hazard Analysis and Tool Box Meetings

Prior to a work crew undertaking a new task or activity, TACORA will require that all staff and contractors complete a job hazard analysis. The job hazard analysis shall provide an overview of the specific tasks to be conducted to identify any potential safety or environmental issues that may be encountered. It is the responsibility of the HSE organization to ensure these job hazard analysis forms are administered to the appropriate personnel as part of the Occupational Health & Safety (OHS) Program, and to ensure they are received and filed in the appropriate location following completion. The direct supervisor will undertake the job hazard analysis with input from employees. This job hazard analysis will be followed by regular HSE tool box meetings.

Toolbox meetings are short meetings that are held with work crews and supervisors at the beginning of each work shift. The topics usually discussed are the work tasks for the shift and the safety and environmental concerns or hazards associated with each task. Such meetings also provide the opportunity to discuss any environmental issues and required mitigation measures associated with each work task.

2.0 Project Overview

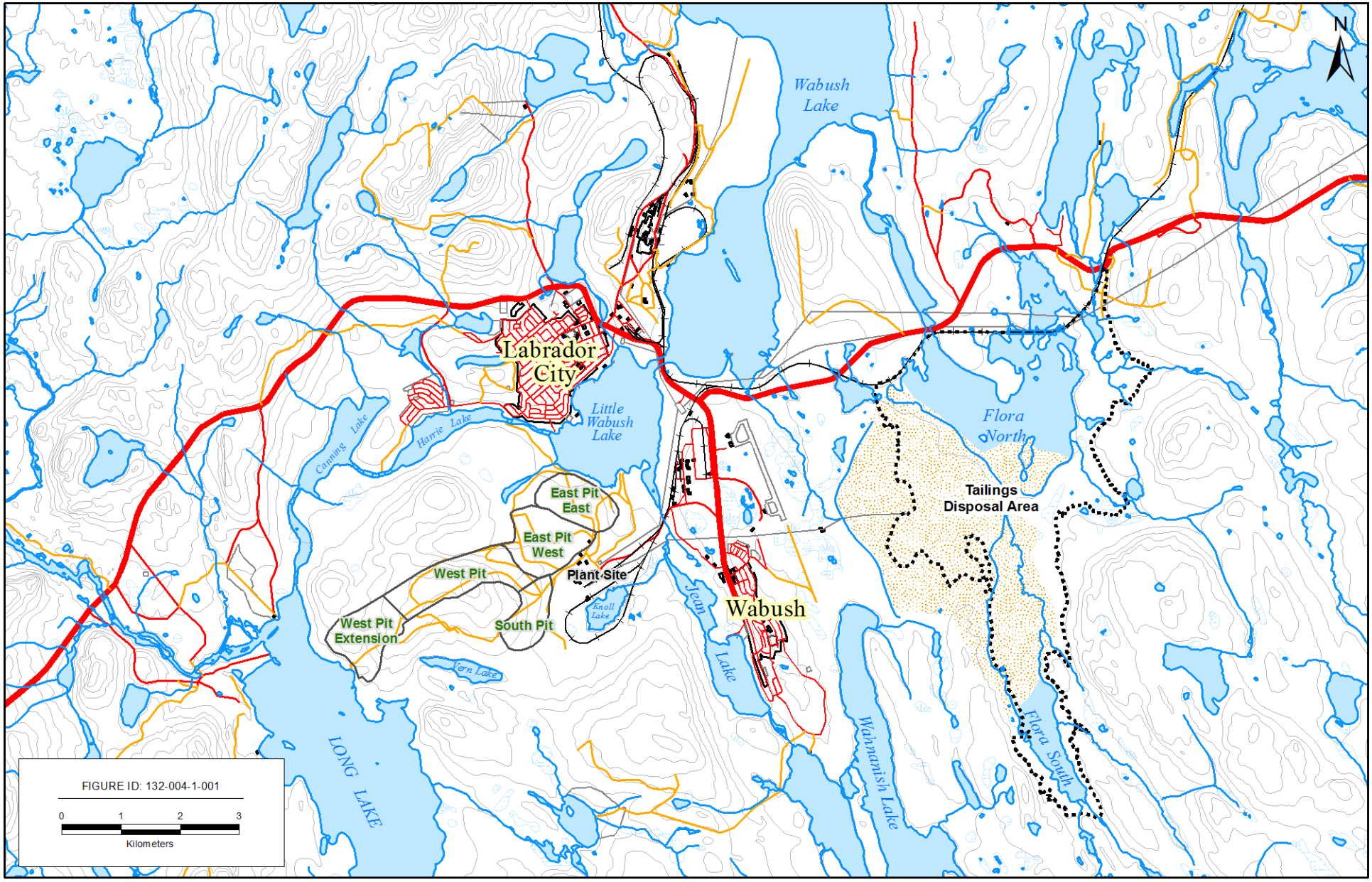
TACORA Resources Inc. (TACORA) operates the Scully Mine and Mill located in Wabush, Newfoundland and Labrador. The Mine Plan has been developed for a period of 26 years, from 2018 through to the end of 2044. The Scully Mine is expected to reach an annual production rate of 6.1 million metric tonnes at full operation and is on schedule to do so by 2021.

An overview of the Scully Mine Operation is presented below.

2.1 MINE SITE OPERATION

TACORA is a conventional open pit mining operation located in the southwest corner of Labrador approximately three kilometres from the Town of Wabush as shown in Figure 2.1. The mine pits are located west of the Town of Wabush and south of the Town of Labrador City and are accessed via the plant access road off Hwy 530. The tailings management area (Flora Lake) is situated east of the Town of Wabush. The ore deposit covers an area of approximately 23 square kilometres (km^2).

