REPORT

Project Registration

Kami Iron Ore Mine Project

Submitted to:

Government of Newfoundland and Labrador
Department of Environment and Climate Change
Environmental Assessment Division

Submitted by:

WSP Canada Inc. on behalf of
Champion Iron Mines Ltd.

April 2024

Distribution List

One copy – Champion Iron Mines Ltd.

One copy – Environmental Assessment Division - Newfoundland and Labrador Department of Environment and Climate Change

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APPENDIX P
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List of Acronyms and Abbreviations

Acronyms	Definition
ABA	acid-base accounting
ACCDC	Atlantic Canada Conservation Data Centre
AMP	adaptive management plan
ARD	Acid Rock Drainage
CAC	criteria air contaminant
CAPEX	capital expenditures
CCME	Canadian Council of Ministers of the Environment
CEA	Canadian Environmental Assessment Agency
CEAA	*Canadian Environmental Assessment Act, 2012*
CFA	Chemin de fer Arnaud
COSEWIC	Committee on the Status of Endangered Species in Canada
DFO	Department of Fisheries and Oceans Canada
EA	Environmental Assessment
EAC	EA Committee
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EMP	Environmental Management Plan
EPP	Environmental Protection Plan
EPR	Environmental Preview Report
GBA+	Gender Based Analysis Plus
GCDWQ	Canadian Drinking Water Quality
GHG	Greenhouse Gases
HADD	Harmful Alteration, Disruption or Destruction Of Fish Habitat
HDPE	High-Density Polyethylene
HROA	Historic Resources Overview Assessment
IAA	*Impact Assessment Act*
IAAC	Impact Assessment Agency of Canada
IOC	Iron Ore Company of Canada
IPCC	In-pit Crushing and Conveying
ITUM	Innu Takuaikan Uashat mak Mani-Utenam
LLWTP	Long Lake Water Treatment Plant
MAA	Multiple Accounts Analysis
MDMER	*Metal and Diamond Mining Effluent Regulations*

Acronyms	Definition
ML	Metal Leaching
MMER	*Metal Mining Effluent Regulations*
NCC	NunatuKavut Community Council
NIMLJ	Nation Innu Matimekush-Lac John
NLAAQ	Newfoundland Ambient Air Quality
NLDMAE	Newfoundland Department of Municipal Affairs and Environment
NLEPA	*Newfoundland and Labrador Environmental Protection Act*
NLESA	*Newfoundland and Labrador Endangered Species Act*
NML	non-metal leaching
NNK	Naskapi Nation of Kawawachikamach
NP	neutralization potential
NPAG	non-potentially acid generating
NPR	neutralization potential ratio
PAG	potentially acid generating
PAO	Provincial Archaeology Office
PFS	Prefeasibility Study
PLWTP	Pike Lake Water Treatment Plant
QNSL	Québec North Shore & Labrador Railway
SAR	Species at Risk
SARA	*Species at Risk Act*
SFPPN	Société Ferroviaire et Portuaire de Pointe-Noire
the Department	The Department of Environment and Climate Change
the Project	Kamistiatusset (Kami) Iron Ore Mine Project
TMF	Tailings Management Facility
TPM	total particulate matter
TSS	total suspended solids
VEC	valued ecosystem components
WC	water crossing
WESP-AC	Wetland Ecosystem Services Protocol – Atlantic Canada
WWSC	White Wolf Snowmobile Club

UNITS OF MEASURE

Acronym or Abbreviation	Description
cm	centimetre
mm	Millimeter
ha	Hectare
km	Kilometre
km2	Square Kilometer
°C	Degrees Celsius
M	Metre
L	Litre
%	Percent
ACFM	Cubic Feet Per Minute at Actual Conditions
LPM	Litres Per Minute
ppb	parts per billion
µm	Micrometres
µg/m3	Microgram per Cubic Metre
µg/L	micrograms per litre
pH	Potential of Hydrogen

1.0 INTRODUCTION

Champion Iron Mines Ltd. (Champion) is proposing to construct and operate the Kamistiatusset (Kami) Iron Ore Mine Project (the Project), an iron ore mine in the Province of Newfoundland and Labrador (NL). The Project site is located entirely in Labrador, approximately seven kilometres (km) southwest from the Town of Wabush, 10 km southwest from the town of Labrador City, and five km northeast of Ville de Fermont, Québec.

The Project will involve the construction, operation and eventual closure of an open pit iron ore mine and supporting infrastructure. The mine operation is expected to produce an average of 8.6 million tonnes of iron ore concentrate annually over a 26-year mine life. Iron ore concentration would be transported by rail to the deep-water industrial docks in Pointe-Noire in Ville de Sept-Îles, Québec, for international shipping. The Project site is located wholly within Labrador; no activities associated with the Project will take place in Québec. The proposed Project location and site layout are shown in Figure 1-1.

It is understood that the Project will be subject to an environmental assessment (EA) under the Newfoundland and Labrador *Environmental Protection Act* (NLEPA) and associated *Environmental Assessment Regulations, 2003* (EA Regulations). Projects subject to the NLEPA (listed in Part III of the EA Regulations) are required to be registered with the NL Department of Environment and Climate Change (the Department) to determine whether the proposed project can proceed, or whether additional information or reviews are required under the NLEPA. To register a project, proponents are required to submit a Project Registration document to the Department that describes the proposed project and outlines the anticipated effects of the proposed project on the biophysical and socio-economic environments (Newfoundland and Labrador 2023). This Project Registration has been prepared for the Project in accordance with the NLEPA and associated EA Regulations.

1.1 Background

The Project was originally proposed by the Alderon Iron Ore Corporation (Alderon) and underwent a provincial and federal environmental assessment (EA). The EA was initiated in 2011 with the submission of the Project Registration. Following the review of the Project Registration, the Minister of Environment (the Minister) determined that an environmental impact statement (EIS) was required. Following the public review and finalization of the EIS guidelines (herein referred to as the 2012 EIS Guidelines), Alderon submitted an EIS to the provincial and federal regulatory agencies in 2012 (herein referred to as the 2012 EIS). Following additional rounds of comments and updates to the 2012 EIS, the Project was released from the EA process in 2014 and both levels of government advised that the Project could proceed. Alderon updated the Feasibility Study for the Project in 2018; however, the Project was not undertaken by Alderon. In 2021, Champion completed the acquisition of the Project from Alderon.

Section 17 of the NL EA Regulations indicates that there is a three-year term within which an undertaking release remains in force. After the expiration of the three-year period, if a released undertaking has not commenced, the release is considered to be void unless an extension is made by the Minister or Lieutenant-Governor in Council for up to an additional three, one-year periods. No such extensions were

requested or granted for the Project, and as such, it is understood that the provincial EA process will need to be restarted for the Project.

Champion prepared an updated Pre-Feasibility Study (PFS) for the Project in March 2024, which included several design optimizations to the Project (Champion 2024). These optimizations were incorporated into the Project design to address conditions of approval or commitments made by Alderon through the previous EA process, or to improve the Project's environmental performance. These are detailed further in Section 3.2.

1.2 Proponent

Champion is a publicly traded company listed on the Australian Securities Exchange (ASX) and Toronto Stock Exchange (TSX) under symbol "CIA". Champion, through its subsidiary Quebec Iron Ore Inc., is an iron ore exploration and development company. Champion currently owns and operates the Bloom Lake Mining Complex, located on the south end of the Labrador Trough, approximately 13 km north of Fermont, Québec. Bloom Lake is an open-pit operation with two concentrators that primarily source energy from renewable hydroelectric power. The two concentrators have a combined nameplate capacity of 15 million tonnes per annum (Mtpa) and produce a low contaminant high-grade 66.2% iron ore concentrate with a proven ability to produce a 67.5% direct reduction quality iron ore concentrate. Champion ships iron ore concentrate from Bloom Lake by rail, to a ship loading port in Sept-Îles, Québec, and has sold its iron ore concentrate to customers globally, including in China, Japan, the Middle East, Europe, South Korea, India, and Canada. In addition to Bloom Lake, Champion owns a portfolio of exploration and development projects in the Labrador Trough, including the Project. Additional Information about Champion and key contacts for the Project Registration are provided in Table 1-1.

Table 1-1: Proponent Information

Proponent Information	Description
Name of the Undertaking	Kami Iron Ore Mine Project (the Project)
Type/Sector	Mining
Name of Corporate Body	Champion Iron Mines Ltd.
Chief Executive Officer	David Cataford
Address of the Proponent	1155 René-Lévesque Blvd. West Suite 3300 Montréal QC H3B 3X7
Proponent Executive/Principal Contact	Michel Groleau Corporate Director Government Affairs
Principal Contact Person for the Purpose of the Project Registration	Mireille Pilotte Head of Impact Study

1.3 Project Overview

The Project includes construction, operation, and closure of the following components (Figure 1-1):

- An open pit (referred to as the Rose Pit).
- Ore processing infrastructure, including the conveyors, ore stockpiles, the Process Plant and an Ore Concentrate Load-Out.
- Waste management infrastructure, including an Overburden Stockpile, Mine Rock Stockpile and Tailings Management Facility (TMF).
- Water management infrastructure proposed to collect contact and non-contact water, including dams, dikes and collection ponds.
- Supporting infrastructure, including access roads, workforce accommodations, a mine service area, freshwater pumping stations, an emulsion and explosion production plant and explosive storage, a crushing plant, transmission lines for local site distribution and telecommunication services.
- Transportation corridors, including access roads and a railway corridor that includes a spur line to connect the mine site to the Québec North Shore & Labrador (QNS&L) Railway.

All Project components will be constructed, operated and closed in accordance with governing federal, provincial and municipal regulations, as well as industry regulations and standards. The general location of Project infrastructure is similar to the Project released from the EA process in 2014. A detailed description of Project components and activities is provided in Section 3.2.

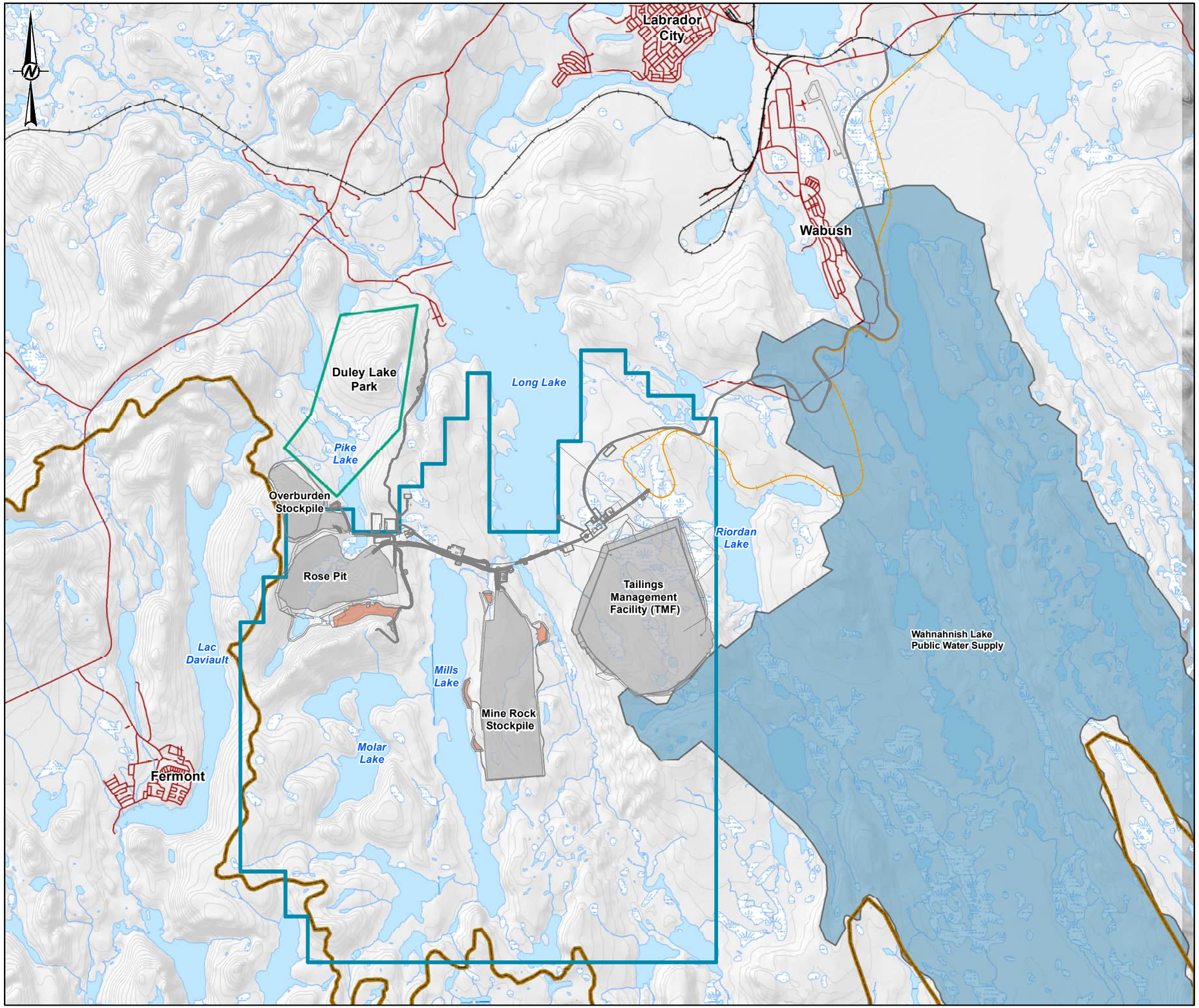
1.4 Property Ownership

The Project is located within four map-staked licenses (015980M, 017926M, 034335M 036147M) totalling 283 claim units covering 11,175 hectares (ha). Surface rights on these claims are held by the provincial government. These licenses are summarized in Table 1-2. The Project limits, which represent the spatial extent of these licenses, are presented in Figure 1-1.