The Scully Mine consists of open pit mines, a concentrator and support processing facilities, waste rock and tailings management facilities and a spur railway line that connects to the Quebec North Shore and Labrador (QNS&L) Railway.



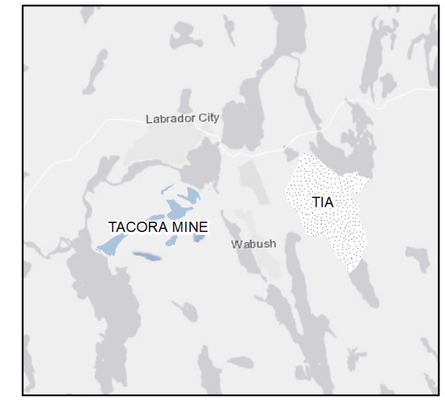
TACORA RESOURCES	TACORA Environmental Protection Plan	FIGURE NO: **Figure 2.1**	PREPARED BY: SEM
	Tacora Mine Site Overview	COORDINATE SYSTEM: **UTM Zone 19**	DATE: **02/07/2020**

TACORA plans to operate the reactivated mine in a safe, methodical and environmentally responsible manner that follows the steps specified in the CY2020 Operating Plan submitted to the Newfoundland and Labrador Department of Natural Resources (NLDNR) in February 2020. The major components of the mine operation include:

- Open Pit Dewatering;
- Mining and Beneficiation;
- Progressive Rehabilitation of Disturbed Areas;
- Waste Rock and Special Waste Materials Management;
- Tailings and Effluent Management; and
- Site Infrastructure Repair and Improvement.

The operational Scully Mine will have annual production capacity reaching 6.1 million metric tonnes of iron concentrate by 2021 – an increase of 0.5 million metric tonnes of concentrate from 2020 operations. The concentrate will be shipped on the QNS&L Railway to SFP Pointe-Noire facilities in Quebec and then shipped throughout Europe and Asia. Scully Mine mineral reserves support mining operations for a period of 26 years; from 2018 through to the end of 2044. The current Tailings Impoundment Area (TIA) supports operations for an additional 16 years, thus revisions to the Mine Development Plan will be required to mine beyond 2034 projections. To realize the full economic reserve by 2044, the Mine Development Plan will be revised to include the expansion of the current TIA and/or the development of additional Tailings Management Facilities.

Figures 2.2 and 2.3 depict existing mine and Tailings Management Area site plans, respectively.