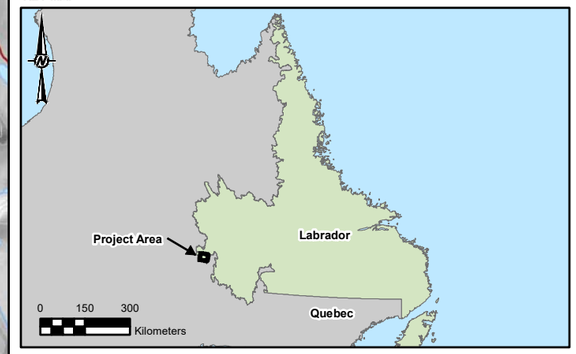
Table 1-2: Project Licenses

License	Claims	Area (ha)	National Topographic System Areas	Issuance Date	Renewal Date
015980M	191	4,775	23B14, 23B15	Dec. 29, 2004	Dec. 29, 2024
017926M	92	2,300	23B15	Aug. 30, 2010	Sep. 1, 2025
034335M	5	125	23B15	Apr. 24, 2022	Apr. 24, 2027
036147M	159	3,975	23B14, 23B15	Jun. 18, 2023	Jun. 18, 2028
Total	447	11,175	n/a	n/a	n/a

n/a = not applicable.



KEY MAP



SCALE 1:20,000,000

LEGEND

PROJECT DATA

- Proposed Infrastructure
- Kami Limits
- Proposed Railway
- Proposed Infrastructure
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- River/Stream
- Existing Road
- Contour
- Bog/Wetland
- Waterbody
- Public Water Supply
- Labrador/Quebec Boundary

0 875 1,750 3,500

1:85,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES LTD.

PROJECT

KAMI IRON ORE MINE PROJECT (KAMI PROJECT)
WABUSH, NL

TITLE

KAMI SITE LAYOUT AND LIMITS

CONSULTANT

wsp

YYYY-MM-DD	2024-05-01
DESIGNED	----
PREPARED	####
REVIEWED	SPC
APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
TE23930010	0001	A	Figure 1-1

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2.0 THE UNDERTAKING

The Project is a proposed iron ore mine. The Project site is located entirely in Labrador, approximately seven km southwest from the Town of Wabush, 10 km southwest from the Town of Labrador City, and five km northeast east of Ville de Fermont, Québec.

2.1 Nature of the Undertaking

The Project will involve the construction, operation and eventual closure of an iron ore open pit mine and supporting infrastructure. The mine operation is expected to produce an average of approximately 8.6 million tonnes of high purity (greater than 67.5%) iron ore concentrate annually over a 26-year mine life. Iron ore concentrate would be transported by rail to the Pointe Noire port terminal in Ville de Sept-Îles, Québec, for international shipping. The scope of this Project Registration is the open pit mine and supporting infrastructure, which are located wholly within Labrador.

2.2 Purpose, Rationale and Need for the Undertaking

The purpose of the Project is to develop the iron ore deposits of the Kami iron ore mine. Once mined, the iron ore will be refined to produce iron ore concentrate suitable for export to international steel markets. Champion's objective for the Project is to produce high purity iron ore concentrate, which can be used as direct reduction pellet feed for electric arc furnaces in the green steel supply chain. Through various manufacturing and processing efficiencies, Champion's direct reduction pellet feed method can contribute to reduced emissions of approximately 50% when compared to traditional blast furnace or basic oxygen furnace production, as the higher purity eliminates the need for coal in the steel making process.

Champion, through the Project, is positioned to have a substantial positive impact on global green steel production. Green steel is anticipated to have a critical role for the required infrastructure and applications to decarbonize our economies, and the ability to produce direct reduction grade pellet feed will enable Champion to engage with a variety of green steel manufactures and markets. The necessity of these critical resources needed to support the green energy transition provides added rationale and highlights the need for the Project.

2.3 Approval of the Undertaking

2.3.1 Environmental Assessment Framework

2.3.1.1 Summary of Previously Completed Environmental Assessment

The EA process for the Project was previously initiated by Alderon in October 2011 under the framework of the provincial NLEPA and the former federal *Canadian Environmental Assessment Act* (CEAA). The EA process was initiated with the submission of the Registration/Project Description to the former NL Department of Municipal Affairs and Environment (NLDMAE; now the Department), and the former Canadian Environmental Assessment Agency (CEA Agency, now the Impact Assessment Agency of Canada [IAAC]). The Registration/Project Description was made available to the public and to government agencies for review. On December 8, 2011, following the provincial review, the Minister of NLDMAE determined that an EIS was required for the Project under the NLEPA. Similarly, the CEA Agency

determined that a comprehensive study was required under the CEAA's Comprehensive Study Regulations. The Ministers appointed a joint EA Committee (EAC), comprised of provincial and federal government agency representatives to review the Registration/Project Description and supporting documentation, and to provide advice to the Minister regarding the Project.

The final 2012 EIS Guidelines for the Project that addressed the requirements of both jurisdictions were issued on June 26, 2012. These guidelines were prepared jointly by the Governments of Canada and Province of NL to identify the nature, scope, and minimum information and analysis required in the EIS. Alderon submitted the EIS (herein referred to as the 2012 EIS) on October 1, 2012. It underwent review by the EAC and was also made available for public and Indigenous review. Comments from the EAC, the public and Indigenous governments and organizations were considered prior to the federal and provincial governments making a determination about the potential environmental impacts of the Project.

At the completion of the 2012 EIS review period, the former provincial Minister of Environment and Conservation and the former federal Minister of the Environment advised that additional information was required in order to make a decision, and a number of information requests were issued to Alderon. Alderon provided the required additional information. In addition, as part of their review, the CEA Agency prepared a Comprehensive Study Report, which summarizes the outcomes of the EIS, mitigation and monitoring requirements and the CEA Agency's recommendation regarding the Project for the former federal Minister of Environment (CEA Agency 2013).

On January 10, 2014, the former provincial Minister of Environment and Conservation stated that under the authority of Section 67(3) (a) of the NLEPA, the Lieutenant-Governor in Council has released the Project, subject to several conditions.

On February 17, 2014, the former federal Minister of the Environment, stated that, pursuant to subsection 22(2) of CEAA, the Minister is of the opinion that:

- the Project is not likely to cause significant adverse environmental effects, considering the implementation of the mitigation measures described in the Comprehensive Study Report; and
- the mitigation measures and follow-up program described in the Comprehensive Study Report are appropriate for the Project.

Since acquisition of the Project in 2021, Champion has completed a thorough review of the proposed mitigation measures, monitoring requirements and commitments outlined in the 2012 EIS (Alderon 2012), the mitigation, monitoring requirements and conditions outlined in CEA Agency's Comprehensive Study Report and the conditions outlined in the Lieutenant-Governor in Council's 2014 EA release. Through the development of the 2024 PFS, Champion has optimized and improved the design of the Project addressing several of these commitments and conditions. For example, the Comprehensive Study Report recommended Alderon update and refine the hydrogeological model of the proposed open pit to better understand the existing hydrogeological environment and to better predict and mitigation potential effects. Champion has completed additional field investigations and developed an updated conceptual hydrogeological model, which predicted increased hydraulic conductivity estimates and

groundwater inflows to the Rose Pit. This predicted increase in groundwater inflows requires Champion to propose additional infrastructure to effectively manage contact water, improve pit stability, and mitigate Project effects to groundwater and surface water resources. The proposed Project design optimizations are presented in greater detail in Section 3.2.

Table 2-1 summarizes the 2012 EIS commitments or conditions presented in the EA release or Comprehensive Study Report Champion has advanced or is planning to advance as part of this stage of Project planning. Where Champion has addressed a 2012 EIS commitment or condition, a reference is provided to indicate where more information is presented in this Project Registration document.

Table 2-1: Summary of 2012 EIS Commitments or Conditions of EA Release Champion is Advancing

Source	Commitment or EA Condition	Summary	Reference in Project Registration Document
Completed			
2012 EIS Section 27, Commitments	Design surface drainage to prevent flooding of stockpile areas	Additional drainage and water management infrastructure has been developed and incorporated into the design of the Project	Section 3.2.6
Comprehensive Study Report	As part of ongoing Project design, continue field work and analyses to update and refine the current model of the existing hydrogeological environment around the proposed open pit, and the potential impacts of the open pit development. Present the results of the advanced hydrogeological work for review by regulators.	In 2023, Champion completed a desktop review of Project data, undertook new site investigations, and developed an updated conceptual hydrogeological model, including updated hydraulic conductivity estimates. The investigations and updated model provide a better understanding of the hydrogeological conditions at the site.	• Section 4.3.1 • Appendix A
Comprehensive Study Report	Refine and update hydraulic conductivity estimates when additional investigation of soil and bedrock hydraulic properties is carried out during the detailed engineering and design phase of the Project.		

Source	Commitment or EA Condition	Summary	Reference in Project Registration Document
Comprehensive Study Report	Implement additional mitigation measures as required if further test work, groundwater and surface water modelling and design, conducted as part of the detailed design phase of the project, indicate that there is a potential impact to groundwater or surface water resources.	Champion is proposing additional water management infrastructure to mitigate the predicted increases in dewatering rates and effects to groundwater and surface water resources, as a result of updating the hydrogeological model.	• Section 3.2.6 • Appendix B
Comprehensive Study Report	Confirm environmental assessment predictions related to Acid Rock Drainage by basing future characterization of waste rock acid-generating potential on the results of direct measurement of total carbonate and sulphide content.	Champion undertook an updated geochemical characterization study to characterize metal leaching / acid rock drainage risk of units identified as future mine rock, building from the previously completed study for the 2012 EIS. Additional samples were also analyzed for static and kinetic testing.	• Section 4.2.4 • Appendix C
Ongoing or Planned			
2012 EIS Section 27, Commitments	On-going engagement with Aboriginal communities and organizations.	Since acquiring the Project, Champion has and will continue to engage with representatives from each Indigenous group.	Section 7.2
2012 EIS Section 27, Commitments	Engage in ongoing discussions with the Towns of Labrador City and Wabush.	Since acquiring the Project, Champion has and will continue to engage with representatives from each town, as well as representatives from Ville de Fermont.	Section 7.3

Source	Commitment or EA Condition	Summary	Reference in Project Registration Document
Comprehensive Study Report	Undertake long-term pumping tests when site access is approved to assess the role and impact of geological features such as faults and fractures.	Champion is planning to undertake additional hydrogeological site investigations in 2024, including the completion of long-term pumping tests to better estimate bedrock parameters at a larger scale and confirm conceptual hypotheses, such as the continuity of the faults and their hydraulic connection to the lakes surrounding the Project. Results from this planned testing is not yet available for integration into the Project Registration document.	• Section 4.3.3
Comprehensive Study Report	Update the 3D numerical groundwater flow model for the Project to include data from pumping tests that focuses on dewatering of the open pit prior to and during operation.	The results of the 2024 hydrogeological site investigation will be incorporated into a 3D numerical groundwater flow model to refine dewatering predictions.	Not applicable
Comprehensive Study Report	Conducting humidity cell and batch cell tests to confirm drainage interaction within the waste rock disposal areas.	Champion is currently completing humidity cell testing, shake-flask extraction, and x-ray diffraction analysis on additional units identified as future mine rock. Results from these analyses are not yet available for integration into the Project Registration document.	Not applicable

2.3.1.2 Provincial Environmental Assessment Process

No expiry dates were included in the provincial EA decision statement; however, Section 17 of the EA Regulations under the NLEPA indicates that there is a three-year term within which a release from the Minister remains in force. After the expiration of the three-year period, if the project (undertaking) has not commenced, the release is considered to be void. The three-year term can be extended for three one-year periods (for a total extension of six years); however, such an extension must be made by the

provincial Minister of Environment and Climate Change or Lieutenant-Governor in Council. No such extension was requested or granted for the Project, and as such, the provincial EA process will need to be restarted for the Project.

To initiate the EA process, this Project Registration document is being submitted to register the Project with the Department in accordance with the NLEPA and associated EA Regulations. Once submitted to the Department, the Minister will announce the registration in the EA Bulletin within seven days of registering the Project (Government of NL, 2024). Copies of the Project Registration will be made available to Indigenous communities, stakeholders and members of the public as an opportunity to submit written comments to the Minister within a 35-day comment period. The Department will also coordinate the review of the Project Registration with interested government departments and agencies and will prepare a recommendation on the Project for the Minister (Government of NL, 2024).

Within 45 days of receiving a Project Registration, the Minister will advise their decision on the Project (Government of NL, 2024). The Minister will decide whether:

- The undertaking may be released. The proponent may proceed as indicated in the Project Registration, subject to any terms and conditions that the Minister may set, other Acts or regulations (federal, provincial or municipal).
- An Environmental Preview Report (EPR) may be required. An EPR is required when additional information is needed that is not contained in the registration. Upon receipt of the EPR the Minister may judge whether a project may be released or if an EIS is necessary.
- An EIS may be required. The submission of an EIS is ordered where significant potential negative environmental effects are indicated or where there is significant public concern about a proposal. An EIS includes a comprehensive environmental review of a complete project description including alternatives, original research on the existing environment, identification and evaluation of potentially significant environmental effects, an evaluation of proposed mitigation measures to minimize harmful effects and monitoring programs.
- The undertaking may be rejected. This may occur if an unacceptable environmental effect is indicated, the undertaking is not in the public interest, and/or if the undertaking is inconsistent with an existing law or government policy. A decision to reject would be made by Cabinet.

2.3.1.3 Federal Impact Assessment Process

The federal assessment process has changed substantially since the 2014 decision statement was issued for the Project. The previous EA for this Project was commenced under the CEAA before the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the more recent IAA came into force; thus, the EA for the Project was completed under very different legislative requirements than would be applied today.

Most notably, the types of assessments have changed, the process now has several new timelines and outputs by both the proponent and IAAC, there are earlier consultation requirements, and several

additional factors must be considered in the assessment (e.g., climate change commitments, Indigenous rights, and gender-based impacts).

Under the IAA subsection 70(1), the decision statement from the federal Minister of Environment and Climate Change must now contain a time limit within which the proponent must substantially begin to carry out the designated project. This means the decision statement is valid for a set period that is described within the decision statement itself. If the proponent does not begin work within that period, the decision statement expires. Under subsection 70(2) of IAA, the Minister may extend the period by any period that the Minister considers reasonable.

This was not a requirement under the CEAA (1992) when the Project was previously assessed; thus, there does not appear to be a date by which Champion had to substantially begin to carry out the Project. This may suggest that the decision has no expiry and would still be considered valid for the Project today.

Where a period of time elapses from the release decision to the start of construction, federal regulators may revisit the project description to determine if there have been any significant changes from the original Project.

There are several scenarios in which IAAC may determine that the previous EA decision is no longer valid. These include:

- IAAC determines there are material changes to the project such that Champion is proposing a new project;
- IAAC determines that the transfer of ownership resulted in the proponent for the original Project to no longer remain to be the proponent; or
- IAAC determines that too much time has lapsed, and the proponent has not substantially begun to carry out the project; thus, the Decision Statement is expired.

In such a case, Champion would need to confirm whether its proposed Project is listed as a "Designated Project" under the *Physical Activities Regulations*. These regulations identify the types of projects that may require an impact assessment under the IAA. The following provisions of the *Physical Activities Regulations* may be applicable to the Project:

- Subsection 18(c) states: "the construction, operation, decommissioning and abandonment of a new metal mine, other than a rare earth element mine, placer mine or uranium mine, with an ore production capacity of 5,000 t/day or more".
- Subsection 18(d) states: "the construction, operation, decommissioning and abandonment of a new metal mill, other than a uranium mill, with an ore input capacity of 5,000 t/day or more".
- Section 60: states: "The construction, operation, decommissioning and abandonment of a new structure for the diversion of 10,000,000 m^3/year or more of water from a natural water body into another natural water body."

Champion will continue to engage with IAAC and other federal regulators to confirm the validity of the previous decision statement and potential federal impact assessment requirements. However, the Project is a continuity from the 2014 release and presents improvements which will translate in reducing the effects and impacts of the Project.

2.3.2 Other Applicable Federal and Provincial Legislation and Regulations

Other federal and provincial legislation will be applicable to the Project, and will be administered by the responsible regulatory agency, department or division. A summary of potentially applicable legislation and regulations for the Project is provided in Table 2-2 Details about specific environmental permits, approvals and authorizations that will need to be obtained prior to the construction and operation of the Project are presented in Section 2.3.3.

Table 2-2: Potentially Applicable Federal and Provincial Legislation and Regulations

Act	Regulations	Regulatory Agency
Federal		
Impact Assessment Act	Physical Activities Regulations	IAAC
Fisheries Act	Metal and Diamond Mining Effluent Regulations	Environment and Climate Change Canada (ECCC) and Fisheries and Oceans Canada (DFO)
	Authorizations Concerning Fish and Fish Habitat Protection Regulations	DFO
	Deposit Out of the Normal Course of Events Notification Regulations	
	Wastewater Systems Effluent Regulations	
Canadian Environmental Protection Act, 1999	Environmental Emergency Regulations, 2019	ECCC
Migratory Birds Convention Act, 1994	Migratory Birds Regulations	
	Migratory Bird Sanctuary Regulations	
Species at Risk Act	Permits Authorizing an Activity Affecting Listed Wildlife Species Regulations	
Explosives Act	Explosives Regulations, 2013	Natural Resources Canada
Transportation of Dangerous Goods Act, 1992	Transportation of Dangerous Goods Regulations	Transport Canada

Act	Regulations	Regulatory Agency
Canadian Navigable Waters Act	No specific regulations related to this Act	
Provincial		
Endangered Species Act	Endangered Species List Regulations	Department of Fisheries, Forestry and Agriculture
Environmental Protection Act	Environmental Assessment Regulations, 2003	Department of Environment and Climate Change, Environmental Assessment Division
	Air Pollution Control Regulations, 2022	Department of Environment and Climate Change, Pollution and Prevention Division
	Storage and Handling of Gasoline and Associated Products Regulations, 2003	
	Used Oil and Used Glycol Control Regulations	
	Waste Management Regulations, 2003	
	Pesticide Control Regulations, 2012	
Forestry Act	Cutting of Timber Regulations	Department of Fisheries, Forestry and Agriculture
Lands Act	No specific regulations related to this Act	Department of Fisheries, Forestry and Agriculture
Management of Greenhouse Gas Act	• Management of Greenhouse Gas Regulations • Management of Greenhouse Gas Reporting Regulations	Department of Environment and Climate Change, Pollution Prevention Division
Mining Act	Mining Regulations	Department of Industry, Energy and Technology, Mineral Lands Division
	Mineral Regulations	
Occupational Health and Safety Act	Occupational Health and Safety Regulations, 2012	Digital Government and Service Newfoundland
Water Resources Act	Environmental Control Water and Sewer Regulations, 2003	Department of Environment and Climate Change, Pollution and Prevention Division
	Well Drilling Regulations, 2003	
Rail Service Act	No specific regulations related to this Act	Department of Transportation and Infrastructure

2.3.3 Permits, Licences, Approvals and Other Forms of Authorization

Numerous approvals, permits and authorizations are required from municipal, provincial and federal regulators, prior to Project initiation. In addition, throughout Project construction and operation, compliance with terms and conditions of approval, various standards contained in federal and provincial legislation, regulations and guidelines are required.

Permits, approvals and authorizations generally contain conditions which, combined with other regulatory requirements and environmental constraints, make up commitments that Champion will need to address through Project design and during the Construction, Operation and Closure Phases. Preliminary lists of future permits, approvals and authorizations that may be required from various regulatory agencies are presented in Table 2-3 and Table 2-4.

Table 2-3: Potential List of Federal and Provincial Permits, Approvals and Authorizations

Act or Regulation	Permit, Approval or Authorization Activity	Responsible Authority
Federal		
Impact Assessment Act	Decision Statement	IAAC
Fisheries Act	Fisheries Act Authorization	ECCC and DFO
	Amendment to the *Metal and Diamond Mining Effluent Regulations*	DFO
Species at Risk Act	Permit to carry out an activity involving a species at risk	ECCC
Explosives Act	License for the manufacture and storage of explosives	Natural Resources Canada
Canadian Navigable Waters Act	Approval to Interfere with Navigation	Transport Canada
Provincial		
Environmental Protection Act	Release from EA Process	Department of Environment and Climate Change, Environmental Assessment Division
	• Certificate of Approval for construction and Operations Industrial Facility • Certificate of Approval for Diesel Generators	Department of Environment and Climate Change, Pollution Prevention Division

Act or Regulation	Permit, Approval or Authorization Activity	Responsible Authority
	• Pesticide Operators License	
Water Resources Act	• Water Use Licence • Permit to Construct Drinking Water and Wastewater Infrastructure • Permit for Development Activity in a Protected Public Water Supply Area • Permit for Constructing a Non-Domestic Well • Permits for Alterations to a Body of Water, including: o Schedule A: Culverts o Schedule B: Bridges o Schedule C: Dams o Schedule D: Fording o Schedule E: Pipe Crossing – Water Intake o Schedule F: Stream Modification or Diversion o Schedule G: Small Bridges o Schedule H Infilling, Dredging and Debris Removal	Department of Environment and Climate Change, Water Resources Management Division
No applicable act or regulation	Real-time Water Monitoring Network Agreement	
Mining Act	Approved Development Plan, Rehabilitation and Closure Plan, and Financial Assurance	Department of Industry, Energy and Technology, Mineral Development Division
	• Mining Lease • Surface lease • Mineral License • Approved Quarry Permit or Lease	Department of Industry, Energy and Technology, Mineral Lands Division
Lands Act	Crown Land Lease	Department of Fisheries, Forestry and Agriculture
Endangered Species Act	Permits under Endangered Species Legislation	
No applicable act or regulation	Permit to Destroy Problem Animals	

Act or Regulation	Permit, Approval or Authorization Activity	Responsible Authority
Forestry Act, Cutting of Timber Regulations	Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land	
	Permit to Cut Crown Timber	
	Permit to Burn	
Numerous acts and regulations	• Approval of Storage and Handling Gasoline and Associated Products Registration • Environmental Approval for Waste Management System • Approval of Used Oil and Used Glycol Storage Registration • Approval of Application for the Establishment of Fuel Caches at Remote Sites • Approval for Septic or Water System Greater Than 4546 L Per Day • Approval of Application for Building Accessibility Design Registration • Approval for Asphalt Plant Construction and Operation	Digital Government and Service Newfoundland and Labrador
Rail Service Act	Approval to Purchase, Operate or Construct a rail service	Department of Transportation and Infrastructure

Table 2-4: Potential List of Municipal Permits, Approvals and Authorizations

Permit, Approval or Authorization	Issuing Agency
• Building Permit • Corporate Stewardship Agreement related to Habitat Management Units • Development Permit • Excavation Permit • Fence Permit • Occupancy – Commercial Permit • Open Air Burning Permit • Signage Permit	Town of Labrador City

• Building Permit • Corporate Stewardship Agreement related to Habitat Management Units • Development Permit • Excavation Permit • Fence Permit • Occupancy – Commercial Permit • Open Air Burning Permit • Signage Permit	Town of Wabush

3.0 DESCRIPTION OF THE PROJECT

The conceptual Project design information provided in this section is based upon the PFS-level engineering design. Additional technical studies and analyses are planned for the Feasibility Study (FS) and concurrent EA processes, and the design of the Project may be subject to refinements to reflect the results of those studies and analyses. The proposed Project location and site layout are shown in Figure 1-1.

3.1 Project Schedule

Champion has developed a schedule outlining the duration and timing of the Project stages, phases and periods, including the:

- Permitting and approvals stage;
- Construction, Operation, and Closure Phases; and
- Post-closure period.

The proposed schedule is presented in Table 3-1.

The duration of the permitting and approvals stage is a tentative estimate based upon Champion's current understanding of the federal and provincial approvals and permitting processes for the Project. The completion of the permitting and approvals stage also assumes that Newfoundland and Labrador Hydro's (NL Hydro) planned 315 kilovolt (kV) transmission line from the Flora Lake substation to the Project site is approved, constructed and operational by the start of the Operation Phase. Delay to the construction and operation of the transmission line could result in a delay to the construction start date. Therefore, the start date for the Construction Phase has not been determined. The Project Construction, Operation and Closure Phases are anticipated to span approximately 39 years (Table 3-1). The Construction Phase is anticipated to last four years, and includes one year of pre-production mining, ramping up to the Operation Phase. The completion of the Construction Phase and start of the Operation Phase assumes that the approval and construction of additional railway upgrades and infrastructure needed for the Project is completed by the Société Ferroviaire et Portuaire de Pointe-Noire (SFPPN).

Closure is from end of active mining operations to the start of the Post-Closure Period. The Post-Closure Period was defined based on Section 17.7 of the *Rehabilitation and Closure Plan Guidance Document* from the Government of NL's Mineral Development Division, which states that "*The post closure monitoring period will begin when the flooding of the mined-out pits is complete, and the site has reached equilibrium".* Equilibrium in this context refers to the state in which monitored physical or chemical constituents have no further tendency to change with time. It is currently assumed that pit flooding and equilibrium will take 10 years to complete from the initiation of the Closure Phase. Monitoring of dams, specifically the TMF dam, is required for 50 years (Rehabilitation and Closure Plan Guidance Document Section 17.7 h) following the completion of the Operation Phase. Therefore, the Post-Closure Period is currently

estimated to extend for another 40 years following the Closure Phase. At this time, the length of Project phases and the Post-Closure Period are an estimate based on PFS design detail, which will be refined as the design process progresses.

Table 3-1: Project Schedule

Schedule Stage, Phase or Period	Description	Duration
Permitting and Approvals Stage	The permitting and approvals stage includes release from the provincial EA process from the Government of NL and receipt of permits from applicable provincial and regulatory agencies. See Section 2.3 for further information about potentially applicable federal and provincial legislation and regulations.	3 years
Construction Phase	Activities in the Construction Phase include site preparation, mine, Process Plant and site infrastructure development, commissioning the structures, systems, and components. Construction includes 1 year of pre-development mining (i.e., ramp-up).	4 years
Operation Phase	Activities in the Operation Phase include the mining and processing of iron ore, production and shipment of iron ore concentrate and supporting activities. The Operation Phase is initiated once the concentrator is commissioned, activated, and is producing iron ore concentrate. The mining rate will peak in Year 15, then slowly ramp down until the end of the life of the mine. The processing rate for the concentrator is planned to ramp up to 26 Mtpa within the first year. The Operation Phase concludes when processing is complete.	25 years
Closure Phase	Activities in the Closure Phase include accelerated flooding of the Rose Pit, re-establishment of passive surface water drainage following the pit-flooding period, recontouring and revegetating disturbed areas. Physical infrastructure that is not required during post-closure monitoring and for other activities required to achieve the Project's decommissioning criteria and to return the Project site to a safe and stable condition will be removed.	10 years
Post-Closure Period	The transition from closure to post-closure involves ongoing dam safety monitoring, water treatment and environmental monitoring to verify that water quality is achievable for passive discharge and decommissioning criteria have been met. The length of the post-closure period could be further refined through the completion of additional analysis as part of the Feasibility Study.	40 years

3.2 Project Components and Activities

The section provides a summary of the Project components and activities. Where applicable, this section highlights the optimizations made to specific components or activities compared to the Project that was defined and assessed through the provincial EA process that was released in 2014.