Legend

- Infrastructure
- Railway
- Road
- Water
- Settling Basin

FIGURE ID: 132-004-1-007

0 250 500 750

Meters

TACORA Environmental Protection Plan

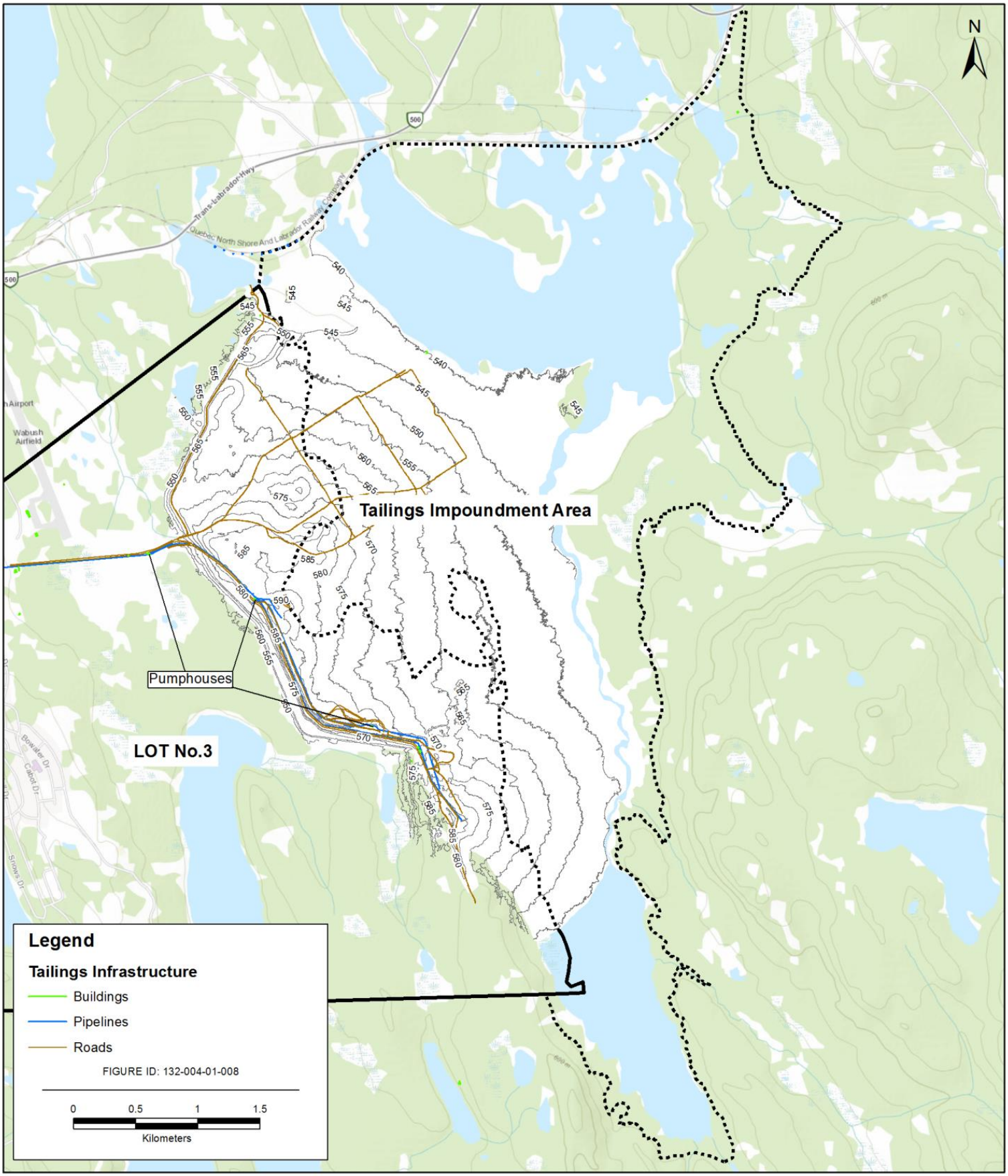
Tacora Mine Site Plan

TACORA RESOURCES

Figure 2.2

UTM Zone 19

02/07/2020



TACORA RESOURCES	TACORA Environmental Protection Plan	FIGURE NO: **Figure 2.3**	PREPARED BY: SEM
	TIA Site Plan	COORDINATE SYSTEM: **UTM Zone 19**	DATE: **02/07/2020**

3.0 Regulatory Requirements

3.1 PERMITS, APPROVALS AND AUTHORIZATIONS

3.1.1 Applicable Federal and Provincial Regulations

Criteria are established in the following Newfoundland and Labrador and Federal legislation:

- Newfoundland and Labrador *Water Resources Act*
  - *Environmental Control Water and Sewer Regulations, 2003* (ECWSR)
  - *Water Use Charges Regulations, NLR 60/16*
- Newfoundland and Labrador *Forestry Act*
  - *Forest Fire Regulations, CNLR 11/96*
- Newfoundland and Labrador *Historic Resources Act*
- Newfoundland and Labrador *Environmental Protection Act*
  - *Air Pollution Control Regulations, 2004*
  - *Halocarbon Regulations*
  - *Storage and Handling of Gasoline & Associated Products Regulations, 2003*
  - *Used Oil Control Regulations*
  - *Heating Oil Storage Tank System Regulations, 2003*
  - *Storage of PCB Wastes Regulations, 2003*
  - *Waste Management Regulations, 2003*
- Newfoundland and Labrador *Occupational Health and Safety Act*
  - *Occupational Health and Safety Regulations, 2012*
- Newfoundland and Labrador *Mining Act*
  - *Mining Regulations*
- Federal *Aeronautics Act, 1985*
  - *Wabush Airport Zoning Regulations*
- Federal *Fisheries Act*
  - *Metal and Diamond Mining Effluent Regulations* (MDMER)
- Federal *Transportation of Dangerous Goods Act, 1992*
- Federal *Explosives Act*
  - *Explosives Regulations, 2013*

3.1.2 Required Regulatory Authorizations

The Project obtained several regulatory authorizations for ongoing operations. Table 3.1 lists these approvals, applicable dates and issuing authority.

Table 3.1 Tacora Mine Permits.

Issuing Department	Title	Date Issued	Expiry Date
Federal			
Environment and Climate Change Canada (ECCC)	Amendment To The Metal and Diamond Mining Effluent Regulations Designating Flora Lake and Three Streams as a Tailings Impoundment Area (TIA)	Feb 5, 2009	N/A
Fisheries and Oceans Canada (DFO)	Fisheries Act Authorization (FAA) for the Vern-Hay Project	Amended January 15, 2018	N/A
Provincial			
Newfoundland and Labrador Department of Environment and Climate Change (NLDECC)	Water Use License – Industrial (Mining), (WUL-18-9503)	January 18, 2018	January 18, 2023
	Water Use License – Industrial (Mining-Pit Dewatering), (WUL-18-9504)	January 18, 2018	January 18, 2023
	Certificate of Approval (CofA), (#AA18-015646)	January 22, 2018	January 22, 2023
	Memorandum of Agreement (MoA) Hydrometric and Water Quality Stations – Tacora Mine	July 19, 2017	March 31, 2022
Newfoundland and Labrador Department of Natural Resources (NLDNR)	Mill License (ML-TRI-01)	Oct 19, 2018	October 31, 2023
	Development Plan	January 23, 2018	Update required every 5 years
	Reclamation and Closure Plan	January 23, 2018	Update required every 5 years
Service NL	Certificate of Approval (CofA), Waste Management (LB-WMS20-01023J)	January 1, 2020	December 31, 2020

3.2 ENVIRONMENTAL COMPLIANCE MONITORING

Compliance monitoring is required to ensure that applicable regulatory requirements are met. Compliance monitoring also ensures that commitments made during the environmental assessment process have been respected. Compliance monitoring requirements will entail the following monitoring activities:

- Air quality monitoring;
- Water quality monitoring including groundwater and surface water;
- Waste and raw materials monitoring including fuel and chemical; and
- Incidents and complaints monitoring.

Additional regulatory compliance monitoring may be stipulated in the conditions of permits and approvals.

4.0 Procedures

This section provides an overview of general environmental protection procedures required for activities associated with the operation of the Scully Mine.

4.1 FUEL AND OTHER HAZARDOUS MATERIALS

Typical hazardous materials that may be used on-site include, but are not necessarily limited to:

- Petroleum, oil and lubricants;
- Process chemicals; and
- Explosives for site work.

4.1.1 Environmental Concerns

The uncontrolled release of fuels and other hazardous substances can lead to adverse effects on terrestrial and aquatic habitat and species, soil, groundwater quality, and human health and safety.

4.1.2 Environmental Protection Procedures

TACORA has implemented a plan titled Spill Contingency Plan Prevention and Response Actions (known herein as the TACORA Contingency Plan), which is required by the facility's Operating Certificate of Approval. The contingency plan outlines the details of the storage facilities, provides an inventory of the amounts and types of hazardous materials on-site and outlines detailed steps for environmental protection and emergency response. The general environmental protection procedures listed below will be followed to prevent and mitigate environmental incidents related to the storage, handling and transfer of fuel and other hazardous materials.

a) The *Workplace Hazardous Materials Information System (WHMIS) Regulations* under the *Occupational Health and Safety Act* will apply to all handling and storage of hazardous materials. All relevant current Safety Data Sheets (SDS) will be readily available for the site.

b) All necessary precautions will be taken to prevent and reduce the spillage, misplacement or loss of fuels and other hazardous materials. In the event of a reportable spill on-land or a spill, regardless of size, in the freshwater environment, the **Environmental Emergencies 24-Hour Report Line (1-800-563-9089)** will be contacted. A spill is defined as reportable, depending on the class and quantity of dangerous goods involved, which varies between applicable Regulations.

c) A copy of the TACORA Contingency Plan will be readily available and is the detailed plan used for spill prevention and response at this facility.

d) All fuel storage systems will be registered and comply with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003* and the *Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products* (CCME 1994).

   i. The *Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products* applies to new and existing systems with a single or total capacity of more than 4,000 liters (L).

   ii. The registered tank system shall be identified with a tag, registration certificate, or other format approved by Service NL.

e) Only workers who are properly trained in handling petroleum products and other hazardous materials will do so.

4.2 BLASTING AND DRILLING

4.2.1 Environmental Concerns

Blasting and drilling can lead to the disturbance and destruction of vegetation and historical resources, and cause noise disturbances to wildlife and humans. Blasting in or near water can affect fish but may also affect a variety of other aquatic organisms and their habitat.

4.2.2 Environmental Protection Procedures

a) All blasting work will be conducted in compliance with the appropriate permits and/or approvals and authorizations. All blasters will have a Blasters Safety Certificate and all blasting will be conducted in adherence to TACORA's safe work procedures and the OHS legislation.
b) The appropriate approvals for all magazines for explosives will be obtained.
c) Handling, transport, storage and use explosives and all other hazardous materials will follow all applicable laws, regulations, orders of Service NL and NLDNR, and the *Transportation of Dangerous Goods Act* (TDG).
d) The use of explosives will be restricted to authorized personnel who have been trained in their use.
e) Where necessary, effluent from blasted areas will be monitored and sampled as per current operating Certificate of Approvals (CofAs). Effluent will be treated, if required, prior to discharge.

f) All personnel must have training in the use of explosives and comply with safe blasting procedures established by TACORA.
g) Blasting activities will be coordinated and scheduled to minimize the number of blasts required. In order to minimize the seismic effect, blasting patterns and procedures will be used to reduce the shock wave and noise.
h) Explosives and auxiliary materials will be stored as stipulated in relevant legislation and in compliance with the operations permit.

4.3 OPEN PIT DEWATERING

4.3.1 Environmental Concerns

Site dewatering and drainage has the potential for siltation, direct fish mortality and/or habitat destruction for freshwater species.

4.3.2 Environmental Protection Procedures

a) Monitoring of site run-off will be conducted as per provincial requirements following effluent quality standards.
b) If silt is entering any waterbody, measures (e.g., filtration, silt fences, dykes) will be implemented to remove silt and/or reduce turbidity of water prior to discharging.
c) If monitoring indicates regulated water quality standards are exceeded, TACORA will develop additional protocols.

4.4 SOLID WASTE DISPOSAL

4.4.1 Environmental Concerns

Waste (i.e., domestic and industrial) could potentially cause human safety and health concerns if it is not properly controlled and/or disposed. It could also attract wildlife leading to the potential for human-wildlife conflicts.

4.4.2 Environmental Protection Procedures

A comprehensive Waste Management Plan (WMP) has been developed for the Project under separate cover. The document is a requirement of the facility's Operating Certificate of Approval and includes specific details regarding solid waste management for this site. The general procedures listed below will be followed to properly manage solid waste.

a) All solid waste (including hazardous waste) will be handled according to the provincial *Waste Management Regulations* under the Environmental Protection Act and the facility's WMP.
b) Prior to disposal, all solid waste materials shall be considered for reuse, resale, or recycling.
c) Waste accumulated on site prior to disposal will be confined, so that it does not pose an environmental or health hazard.
d) Solid waste produced by site personnel and operations will be regularly collected and disposed of at the on-site Waste Disposal Facility (WDF).
e) Burning of waste is not permitted without appropriate permits.

4.5 WASTEWATER AND SEWAGE DISPOSAL

4.5.1 Environmental Concerns

The release of untreated sewage is a potential concern to human health, drinking water quality, and aquatic ecosystems.

4.5.2 Environmental Protection Procedures

a) The plant is equipped with separate storm and sanitary sewer collection systems.
b) All sewage generated by the Project is collected in the onsite sewage infrastructure system and transported via underground piping to the onsite sewage treatment plan. This plant consists of 90,920 L/day extended aeration plant. Treated water is then discharged into Jean River.
c) The waste water treatment plant (WWTP) is subject to Schedule A of the Newfoundland and Labrador Environmental Control Water and Sewage Regulations governing discharging into a body of water.

4.6 DUST CONTROL

4.6.1 Environmental Concerns

The environmental concerns associated with dust include potential human health effects and potential effects on vegetation and aquatic ecosystems. Potential sources of dust include unpaved roads, process equipment, tailings impoundment area, storage areas and blasting activities.