3.2.1 Construction Phase Activities

Activities planned during the Construction Phase of the Project include, but are not limited to:

- Clearing of trees and vegetation, stripping and grubbing, and removal of unsuitable surficial materials for construction, such as organics and large boulders.
- Construction of buildings and ancillary infrastructure to support the mine and Process Plant.
- Construction and commissioning of the temporary construction camp.
- Upgrades to the existing access road to the mine site (located on the west of the mine site), to provide access to the open pit.
- Development of on-site roads to facilitate access to the overburden and Mine Rock Stockpiles.
- Development of the borrow pit, located within Rose Pit footprint, which will provide construction materials for the Project. Additional quarries may be required and will be defined through the advancement of the Feasibility Study. Dewatering of Rose Lake to facilitate access to the open pit. A pumping system will be used for the dewatering of Rose Lake. The water extracted from Rose Lake will be discharged into Pike Lake.
- Pre-production mining for one year (i.e., the last year of construction), which will provide material for construction and remove overburden to allow access to the open pit.
- Construction of a 25 m-wide, single lane bridge for heavy traffic over the Waldorf River crossing to facilitate transport of mine rock and construction material to the TMF for starter dam construction.
- Development of the TMF starter dam. Burrow pits in the TMF footprint could be required for TMF starter dam construction.

3.2.2 Mining Methods

The Project is planned as a mix of a conventional open pit mine for ore processing combined with a modern In-pit Crushing and Conveying (IPCC) system for the management of mine rock. Mining will be done with the use of drills, haul trucks coupled with hydraulic shovels, and a semi-mobile IPCC system. More detail about the IPCC is presented in Section 3.2.4.1.

The projected peak mining rate is 81.0 Mtpa over the Operation Phase and includes 1 year of pre-production mining within the Construction Phase. The mining rate will remain between

75 Mtpa to 79 Mtpa for the first 11 years, peaking at approximately 81 Mtpa in Year 15, and will then start ramping down until the end of the Operation Phase. Approximately 643 million tonnes (Mt) of ore will be mined at an average total iron grade of 29.2%, with a total of approximately 1,020 Mt of combined mine rock and overburden. The processing rate is planned to start at 17.0 Mtpa, ramping up to 26.0 Mtpa within 1 year. The concentrator will be located in the Process Plant and run for 25 years and produce 212.4 Mt of iron ore concentrate with an iron concentration of 67.5% iron.

The open pit, referred to as Rose Pit, will be located southwest of Pike Lake and underneath the existing Rose Lake. Rose Lake will require dewatering during the Construction Phase for the development of Rose Pit. Rose Pit is composed of three nested pit phases (Rose Phase 1 to Phase 3), each using the northeast pit wall as a base and expanding via 60 metres (m) to 100 m pushbacks. Pit exits are planned to exit to the east of Rose Pit to allow the shortest haul to the primary crusher buildings.

Rose Phase 1 is the phase with the smallest nested pit. The final pit wall closest to Pike Lake will be achieved during this phase. The ramp for the IPCC for Rose Phase 1 will be developed during the pre-production mining period of the Construction Phase. The nested pit for Rose Phase 1 will be 1.6 km long, 1.2 km wide, and will have a maximum depth of 265 m. Rose Phase 2 will share the IPCC ramp created in Rose Phase 1, and its nested pit will be 2.3 km long and 1.5 km wide, with a maximum depth of 405 m. Rose Phase 3 will be the final phase of the Rose Pit. Rose Phase 3 will have a ramp along the east and south pit wall. The east ramp will only be used until the depth of Rose Phase 3 exceeds that of Rose Phase 2, then the east and south primary ramp will be driven to the bottom of the pit. The nested pit for Rose Phase 3 will be 2.6 km long and 1.5 m wide, with a maximum depth of 550 m. The extent of the different nested pit phases are presented in Figure 3-1, Figure 3-2, Figure 3-3.

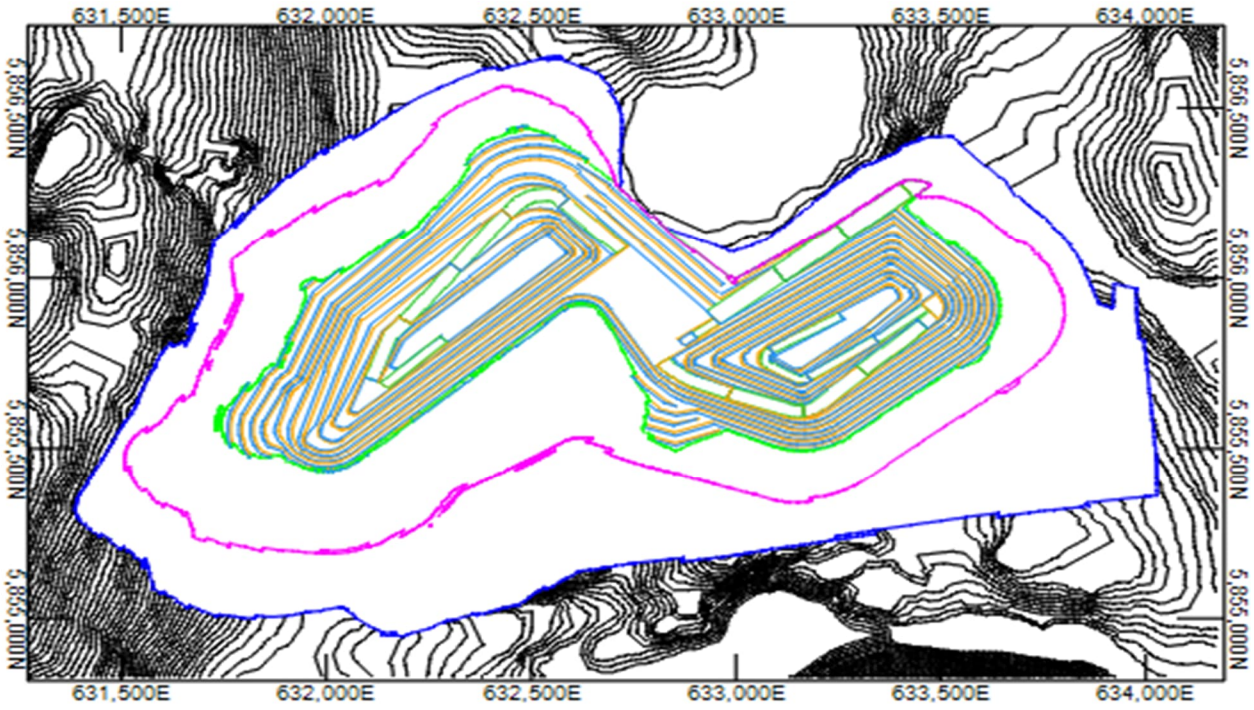


Figure 3-1: Rose Pit Phase 1

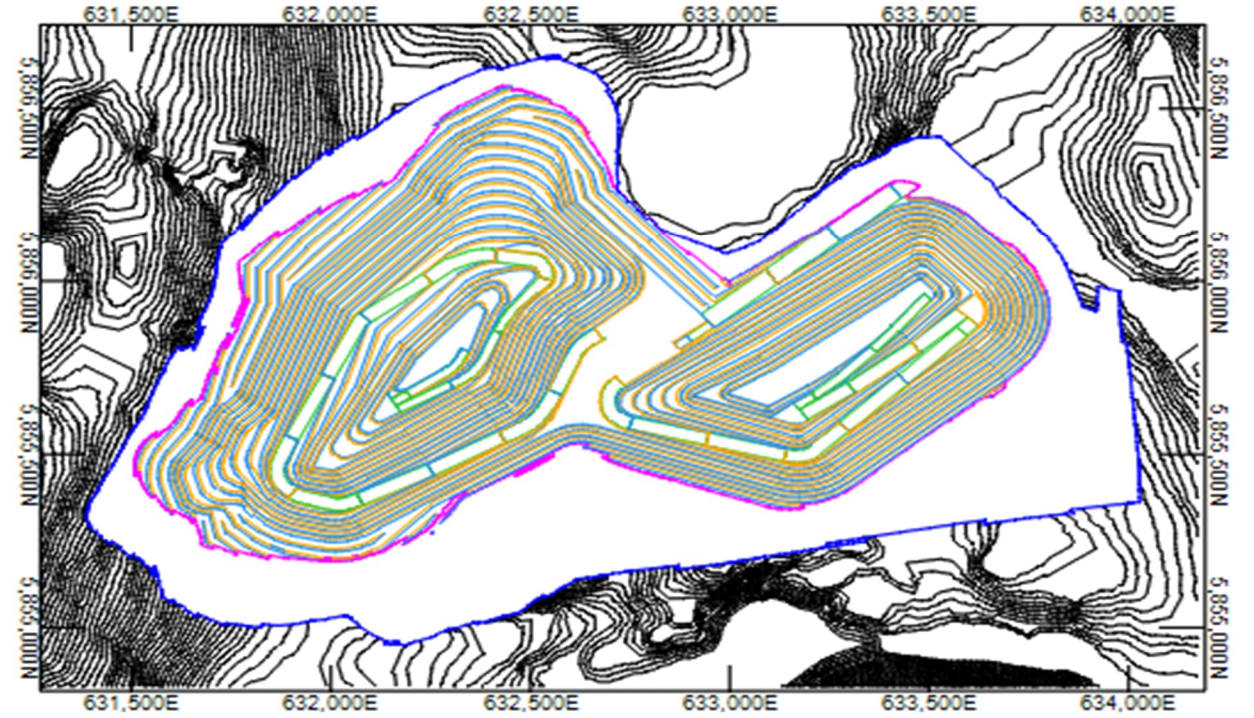


Figure 3-2: Rose Pit Phase 2

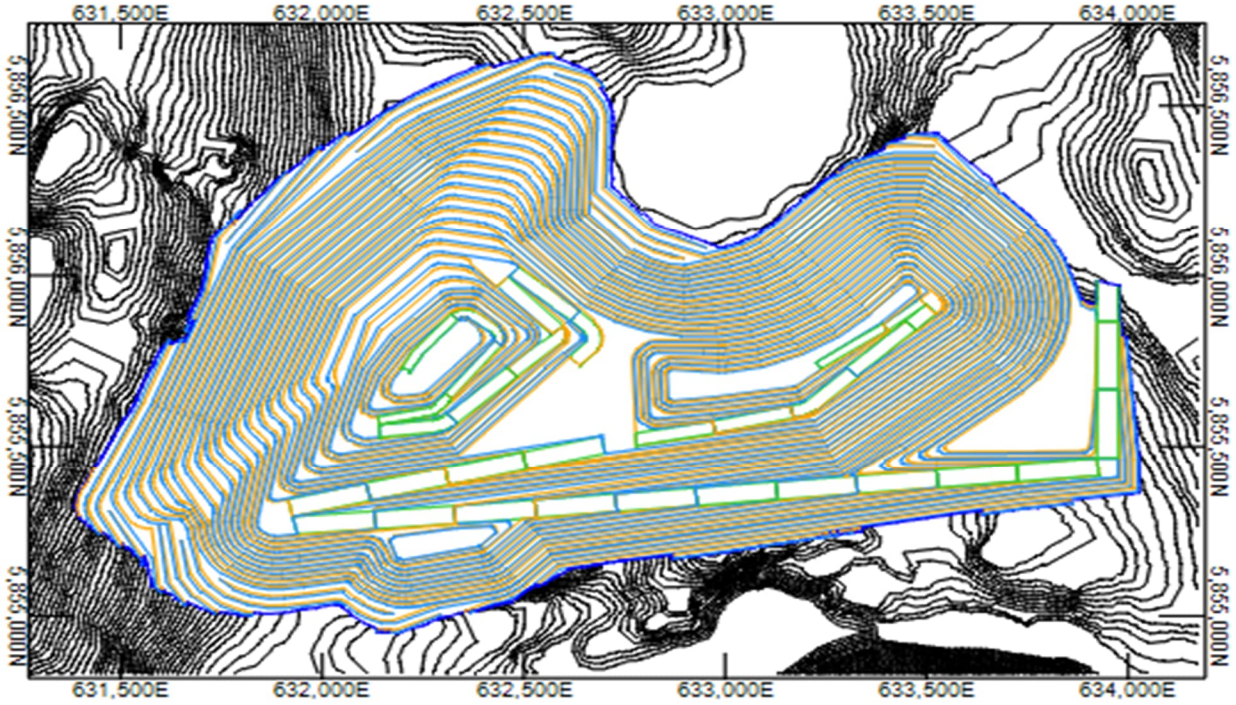


Figure 3-3: Rose Pit Phase 3

3.2.3 Ore Handling, Storage and Processing

This section describes the Project components required to handle, store and process iron ore concentrate, which include:

- Explosives production and storage (Section 3.2.3.1)
- Ore stockpiles (Section 3.2.3.2)
- Primary ore crusher station (Section 3.2.3.3)
- Main overland conveyor (Section 3.2.3.4)
- Waldorf River bridges (Section 3.2.3.5)
- Crushed ore stockpile (Section 3.2.3.6)
- Process plant (Section 3.2.3.7)
- Concentrate load-out (Section 3.2.3.8)

Section 3.2.3.9 provides a summary and rationale for the proposed optimizations to the ore handling, storage and processes compared to the Project that was defined and assessed through the previous EA process.