4.6.2 Environmental Protection Procedures

a) Dust from operating activities (vehicle traffic) will be controlled using water as a dust suppressant.
b) Waste oil will not be used for dust control, but other agents such as calcium chloride may be used with the approval of the appropriate regulatory agencies.
c) Adherence to speed limits to minimize traffic-related dust.
d) There is a progressive rehabilitation program in effect as part of the facility's Rehabilitation and Closure Plan. This program requires periodic fertilization and grass seeding on the Tailings Impoundment Area. In addition to being a means to minimize potential fugitive dust emissions, the vegetation program is a means to minimize potential water quality degradation related to surface runoff.
e) Particulate emissions from the concentrate material handling and drying systems are controlled by installed dust collection systems. These systems have periodic inspection and maintenance programs to ensure that potential process and related dust emissions are minimized.

4.7 VEHICULAR TRAFFIC AND ROAD MAINTENANCE

4.7.1 Environmental Concerns

Vehicular traffic and associated road maintenance can potentially result in fugitive dust, emissions, and noise. Proper drainage on and around the roads is required to ensure sediment and runoff is not introduced to nearby water bodies, causing negative effects on fish and fish habitat.

4.7.2 Environmental Protection Procedures

a) All site vehicles and equipment will be properly maintained to meet emission standards.
b) Appropriate speed limits and road signage will be established and enforced to minimize environmental disturbance and accidents.
c) Heavy equipment (e.g., dump trucks and front-end loaders) will only be used in designated work areas.
d) Site roads will be graded regularly and monitored for proper drainage and signs of erosion. Appropriate action will be taken to repair roads, when necessary.
e) Roads shall be adequately ditched to allow for good drainage. Ditches shall drain into sedimentation ponds or, when not possible, into vegetated or forested areas, and never directly into a watercourse.
f) Culvert locations shall be marked, using a stake or post, to ensure they are visible during snow removal operations. This marker can also help locate the culverts in cases where they become covered with debris.

g) Dust control mechanisms will be required on the roads, which will include applying water or a calcium chloride solution.

4.8 STREAM CROSSINGS

4.8.1 Environmental Concerns

The potential environmental concerns associated with stream crossings and culvert installations include potential impacts to fish such as direct mortality, disturbances, and loss of fish habitat.

4.8.2 Environmental Protection Procedures

No work below the high-water mark of any surface water feature will be conducted without the prior notification and assessment by the Environmental Superintendent. Stream crossings will be constructed in compliance with the required Permit for Culvert Installation from NLDECC, Water Resources Management Division and any approvals required from NLDECC and DFO.

The following measures will be implemented to minimize the potential impacts of stream crossings, if stream crossings are required:

a) Avoid the entry of deleterious substances including, but not limited to, materials such as sediment and fuel to watercourses and waterbodies during watercourse crossing work.
b) A minimum buffer of undisturbed natural vegetation must be left between the access road and the bank of any watercourse that it parallels. The buffer width will be determined through the formula:

Buffer width (m) = 20 m + 1.5 x slope (%) (Gosse et al. 1998)

c) In those locations within fish habitat, where culverts are required, application will be made to NLDECC and DFO.
d) When fording any watercourse, the Environmental Guidelines for Fording from NLDECC, Water Resources Division 2018 will be applied:
    - Fording site locations should be selected to mitigate the disruption of land, vegetation, and physical features of the channel as much as possible. Key considerations include:
        i. Avoidance of spawning habitat areas;
        ii. Stable bed material (bed rock is preferred; cobbles or coarse gravel may be satisfactory; sandy and silty substrates are not considered satisfactory);
        iii. Low bank grading (permits movement of equipment into and out of channel without significant disruption of channel banks and riparian land); and
        iv. Number of locations (restrict number of fording sites by visibly marking approved locations for equipment operators).

- All vehicles will be kept mechanically sound to avoid leaks of oil, gasoline, and hydraulic fluids
- Channels will be approached at a right angle and forded by vehicles moving slowly in low gear to minimize channel bed and bank material disturbance
- Fording sites will be used as infrequently as possible
- Fording activities should be carried out during low flow conditions and halted during high flow periods to mitigate unnecessary disturbance of the channel or siltation
- All bank sections containing loose or erodible material will be stabilized using appropriate materials such as brush mats, log ramps or rock
- Necessary sloping will be accomplished by back-blading and the material removed will be deposited above the high water mark of the watercourse
- In-stream rock placement, if required, will not constrict river flow. All material will be removed from the channel once fording is no longer required.
- Under no circumstances will rock be excavated from the channel; nor will material be deposited
- When fording sites are no longer required all constructed works will be dismantled and removed from the channel

4.9 WASTE ROCK PILES

4.9.1 Environmental Concerns

Surface runoff may: contain suspended matter resulting from precipitation on waste rock piles; have an effect on the quality of nearby water bodies; and cause erosion issues nearby.

4.9.2 Environmental Protection Procedures

a) Waste rock piles will be positioned further than 60 m from the high-water line of a watercourse or if not possible, no less than 30 m.
b) The waste rock benches will have a slope gradient away from the dumping face to prevent rainwater from running over the edge of the pile, so as to limit erosion of the dump face.
c) Waste rock piles shall be located near the pits to limit haul distances.
d) Waste rock shall be piled separately from other materials, such as overburden.
e) Waste rock piles shall be progressively rehabilitated as they become inactive.
f) The design parameters for the waste rock piles (face angle, bench height, berm width and overall slope) will follow conditions of quarry permits and approvals.