3.2.3.1 Explosives Production and Storage

An emulsion and explosion production plant will be built and operated at a safe distance (approximately 500 m) from the mining operations. The plant will produce an estimated 30 kilo tonne equivalent (kTe) of explosives per year at peak production. Raw materials for the manufacture of explosives will be transported by truck from the Town of Wabush to the plant. Explosives will be stored adjacent to the plant, at a safe distance north of the mine. Explosive accessories will be stored in a magazine located near the plant.

3.2.3.2 Ore Stockpiles

Ore will be hauled from Rose Pit and deposited in one of three ore stockpiles located to the north of Rose Pit to facilitate crushing operations: the ore stockpile, the low-grade ore stockpile or the emergency ore stockpile.

The ore stockpile has a capacity of 2.0 Mt and will be used for blending of ores to facilitate daily crusher feeding and to maintain an adequate feed grade to the Process Plant located to the east of Long Lake. The low-grade ore stockpile has a capacity of 3.3 Mt and will be used to store lower grade material, until it can properly blend and feed ore to the primary ore crusher station. The emergency ore stockpile has a capacity of 0.9 Mt and will be used during periods when the mine cannot feed ore to the primary crusher due to inclement weather or other reasons.

3.2.3.3 Primary Ore Crusher Station

The primary ore crusher station (Figure 3-4) consists of the two primary crusher buildings, conveyors, and a transfer tower that will be located adjacent to the primary crusher buildings. The primary crusher buildings are in close proximity to the Rose Pit (Figure 1-1) with the closest primary crusher building being located approximately 640 m from the projected final pit shell boundary. A mechanically stabilized earth retaining wall will be erected on each side of the primary crusher buildings.

A takeaway belt conveyor (Figure 3-4) will discharge the ore onto a surge pile covered by a dome built inside one of the primary crusher buildings. The dome will be built on a concrete block foundation. Under the pile, an apron feeder will regulate the ore flow into the reclaim belt conveyor. Ore is then transferred onto the main overland conveyor located within the transfer tower.

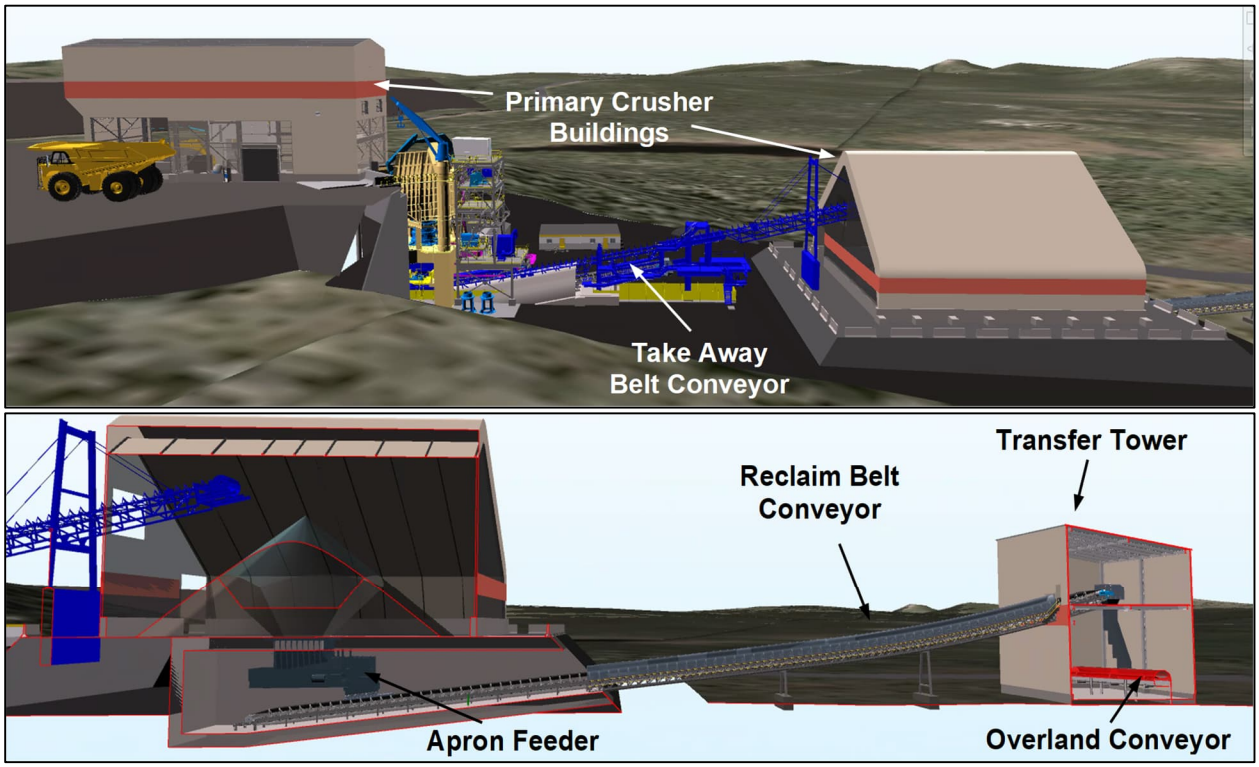


Figure 3-4: Primary Ore Crusher Station

3.2.3.4 Main Overland Conveyor

The main overland conveyor will transport crushed ore over a distance of approximately 4 km from the transfer tower to the crushed ore stockpile. The main overland conveyor will run along the site access road, before passing over a separate bridge to reach the crushed ore stockpile. The main overland conveyor will include support structures, hood covers, drives, electrical components and instrumentation. An enclosed gallery will be installed where the conveyor crosses Long Lake at the outlet of the Waldorf River.

3.2.3.5 Waldorf River Bridges

Two structurally independent bridges are required for the main overland conveyor and an access road to cross the Waldorf River (Figure 3-5). One bridge, referred to as the Overland Conveyor Bridge, will provide structural support and spill containment for the main overland conveyor. The second bridge will be a 25 m wide, single lane bridge to service general vehicles and mine operation trucks.

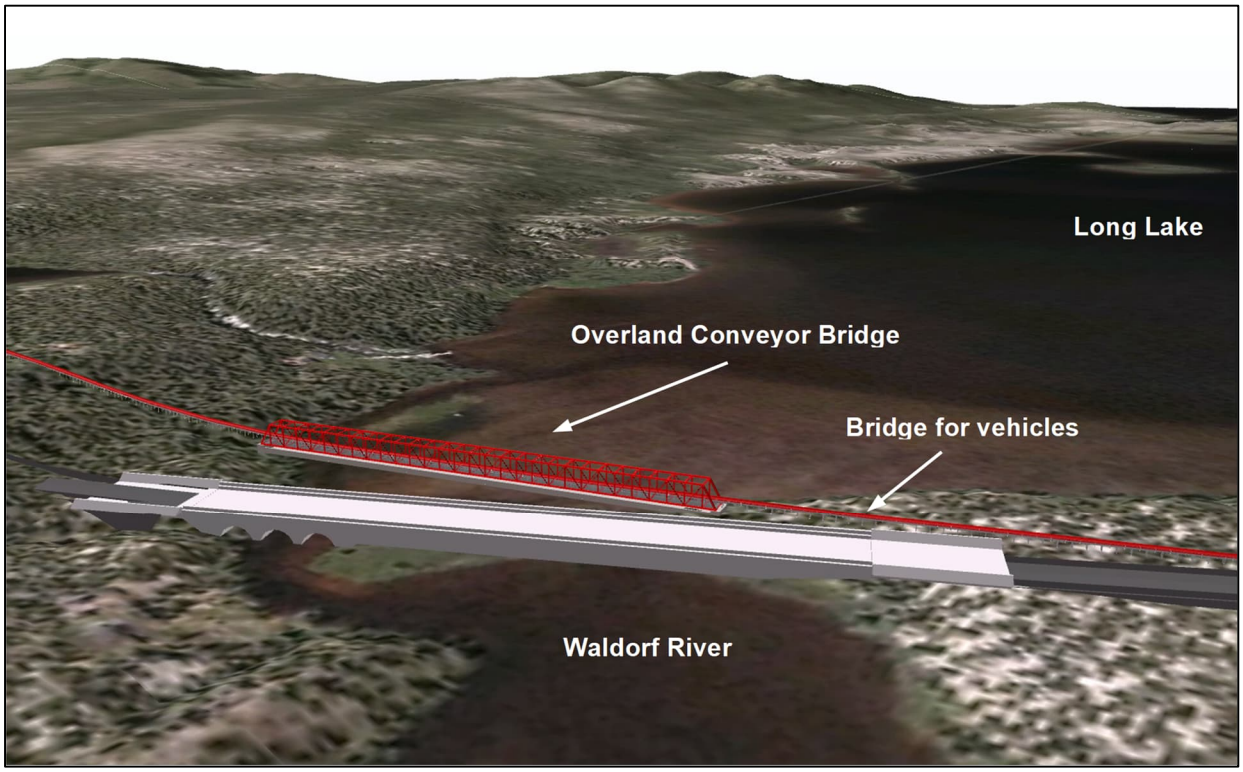


Figure 3-5: Waldorf River Bridges

3.2.3.6 Crushed Ore Stockpile

The crushed ore stockpile will be located near the Process Plant and will provide a live capacity of 54,000 Mt and a total capacity of 140,000 Mt. The crushed ore stockpile will be covered by a geodesic dome that will have a diameter of 95 m and will be 27 m high. Crushed ore will be reclaimed from the stockpile using three apron feeders through an underground tunnel housing the mill belt conveyor, which in turn feeds ore to the Process Plant. The mill belt conveyor will be approximately 230 m in length. Figure 3-6 presents a conceptual drawing of the crushed ore stockpile dome and associated infrastructure.

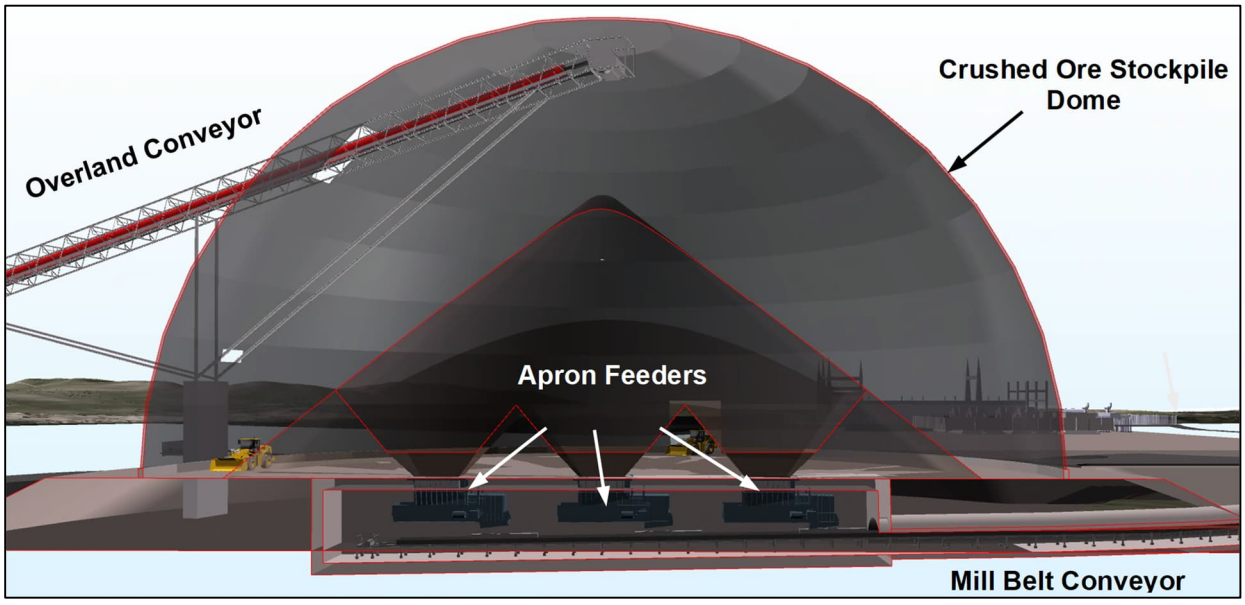


Figure 3-6: Crushed Ore Stockpile Dome

3.2.3.7 Process Plant

The Process Plant will be located to the east of Long Lake and will consist of the concentrator and ancillary process areas including, but not limited to, thickeners, a process water tank, the Long Lake Water Treatment Plant (LLWTP), tailings pumps, a boiler house, a maintenance shop, a warehouse, and electrical rooms. The concentrator houses the mill and other processing infrastructure. The plant administration office, concentrator employee facilities, warehouse and other service areas will be in the mine service area, adjacent to the Process Plant. Conceptual diagrams of the Process Plant and its components are presented in Figure 3-7 and Figure 3-8.