4.10 LAYDOWN/STORAGE AREAS

4.10.1 Environmental Concerns

Laydown areas are required for storing and maintaining equipment and supplies during construction and operations activities associated with the Project. Potential environmental concerns for laydown areas include erosion and run-off of sediment into nearby water bodies.

4.10.2 Environmental Protection Procedures

a) Existing laydown and storage areas will be used, where feasible.
b) External storage areas will be placed on level terrain and kept free of ponding or run-off.
c) Drainage from areas of exposed soil will be controlled by grade or ditching and directing run-off away from water bodies.
d) Laydown and storage areas no longer required for construction and operations activities will be rehabilitated.

4.11 CLEARING AND GRUBBING

4.11.1 Environmental Concerns

Potential concerns during vegetation clearing include stockpiling vegetation in or near watercourses, roadways or open pits/shafts, uncontrolled burning, or potential scheduling of clearing in bird-nesting areas during nesting periods. The principal concern associated with grubbing and disposal of related debris are the potential for erosion and its associated effects on the water quality of nearby watercourses. The potential for disturbance of terrestrial animal habitat or of historic resources due to ground disturbance are also environmental concerns related to grubbing.

4.11.2 Environmental Protection Procedures

All clearing and grubbing activities shall adhere to specific measures to minimize potential effects on aquatic and terrestrial habitat, as follows:

a) Clearing activities will comply with the requirements of all applicable permits. In order to limit erosion, grubbing of the organic vegetation mat and/or the upper soil horizon shall be minimized, especially on steep slopes and along access roads
b) In the event that usable or merchantable timber is removed during vegetation clearing, TACORA will notify the NLDNR, Forest Resources.
c) Disposing of cleared un-merchantable timber, slash and cuttings by burning will comply with the *Forest Fire Regulations* (amended 2020) under the *Forestry Act*, Environmental

Code of Practice for Open Burning and the Permit to Burn (from NLDNR). At no time will a fire be left unattended.

d) Clearing and grubbing materials will not be permitted to enter any watercourse and will be piled above spring flood levels and retained for final rehabilitation efforts.

e) Chain saws or other hand-held equipment will be used in clearing vegetation except where alternative methods or equipment (e.g., mechanical harvesters) is approved by TACORA.

f) As much as possible, a minimum 15 m buffer zone of undisturbed vegetation will be maintained between the development area and all other waterbodies. In the case that a tree on the bank of a watercourse must be cut down, the root structure will be preserved in order to maintain bank stability and decrease the possibility of erosion.

g) Trees will be cut close to the ground (< 15 cm in height) to prevent uprooting of stumps and further destruction of the soil. The Environmental Protection Guidelines for Ecologically Based Forest Resource Management – Newfoundland and Labrador Department of Forest Resources and Agrifoods (NLDFRA 1998) will be adhered to.

h) Any surplus organic material shall be stored or stockpiled for site rehabilitation and re-vegetation purposes elsewhere in the project area. Topsoil and peat shall be stockpiled separately from the overburden separated by a buffer zone at a minimum distance of 20m from any waterbodies, watercourses or ecologically sensitive areas. The location of the stockpiles shall be located in clearly designated, pre-defined areas.

i) Disposal of all non-woody debris is subject to the requirements of the Waste Management Regulations, under the *Environmental Protection Act*. All associated permits and approvals will be obtained prior to these activities, and the requirements will be adhered to in those permits and approvals.

j) Grubbing activities shall be avoided in areas of high slopes near watercourses where possible. A buffer zone of 10 to 15 m shall be maintained between grubbed areas and watercourses or wetlands other than those designated for habitat compensation activities.

k) Right-of-way clearing and grubbing activities for roads and transmission lines occurring near watercourses shall follow guidance by Gosse et al 1998 – Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Labrador:

- Right-of-way widths shall be kept to a minimum – designated by road class;
- Particular care will be exercised to ensure destruction of ground vegetation during construction;
- Boundaries shall be clearly marked before clearing operations commence, particularly in buffer zones adjacent to watercourse crossings;
- Cutting will not extend to perimeter of watercourses and a buffer zone of undisturbed vegetation (at least 15 m) will be maintained;
- Leaning and fell trees will be removed from all watercourses; debris will be piled high above the water mark to ensure material cannot enter watercourses during peak flow periods;

l) Grubbing activities shall be avoided during snow clearing; and
m) Discovery of historic resources will be handled according to the procedures outlined in Section 5.3.

4.12 BUFFER ZONES

4.12.1 Environmental Concerns

Buffer zones are boundaries of undisturbed vegetation maintained along water bodies. Without adequate buffer zone vegetation, streams, ponds and lakes can potentially become laden with silt from run-off. Vegetation also provides cover for fish.

4.12.2 Environmental Protection Procedures

As much as possible, a minimum buffer zone of 15 m of undisturbed natural vegetation is to be maintained between work areas and water bodies. Where possible, additional, buffer widths will be maintained according to the guidelines shown in Table 4.1.

Table 4.1 Recommended Minimum Buffer Zone Requirements for Activities near Watercourses.

Activity	Recommended Buffer Width
Development around watercourses in urban or other developed area	15 m depending upon site specific considerations
Resource roads or highways running adjacent to water bodies	20 m + 1.5 X slope (%)
Piling of wood and slash, Grubbing	30 m
Placement of Site Trailers, Fuel storage	100 m
Source: Gosse et al. 1998.	

4.13 EROSION PREVENTION

4.13.1 Environmental Concerns

Eroded material could potentially cause siltation in water bodies and, subsequently, potentially decrease suitable habitat for aquatic and terrestrial animals.