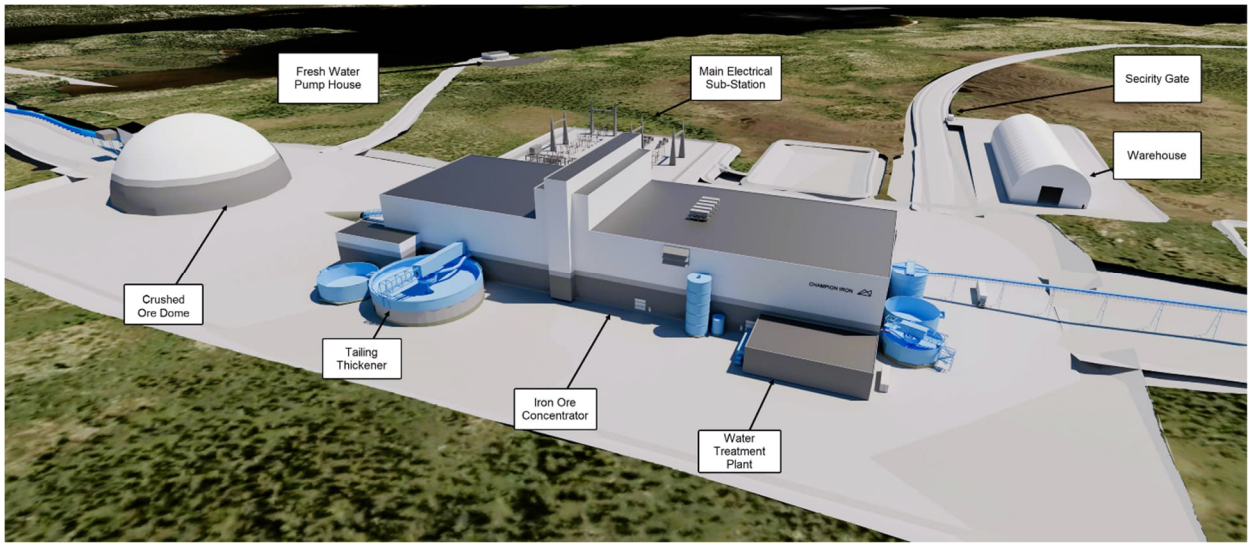


Figure 3-7: Conceptual Diagram of Process Plant

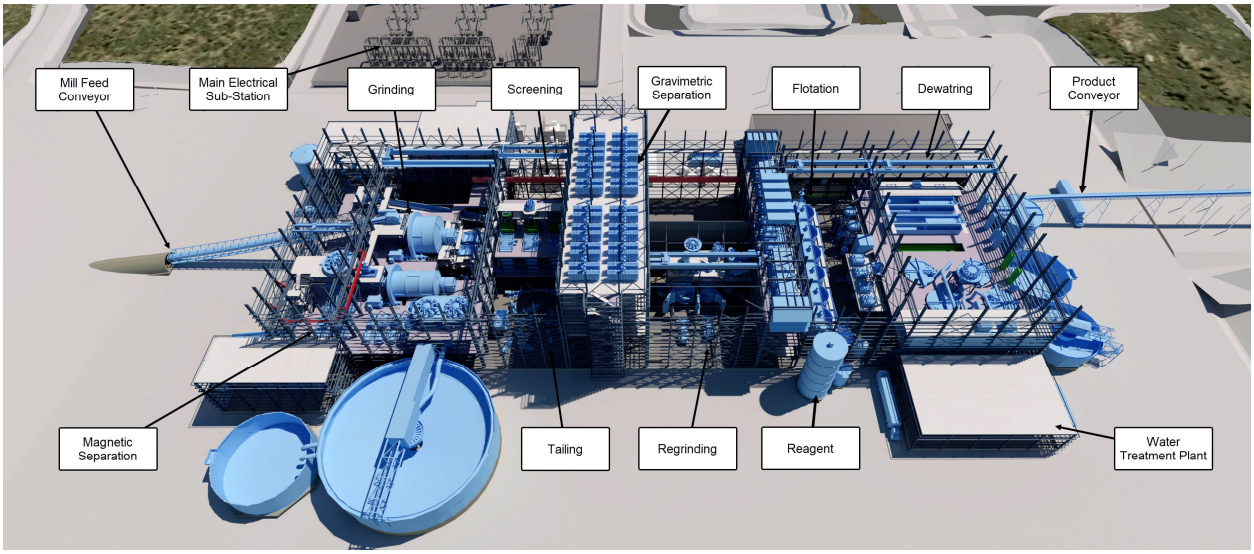


Figure 3-8: Conceptual Diagram of Process Plant – Interior View

3.2.3.8 Concentrate Load-out

Following processing, iron ore concentrate will be conveyed over a distance of approximately 900 m from the concentrator to a concrete load-out silo with a capacity of 30,000 Mt. Iron ore concentrate from the load-out silo will be conveyed to a 550 Mt capacity surge bin, which will discharge directly into railcars. Track scales will be used to control the weight of the concentrate.

To allow operations to continue in case of full load-out silo, railway or other problems preventing shipment, iron ore concentrate can be diverted to the emergency ore concentrate stockpile with a capacity of 75,000 Mt. A concentrate reclaim system will return iron ore concentrate from the emergency ore concentrate stockpile to the load-out silo.

3.2.3.9 Summary of Proposed Optimizations – Ore Handling, Storage and Processing

Table 3-2 summarizes the optimizations proposed for Project components and activities that support ore handling, storage, and processing, compared to similar Project components that were defined and assessed in the previous EA process. The rationale for implementing the proposed optimization is also provided.

Table 3-2: Summary of Proposed Optimizations to Ore Handling, Storage and Processing

Component or Facility	Previously Proposed	Proposed Optimization	Rationale
Explosives Production and Storage	Explosives transported by truck to the mine site.	Development of explosives through an on-site emulsion and explosion production plant.	Improved mitigation and environmental practices: The emulsion plant reduces the need for trucks to transport explosives to site.

Component or Facility	Previously Proposed	Proposed Optimization	Rationale
Main Overland Conveyor	Crushed ore conveyed using two conveying lines.	One main overland conveyor, with fewer transfer points between the primary ore crusher station and the crushed ore stockpile.	Improved mitigation and environmental practices: The main overland conveyor, although longer, will have fewer transfer points, reducing the number of dust sources.
Waldorf Crossing Bridges	One bridge to cross the Waldorf River for a conveyor line, access road and power line.	Two bridges to cross the Waldorf River: one for vehicles and one for the overland conveyor.	Design consideration: An additional transfer tower would be needed to align the main overland conveyor with the Waldorf River vehicle bridge; therefore, Champion is proposing a free span of the conveyor over the Waldorf River.
Crushed Ore Stockpile	Two uncovered crushed ore stockpiles.	One crushed ore stockpile within a geodesic dome.	Introduction of new technologies and improved mitigation and environmental practices: The geodesic dome will reduce dust emissions compared to the uncovered crushed ore stockpiles previously proposed.
Product quality	Iron ore concentrate (65.5% iron)	High purity iron ore (67.5% iron)	Introduction of new technologies: The Process Plant was improved to produce high purity iron ore. This product will allow for the development of direct reduction grade pellet feed, which is required to develop green steel.

3.2.4 Mine Waste Management

Mine waste management infrastructure includes the Project components required to manage material waste generated from mining activities (i.e., mine rock and overburden). The following Project components are described in this section:

- IPCC System (Section 3.2.4.1)
- Mine Rock Stockpile (Section 3.2.4.2)
- Overburden Stockpile (Section 3.2.4.3)

Mine waste infrastructure discussed in this section does not include the TMF, which is discussed separately in Section 3.3.5. Section 3.3.4.4 provides a summary and rationale for the proposed optimizations to the mine waste management facilities and infrastructure of the Project compared to the Project that was defined and assessed through the provincial EA process that was released in 2014.

3.2.4.1 *In-pit Crushing and Conveying (IPCC) System*

An IPCC system will be used to transport mine rock from Rose Pit to the Mine Rock Stockpile. The IPCC system is a semi-mobile structure that can be moved as the mining progresses through operations. Implementation of the IPCC system will reduce the number of haul trucks needed to transport waste rock, minimizing the Project's carbon footprint. With the implementation of the IPCC, the number of haul trucks needed is reduced by up to 85%, from a maximum of 50 presented in the 2012 EIS during Operation phase to 8 trucks in the current optimized Project.

Mine rock will be crushed by the IPCC system in the Rose pit. Once crushed, mine rock will be conveyed up the pit ramp to surface, at which point it will be transferred to a conveyor. This overland conveyor will run for 2.5 km east to reach the Mine Rock Stockpile. Mine rock will be placed on the Mine Rock Stockpile using a system of relocatable conveyors mounted on skids, cross-belt feeders, index conveyors, bridge conveyors, and a mobile stacker. Dozers will be used to push the mine rock and level the lifts.

3.2.4.2 *Mine Rock Stockpile*

Mine rock extracted during mining operations is comprised of waste rock within Rose Pit and ore that does not meet quality criteria for processing. Mine rock will be stored in the Mine Rock Stockpile, which will be located east of Mills Lake, in the same location as the previously proposed stockpile in the 2012 EIS (referred to as the Rose South Disposal Area). A total of 913.9 Mt of mine rock will be produced over the mine's life, a reduction from the total of 1,081 Mt previously projected in the 2012 EIS. Mine rock will be placed on the Mine Rock Stockpile using a system of relocatable conveyors mounted on skids, cross-belt feeders, index conveyors, bridge conveyors, and a mobile stacker. Track dozers will be used to push the waste rock and level the lifts. The Mine Rock Stockpile will be built in layers in the north-south and west-east axis. The proposed Mine Rock Stockpile could be optimized by adding capacity during future phases of the project.

An aggregate plant will be installed just north of the Mine Rock Stockpile. Mine rock will feed the aggregate plant to produce materials for maintenance of the civil infrastructures.

3.2.4.3 *Overburden Stockpile*

Overburden, which is the soil or rock layer overlying mineral deposits, will be stripped at Rose Pit during mining operations and transported via haul trucks to the Overburden Stockpile. The Overburden Stockpile is located north of Rose Pit, in the same location as the Overburden Stockpile previously proposed in the 2012 EIS (referred to as the Rose North Waste Rock Disposal Area). A total of 105.6 Mt of overburden will be produced over the mine's life, which is a reduction from the total of 151 Mt previously projected in the 2012 EIS. Overburden will be deposited in the Overburden Stockpile using haul trucks. The proposed Overburden Stockpile could be optimized by adding capacity during future phases of the project.

3.2.4.4 *Summary of Proposed Optimizations – Mine Waste Management*

Table 3-3 summarizes the optimizations proposed for Project components and activities that support mine waste management, compared to similar Project components that was defined and

assessed in the previous EA process. The rationale for implementing the proposed optimizations is also provided.

Table 3-3: Summary of Proposed Optimizations to Mine Waste Management

Component or Facility	Previously Proposed	Proposed Optimization	Rationale
IPCC System	Mine rock would be hauled from the Rose Pit and deposited in the Mine Rock Stockpile (referred to as the Rose South Disposal Area).	Using the IPCC system, mine rock will be crushed inside Rose Pit before being conveyed to the Mine Rock Stockpile.	Introduction of new technologies and mitigation and environmental practices: Incorporating the IPCC system will reduce the number of haul trucks by 85% (from 50 to 8) needed to haul mine rock from Rose Pit to the Mine Rock Stockpile. This project design improvement will result in a reduction of particulate, greenhouse gases, noise and light emissions from the Project.
Mine Rock and Overburden Stockpiles	A total of 1,081 Mt of mine rock and 151 Mt of overburden will be produced over the mine's life	A total of 914 Mt of mine rock and 106 Mt of overburden will be produced over the mine's life	Introduction of new technologies: Through improvement in mine planning software, Champion has improved the resource definition and optimized the pit design to reduce the amount of waste produced.

3.2.5 Tailing Management Facility (TMF)

The TMF will be located east of Long Lake and will store tailings generated during ore processing. It is estimated that the Project will produce a total of 420.4 Mt of tailings, which corresponds to a storage volume requirement of 280.3 million cubic metres (Mm^3) for the TMF over the 25 years of the Operation Phase.

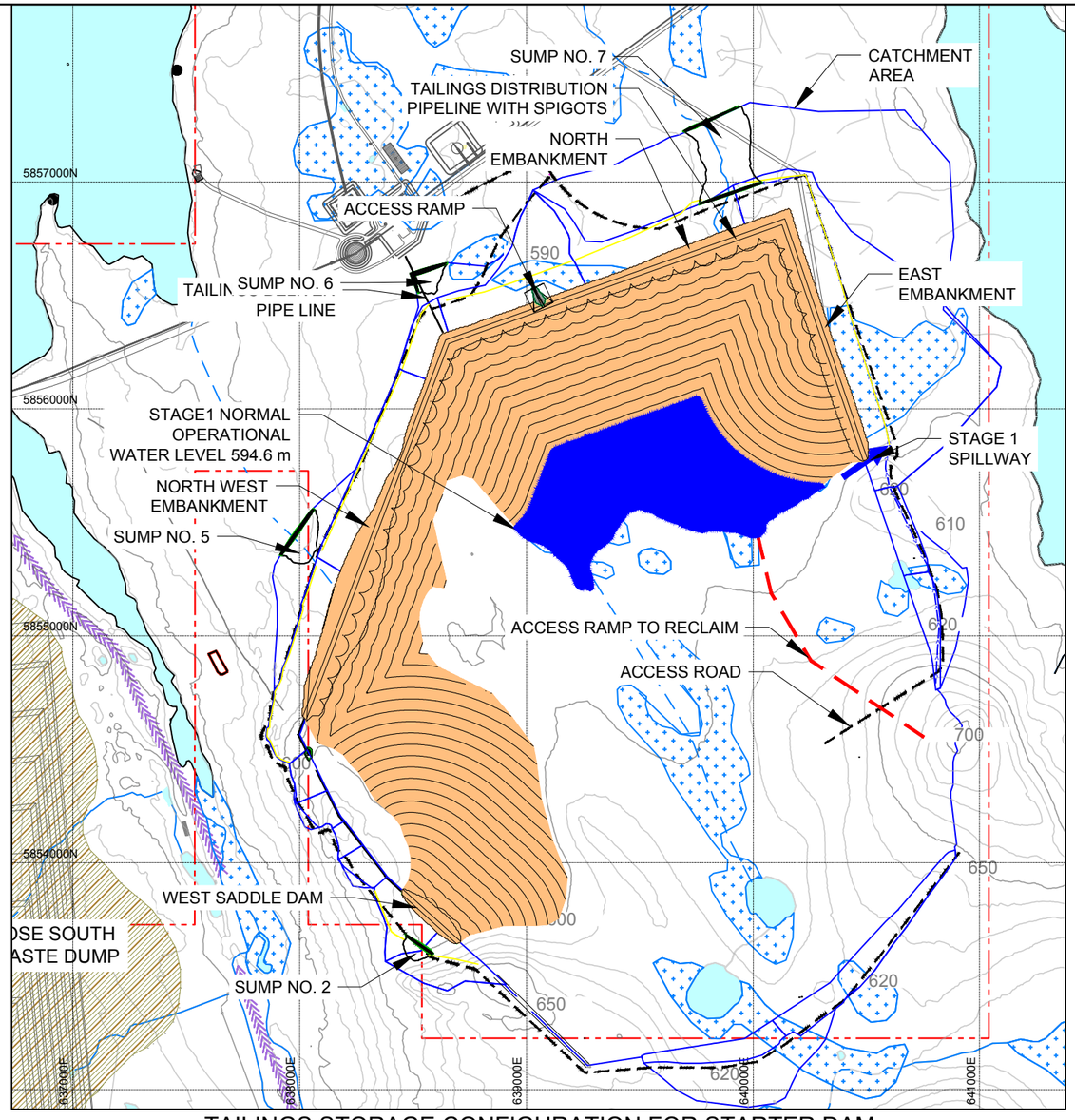
In 2023, Champion completed a multiple accounts analysis (MAA) for the TMF, to confirm that the previous selection of the TMF location (as presented in the 2012 EIS) was appropriate to accommodate the updated Project. The assessment was extended to consider the overall construction method (Appendix D). A total of 17 potential sites were identified that included locations suitable for alternate tailings disposal technologies. A pre-screening assessment was completed to eliminate alternatives for site location and tailings disposal technologies prior to advancement of the MAA evaluation. Four locations were identified for advancement through the MAA with centreline embankment construction method of raising. The previously assessed TMF location was also assessed with an upstream embankment construction (as proposed in the 2012 EIS) and a downstream embankment construction method of raising. The MAA evaluated each alternative for environment, socio-economic, technical, and Project-economic impacts. The results of the MAA identified the previously assessed location for the TMF as the preferred

location utilizing a centreline embankment construction method of raising and conventional slurry tailings delivery with the option of separating the tailings into coarse and fine tailings streams. The key advantages of the selected design are increased embankment stability and utilizing the coarse tailings harvested from the upstream tailings beach to minimize the borrowed dam fill.

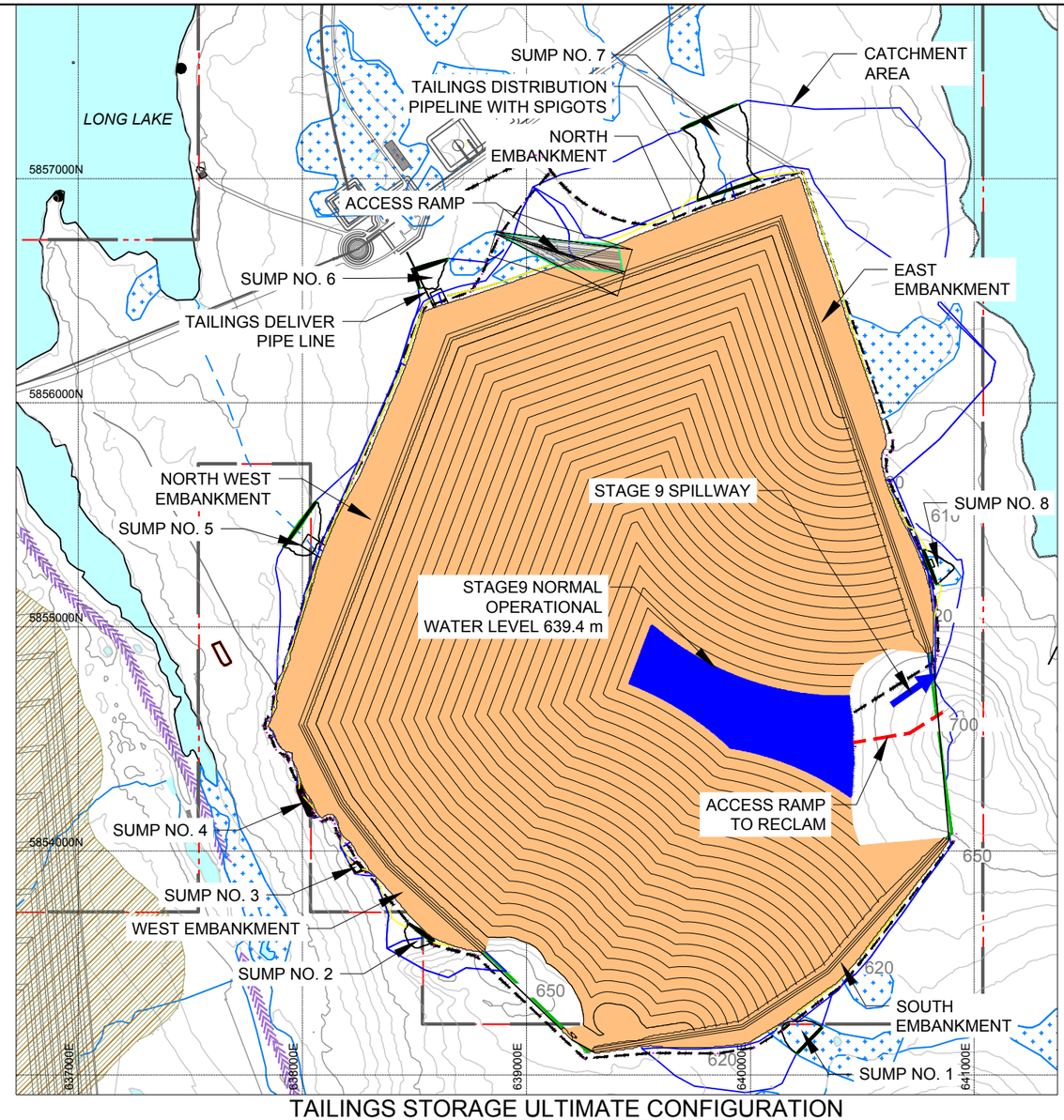
The TMF will consist of the starter dam, representing Stage 1 for the facility. The TMF will be undergo eight centreline embankment raises throughout the Operation Phase, representing a total of nine embankment stages. The starter dam will utilize a High-Density Polyethylene (HDPE) liner on the upstream side with zoned earthfill and non-woven geotextile. The use of the liner for the starter dam will control seepage during the initial years of the Operation Phase prior to establishing a tailings beach against the upstream slope. The main body of the dam will be constructed of non-potentially-acid generating (NPAG), non-metal leaching (NML) mine rock, which will be generated during pre-production mining as part of the Construction Phase. Table 3-4 provides a summary of the embankment stages and associated volume and crest elevation of the TMF. Figure 3-9 presents the layout and tailings storage configuration during Stage 1 (Starter Dam) and Stage 9 (Ultimate Embankment Configuration) to showcase the development of the TMF through the Operation Phase.

Table 3-4: Summary of Embankment Stages

Embankment Stage	Year of Operations	Crest Elevation (m)	Tailings Volume (Mm^3)
Stage 1 (Starter Dam)	Year 0 (Pre-production) to Year 3	598.0 to 604.0	23.4
Stage 2	Year 5	608.0 to 609.5	51.0
Stage 3	Year 8	615.0 to 617.5	84.2
Stage 4	Year 11	622.0	117.5
Stage 5	Year 14	627.0	151.8
Stage 6	Year 17	632.0	182.9
Stage 7	Year 20	637.5	218.0
Stage 8	Year 23	642.5	251.3
Stage 9 (Ultimate Embankment Configuration)	Year 25	647.0	280.3



TAILINGS STORAGE CONFIGURATION FOR STARTER DAM



TAILINGS STORAGE ULTIMATE CONFIGURATION

LEGEND:

- STARTER DAM
- ULTIMATE DAM
- NORMAL OPERATIONAL WATER LEVEL
- TAILINGS
- RUNOFF AND SEEPAGE COLLECTION DITCH
- SUMP
- ESKER
- ACCESS ROAD
- ACCESS RAMP TO RECLAIM
- SITE CLAIMS BOUNDARY
- NATURAL GROUND CONTOUR
- SPILLWAY
- POND
- TMF CATCHMENT AREA

REFERENCE:

BASEPLAN PROVIDED BY CLIENT. FILENAME KAMI-WPO-CV-DAL-G000-00100-SITE LAYOUT.DWG, DRAWING NO. 3054013-000000-41-D09-0000. DATED 2017-10-24.

NOTES:

1. ASSUMED DRY DENSITY OF DEPOSITED TAILINGS IS 1.5 T/m³.
2. ABOVE WATER TAILINGS BEACH IS ASSUMED TO BE 1% AND 5% BELOW POND.
3. REFER TO FIGURE 10 FOR TYPICAL DAM SECTIONS
4. REFER TO FIGURE 11 FOR SPILLWAY, DITCH AND SUMP DETAILS.
5. PROJECTION IS NAD93 ZONE 19.
6. CONTOUR INTERVAL IS 5M.

0 500 1,000
1:25,000 METRES

CLIENT
CHAMPION IRON LTD.

CHAMPION IRON

CONSULTANT
wsp

YYYY-MM-DD	2023-21-08
DESIGNED	BP/AG
PREPARED	JG
REVIEWED	BP
APPROVED	SF

PROJECT
KAMI IRON ORE PROJECT
TAILINGS MANAGEMENT FACILITY PRE-FEASIBILITY LEVEL DESIGN

TITLE
TMF LAYOUT
STAGE 1 STARTER DAM AND
STAGE 9 (FINAL)

PROJECT NO.	CONTROL	REV.	FIGURE
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3.2.5.1 *Tailings Management Facility Pond*

The TMF pond, located within the TMF, will collect direct precipitation, water discharged from the processing plant with the tailings and water pumped back from the downstream perimeter seepage collection sumps around the TMF. During the Operation Phase, water will be pumped from the pond via a reclaim system back to the processing plant for reuse. Excess water will be treated within the LLWTP located within the Process Plant and discharged to Long Lake.

In the 2012 EIS, excess water in the TMF was proposed to be conveyed to a polishing pond prior to final discharge to Long Lake via a pipeline. Treatment, in the form of flocculent, was planned to be added at the inlet of the polishing pond. With the LLWTP now being proposed, Champion has greater flexibility to reuse water collected in the TMF pond for processing while eliminating the need to manage a high-risk retention structure such as the polishing pond.

Emergency spillways for the TMF will be commissioned, decommissioned, and re-established for each of the nine embankment stages. These emergency spillways provide increased stability protection by preventing water from overtopping the dam. The spillways will be established on the east side of the TMF and will be located at the south abutment for each embankment stage. Spillways will transition to an outlet channel that will direct flows away from the downstream toe of the dam. Outlet channels will discharge into a stilling basin (i.e., energy dissipation pad) to reduce flow velocities and erosion potential. In the unlikely event that a spillway becomes active, water discharging from the stilling basin will flow towards Riordan Lake as overland flow.

Runoff and seepage collection ditches will be constructed along the toe of the perimeter dam in the TMF. The water collected in the ditches will be directed to sumps strategically established at topographic low areas around the perimeter of the TMF alignment. The water collected in the sumps will be pumped back to the TMF with a pump and pipeline system. The ditches will be established downstream of the downstream toe of the ninth stage so that relocation of the ditches is not required as part of the dam raising.

3.2.5.2 *Summary of Proposed Optimizations – Tailing Management Facility*

Table 3-5 summarizes the optimizations proposed for the TMF compared to the TMF that was defined and assessed in the previous EA process. The rationale for implementing the proposed optimizations is also provided.

Table 3-5: Summary of Proposed Optimizations to Tailing Management Facility

Component or Facility	Previously Proposed	Proposed Optimization	Rationale
Method of construction	An upstream raise construction method was previously proposed.	Following the completion of the MAA, a centreline raise method was selected due to it's higher technical score.	Design consideration: The centreline raise method of construction was identified as technically preferred in the MAA. The upstream raise method of construction poses a higher risk of instability than the centreline method. Potential issues with the upstream method also include seasonal compaction of tailings.
TMF Pond	Excess water in the TMF will be conveyed to the polishing pond prior and treated with flocculant prior to discharge to Long Lake via a pipeline.	Water will be pumped from the TMF pond via a reclaim system back to the processing plant for reuse. Excess water will be treated within the water treatment plant located within the Process Plant and discharged to Long Lake.	Introduction of new technologies and improved mitigation and environmental practices: With the additional water treatment plant located at the Process Plant, Champion has greater flexibility to reuse water collected in the TMF pond for processing, eliminating the need for the polishing pond. This approach maximizes water recycling and minimize water reclaim from Long Lake. Champion is also reducing risk by removing a high-risk water retention structure from the Project.