4.13.2 Environmental Protection Procedures

a) All work relating to the construction and operations activities for the Project will be conducted according to the conditions set out in the permits and/or approvals and authorizations from the NLDECC.
b) Primary means for controlling erosion is avoiding activity that contributes to erosion.
c) Drainage ditches will be stabilized if required (e.g., lining with vegetation or rock, terracing, interceptor swales, installation of rock check dams) to reduce soil erosion. Any such measures will be properly maintained following installation.
d) All areas of exposed erodible soil will be stabilized by back-blading, grading and/or compacting to meet engineered slope requirements.
e) If an inspection reveals that silt is entering any waterbody, further mitigative measures will be implemented, such as temporary drainage ditches, siltation control (settling) ponds, ditch blocks/check dams or sediment dam traps, to intercept run-off. The necessary or appropriate measures will be determined in the field.
f) All work and laydown and storage areas will be monitored for erosion and appropriate repair action taken as necessary.
g) Existing or new siltation control structures used in this work will be monitored for excessive accumulation of sediment. Accumulated sediment will be removed from control structures to gain full effectiveness of the systems. Effluent from control structures will be released to flow overland for appropriate filtration prior to entering any waterbody.
h) Excess water will be removed from siltation control systems prior to excavation of sediment.
i) The tailings impoundment area also has an ongoing program of progressive rehabilitation that requires regular vegetation seeding and fertilization to promote growth across the area. This reduces the potential impact of surface water runoff and associated solids deposition in the waters adjacent to that area.

5.0 Contingency Plans

This section is a summary of various contingency plans and actions to address accidental or unplanned events. In the case of an accidental event, the immediate Site Representative will be informed, and the Site Representative will notify the appropriate emergency services through the appropriate chain of command. Emergency response generally includes:

- Accurately defining the problem;
- Determining if an evacuation is necessary, and in what direction;
- Ensuring hospitals and clinics have been notified, and supplying them with relevant medical information;
- Ensuring all workers and public are controlled at a safe distance from the emergency;
- Ensuring responders through their respective chain of command know plans prior to acting; and
- Reporting.

5.1 FUEL AND OTHER HAZARDOUS MATERIALS

The purpose of the Contingency Plan is to provide a means to prevent and if that is unsuccessful, to respond to any spill event of petroleum products or other hazardous materials. This plan provides the protocols for responding to spills (or potential spills) that minimize health and safety hazards, environmental damage and clean-up costs as well as defining responsibilities of response personnel. ALL spills no matter the size are to be cleaned up immediately and be reported to the Environmental Superintendent.

Any individual who discovers a leak or spill must take all steps to immediately stop the leak or spill and prevent further release of any contaminant into the environment, so long as it is safe to do so. Spill location, type of contaminant, volume and terrain condition at the spill site will be determined and reported immediately to the Environmental Superintendent and then the HSE Manager. Appropriate numbers of TACORA employees per work shift located on site will be trained in spill clean-up procedures and equipment use. These employees will act in consultation with the Environmental Superintendent and regulating authorities. The following general criteria apply to spill response scenarios:

a) Minimize danger to persons;
b) Protect water supplies;
c) Minimize pollution of watercourses;
d) Minimize area affected by spill; and
e) Minimize the degree of disturbance to the environment.

All spills in freshwater environments and spills of 70 litres or more on land must also be reported to the Canadian Coast Guard (CCG) at (709) 772-2083 or 1-800-563-9089. The Contingency Plan includes the specific reporting details for this scenario.

i. The first point of contact upon spill or leak discovery shall be site Security ((709) 987-9625), who will then contact appropriate TACORA representatives. Tacora representatives will contact the CCG.
ii. Spills are to be immediately confined and cleaned up using appropriate cleanup material, if possible.
iii. All contaminated spill cleanup material is to be transported to the on-site waste storage facility for off-site disposal as per the TACORA WMP.

5.2 WILDLIFE ENCOUNTERS

Wildlife encounters pose a potential risk for stress or injury to both the wildlife and site personnel. As a protection measure, hunting, trapping or fishing by Project personnel is not permitted on site while under the direct or indirect employment of TACORA. In an effort to mitigate the risk of wildlife encounters, the following procedures should be followed:

a) Site and working areas shall be kept clean of food scraps and garbage; and
b) The on-site WDF shall be regularly maintained, compacted, and covered in order to deter scavenging from wildlife.

In the case of any staff encountering wildlife on site, the following steps shall be followed:

a) Leave the animal alone; proceed with his/her work provided it does not interfere with their personal safety or the animal in question; or
b) If the animal presents a risk to human safety, contact site Security for appropriate assistance via (709) 987-9625.

5.3 DISCOVERY OF HISTORIC RESOURCES

There is a possibility that undiscovered archaeological sites exist within the project footprint. The *Historic Resources Act (SNL1990)* states that all archaeological sites and artifacts are the property of the Crown. It is important to TACORA that these rules are followed and therefore the following protection procedures will apply in relation to historic resources:

a) Work crews will be briefed on the recognition of historic resources and their responsibility to report any unusual findings.
b) Work boundaries may be moved to protect historic resources.
c) In the instance of discovery of historic resources, the Environmental Superintendent and HSE Manager are to be contacted first; then the Provincial Archaeologist at the Provincial Archaeology Office (PAO) will be notified at (709) 729-2462, fax (709) 729-0870. Reporting information will include:

- Nature of activity;
- Nature of material discovered;
- Precise location of the find; and,
- Name of the person(s) finding the material.

d) The discovery area will be cordoned off for the duration of the Project or until the finding is determined to be not significant by the Province as appropriate. Under no circumstances will work be carried out at the location of the discovery, nor will anyone remove material unless authorized to carry out Archaeological Activity under a written permit.

e) In the event of the discovery of suspected human remains or a burial site, the procedures outlined below will apply:
   - Work in the immediate area will be suspended; the HSE Manager and General Manager will be notified immediately.
   - If remains are found during operations by heavy equipment, the equipment will not be moved by the employee/contractor as physical evidence may be destroyed.
   - The site, including heavy equipment, if necessary, will be secured by the employee or contractor with flagging tape or some other appropriate means. The suspected remains will be covered with a tarp.
   - TACORA will contact the local Royal Newfoundland Constabulary (RNC) detachment.
   - If the RNC determines that the remains are associated with a historic burial, TACORA will contact the PAO to obtain guidance on further actions.

5.4 FOREST FIRES

The prevention and containment of forest fires requires appropriate equipment and training. TACORA will ensure that the Project site during Scully Mine operations will be properly outfitted, and that employees will be aware of actions to take in the event of a forest fire. The following protection procedures will be implemented to prevent forest fires and to minimize their effects:

a) Flammable wastes will be disposed of properly on a regular basis

b) Worksites will be well equipped with proper equipment in case of emergency fires, these will meet the requirements of the *Forest Fire Regulations CNLR 11/96*.

c) TACORA will ensure that workers are aware of the location and the proper usage of equipment in case of an emergency.

d) Smoking will only be permitted in designated areas.

e) No open fires will be allowed at either on the main site or at other work sites during the forest fire season, unless there is an emergency.

f) Fires shall be reported immediately to Security and the Wabush Forestry office ((709) 282-6881 or (709) 280-3747 for after hour emergencies). The following information shall be provided:
   - Name of reporter and phone number;
   - Time of detection of the fire;
   - Size of the fire; and
   - Location of the fire.

6.0 Contact List

Below is a list of emergency contact numbers. These numbers will be continuously updated to ensure accuracy. A comprehensive emergency reporting flowchart with contacts and reporting procedures will be displayed in a visible, central location.

EMERGENCY NUMBERS

Plant

Ambulance Fire Emergency Environmental Emergency	Security	(709) 987-9625
General Manager	Bob Gagne	(709) 280-4500
HSE Manager	Kim Taylor	(709) 280-3392
Environmental Superintendent	Sharlene Baird	(709) 987-0752

Wabush

Emergency	911
Hospital	(709) 285-8100
Ambulance (Hospital)	(709) 285-8888
Police (RNC Labrador City)	(709) 944-7602
Fire (Wabush)	(709) 282-5696
Fire (Labrador City)	(709) 944-7832

Newfoundland and Labrador

RNC (Provincial Headquarters)	(709) 729-8000
Forestry Services (Wabush)	(709) 282-6881
Forestry Services (Wabush – After Hour Emergency)	(709) 280-3747
Wildlife Division (General Inquiries)	(709) 637-2052
Environmental Emergencies (Service NL)	(709) 772-2083
Poison Control Center (24 Hour)	(709) 722-1110
Health and Community Services Crisis Line (24 Hour)	(888) 737-4668

Federal

Canadian Transport Emergency Centre (CANUTEC)	(613) 996-6666
Canadian Coast Guard Spill Line (any spills > 70 L)	(800) 563-9089
Fisheries and Oceans Canada (Goose Bay)	(709) 896-6150

7.0 References

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Transportation of Dangerous Goods Act, 1992 – Part 8. Retrieved from: https://www.tc.gc.ca/eng/tdg/clear-part8-379.htm.

Water Resources Act, SNL2002 c.W-4.01. Retrieved from: https://www.assembly.nl.ca/legislation/sr/statutes/w04-01.htm.

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APPENDIX A

EPP Distribution List

EPP DISTRIBUTION LIST

Name	Title	Phone Number	Email
Kimberly Taylor	HSE Manager	(709) 280-3392	kimberly.taylor@tacoraresources.com
Mike Twite	Environmental Manager	(218) 259-3795	mike.twite@tacoraresources.com
Sharlene Baird	Environmental Superintendent	(709) 987-0752	sharlene.baird@tacoraresources.com
Katherine Jacobs	HSE Technician (Environment)	(709) 897-5632	katherine.jacobs@tacoraresources.com
Keith Ryan	Concentrator Operations Manager	(709) 280-7900	keith.ryan@tacoraresources.com
Stacy Nicholas	Concentrator Operations Superintendent	(709) 280-7229	stacy.nicolas@tacoraresources.com
Mark Lush	Concentrator Maintenance Manager	(709) 282-8742	mark.lush@tacoraresources.com
Pascal Cote-Booth	Concentrator Maintenance Superintendent	(709) 987-9646	pascal.cotebooth@tacoraresources.com
Mike Muggridge	Mine Manager	(709) 280-7800	mike.muggridge@tacoraresources.com
Ed Power	Mine Operations Superintendent	(709) 944-0994	edward.power@tacoraresources.com
Boyd Burton	Mine Maintenance Superintendent	(709)	boyd.burton@tacoraresources.com
Bob Gagne	VP & General Manager	(709) 280-4500	bob.gagne@tacoraresources.com

APPENDIX B

Revision Request Form

REVISION REQUEST FORM

SECTION TO BE REVISED:

NATURE OF REVISION:

RATIONALE FOR REVISION:
(i.e., environment/worker safety, etc.)

SUBMITTED BY:

Please submit request to the Environmental Technician/Coordinator

APPENDIX C

Revision History Log

REVISION HISTORY LOG

Version	Date Issued	Revision Notes
00	November 10, 2020	Draft EPP
01	July 9, 2021	Final EPP