3.2.6 Water Management Facilities and Infrastructure

3.2.6.1 Overview

As described in Section 2.1, Champion is committed to addressing several of the commitments and conditions of the 2014 EA release through the advancement of the early planning and design stages of the Project. The Comprehensive Study Report (CEAA 2013) recommended that the model of the existing hydrogeological environment around the proposed open pit be updated to better inform the potential effects of the Project. Champion completed this modelling update (Appendix A), which conservatively predicted a larger volume of inflows from Pike Lake into Rose Pit in comparison to the Project that was defined, assessed, and released from the previous EA process. This conservative modelling approach has resulted in a Rose Pit dewatering rate estimate and overall increase to the predicted volume of water that needs to be managed during the Operation Phase. This, in turn, has enabled the need to assess and design infrastructure with incremental storage capacity and effluent volume. Through the Feasibility Study, Champion will perform additional trade-off studies and evaluation to develop opportunities to

manage water more efficiently. In this section, the description of water management infrastructure is focused on the options that were considered as part of the PFS. To accommodate the larger estimated volume of groundwater discharging into the Rose Pit and to improve the overall site water management, several new water management facilities are now being proposed, as presented on Figure 1-1 and listed below:

- A collection pond (referred to as the Rose Pit Collection Pond) south of the Rose Pit within End Lake and Elfie Lake to collect and manage contact water and provide treatment for total suspended solids (TSS).
- Two dams to support the Rose Pit Collection Pond (referred to as the End Lake Dams).
- A diversion dam upstream of Rose Pit (referred to as the Mid Lake Dam) to facilitate the diversion of clean water around the Rose Pit and to Pike Lake.
- Clean water perimeter diversion ditches around the Rose Pit Collection Pond.
- A dike to maintain separation between Pike Lake and the Rose Pit, referred to as the Pike Lake Dike.
- Dewatering facilities to manage water upstream of the Pike Lake Dike.
- Perimeter contact water collection ditches around the Overburden Stockpile.
- Contact water storage pond (Overburden Stockpile Collection Pond) and pumping facilities to facilitate the collection and diversion of contact water from the Overburden Stockpile to the Rose Pit Collection Pond.
- Perimeter contact water collection ditch around the Mine Rock Stockpile.
- A treatment plant, referred to as the Pike Lake Water Treatment Plant (PLWTP), to treat contact water collected from the Rose Pit, Overburden Stockpile and other facilities before discharging to the environment.
- Four contact water collection ponds and pumping facilities to facilitate the collection and diversion of contact water from the Mine Rock Stockpile to the Rose Pit Collection Pond or the TMF for reclaim and management.
- Contact water may also be routed from the Rose Pit Collection Pond to the TMF for reclaim or treatment through the LLWTP before discharging to Long Lake.

Additional detail on the design of the proposed water management infrastructure is presented in Appendix B.

3.2.6.2 Rose Pit Dewatering

A pumping system will be installed at the bottom of Rose Pit for pit dewatering, management of pit wall runoff and pit infiltration. Two permanent sumps located within Rose Pit are proposed to manage the contact water before it is pumped to the Rose Pit Collection Pond. Diversion ditches will be excavated at

the perimeter of Rose Pit, adjacent to the on-site access road. The ditches will be lined with geotextiles and will convey clean (non-contact) water towards Mills Lake, Mid Lake, and Pike Lake South.

3.2.6.3 Rose Pit Collection Pond

The Rose Pit Collection Pond will be built within the existing Elfie Lake and End Lake. Two dams will be built for this purpose; a 19-m high dam will be built on the west side of Elfie Lake, and a 12-m high dam will be built on the east side of End Lake. Both dams will be constructed with compacted NPAG mine rock and the upstream slope will be sealed with an HDPE geomembrane. The pond created with the construction of the two dams will have a 4 Mm^3 capacity. Diversion ditches will be built on the north side of Elfie Lake and End Lake so that any runoff water will be diverted towards Mid Lake to the west and Mills Lake to the east.

3.2.6.4 Pike Lake Water Treatment Plant

A pumping system and three HDPE pipelines will be used to pump water over a 255 m distance to reach the PLWTP. The PLWTP will be built at the outlet of the Rose Pit Collection Pond. The PLWTP process will allow the treatment of TSS to meet discharge criteria. The PLWTP will be equipped with a pumping system and three HDPE pipelines used to discharge water to Pike Lake South over a 4,780 m distance. The pipelines will be above ground and heat-traced to allow water transfer, treatment, and discharge during winter months.

3.2.6.5 Mid Lake Dam

A 5.5-m high dam will be constructed at the outlet of Mid Lake to stop and divert non-contact water runoff from the Rose Pit upstream. The dam will be constructed with compacted NPAG mine rock and the upstream slope will be sealed with an HDPE geomembrane. A pumping system with one pipeline will be used to pump water over a 585 m distance to transfer the non-contact water to Pike Lake South.

3.2.6.6 Pike Lake Dike

The Pike Lake Dike will be built at the southern end of Pike Lake South to empty the most southern part of the lake that is situated adjacent to Rose Pit. The Pike Lake Dike will improve pit wall stability, mitigate risk of overflow from Pike Lake into Rose Pit and will function as a buffer to mitigate potential inflows from Pike Lake to the pit.

The pumping system used for dewatering Rose Lake will be relocated and used to maintain dewatered conditions on the south side of the Pike Lake Dike. The Pike Lake Dike will be built with compacted NPAG mine rock. An above ground HDPE pipeline will be used to return non-contact water from the Pike Lake Dike to Pike Lake.

3.2.6.7 Overburden Stockpile Collection Pond

The Overburden Stockpile Collection Pond will be constructed with a 5 m deep excavation and 2 m high dike. The dike will be constructed with compacted till from the excavation, and the upstream slope of the dike and bottom of the pond will be sealed with an HDPE geomembrane.

Catchment ditches will be built on the perimeter of the Overburden Stockpile to direct contact runoff and seepage to the collection pond. A pumping system will be used to pump contact water through an above ground HDPE pipeline over a 4,240 m distance to the Rose Pit Collection Pond.

3.2.6.8 Mine Rock Stockpile Collection Ponds

Four collection ponds have been designed to manage runoff contact water from the Mine Rock Stockpile. Collection ponds will be retained by dams constructed with compacted NPAG mine rock. The upstream slope of the dams and bottom of the ponds will be sealed with an HDPE geomembrane. Catchment ditches will be built on the perimeter of the Mine Rock Stockpile to direct contact runoff and seepage to the collection ponds.

A pumping system will be used to pump contact water from the collection ponds to the Rose Pit Collection Pond. The pipelines will report to the collection pond located north of the Mine Rock Stockpile, and water will be pumped from this collection pond using above ground HDPE pipelines into the Rose Pit Collection Pond for management and treatment. Contact water from the Mine Rock Stockpile may also be sent to the TMF Pond, and ultimately the Process Plant, for reclaim and/or treatment.

3.2.6.9 General Site Water Run-off

Ditches have been designed along the edges of all mine facilities, access roads, and around building pads to allow rainwater to flow via gravity into the closest collection pond where it will be pumped to the closest water treatment facility.

3.2.6.10 Summary of Proposed Optimizations – Water Management Facilities and Infrastructure

Table 3-6 summarizes the Project optimizations proposed for water management infrastructure, compared to the water management infrastructure that was defined and assessed in the 2012 EIS that was released from the provincial EA process in 2014. The rationale for implementing the proposed Optimizations is also provided.

Table 3-6: Summary of Proposed Optimizations to Water Management Facilities and Infrastructure

Component	Previously Proposed	Proposed Optimization	Rationale
Rose Pit and associated water management facilities and infrastructure	Water would be collected within in-pit sumps and pumped from the pit into an engineered settling basin to allow for treatment of suspended solids and residual chemistry from blasting operations. The total operational case open pit mine water balance was estimated to require an average dewatering rate of 433.9 m^3/h (10,413.6 m^3/day) under climate normal conditions (Alderon, 2012). Any surface water flow upstream of Rose Pit would be diverted around the perimeter of the pit in diversion channels into Pike Lake South, preventing this water from entering the pit.	Updated hydrogeological modelling (Appendix A) has increased the assumed average dewatering rate to approximately 40,000 m^3/day. This increase has resulted in the need for additional and water management infrastructure, including the Rose Pit Collection Pond, Mid Lake Dam, and the Pike Lake Dike. Pit sumps and diversion ditches or channels to control surface run-off are also proposed.	Addressing commitments and conditions of the 2012 EIS: The Comprehensive Study Report (CEAA 2013) recommended that the model of the existing hydrogeological environment around the proposed open pit be updated to better inform the potential effects of Project. Champion has completed this additional modelling work, taking a conservative approach to inflow estimates. This conservative modelling approach has resulted in a Rose Pit dewatering rate estimate and overall increase to the predicted volume of water that needs to be managed during the Operation Phase. This, in turn, has enabled the need to assess and design infrastructure with incremental storage capacity and effluent volume. Through the Feasibility Study, Champion will perform additional trade-off studies and evaluation to develop opportunities to manage water more efficiently.

Component	Previously Proposed	Proposed Optimization	Rationale
Overburden and Mine Rock Stockpile Collection Ponds	Run off and drainage from these stockpiles would be controlled during operations using perimeter ditching / drains and small settling ponds, as required, prior to discharge to the receiving environment.	Run-off and drainage from these stockpiles will be diverted to collection ponds and conveyed to a water treatment plant before discharge into the receiving environment.	Improved mitigation and environmental practices and addressing commitments or conditions of the 2012 EIS: The Comprehensive Study Report (CEAA 2013) recommended that Alderon design surface drainage to prevent flooding of stockpile areas. Champion has advanced this commitment by incorporating these collection ponds into the design of the Project. Runoff and drainage from the overburden and Mine Rock Stockpiles will now be collected and processed through a water treatment plant prior to discharge into the receiving environment.

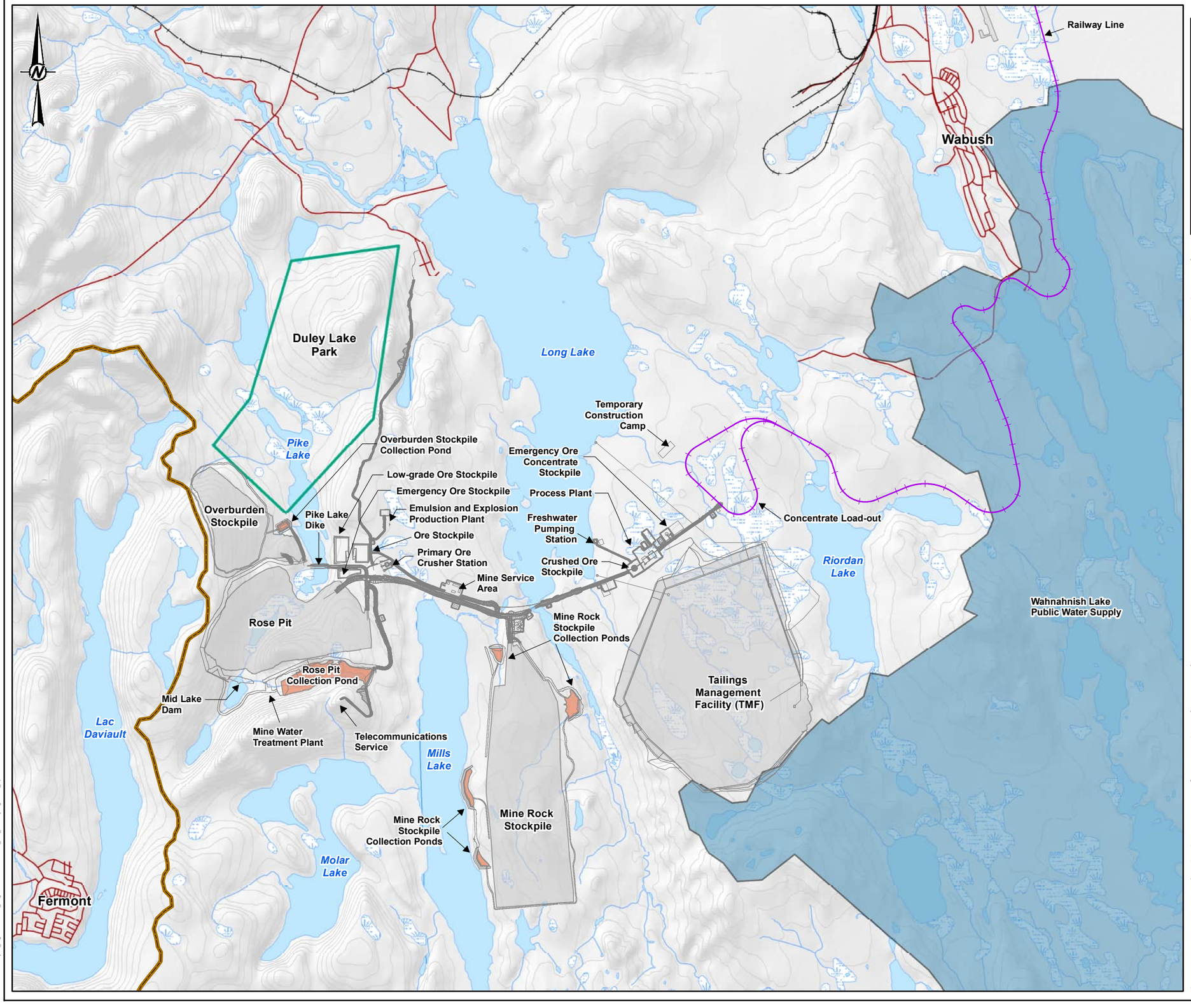
3.2.7 Railway Line

A newly constructed railway, referred to as the Kami Railway Line, will be developed to connect the mine south of Wabush to the QNS&L Railway line, north of the Wabush Airport. The proposed Kami Railway Line will be 23.2 km single track that connects the QNS&L line to the Project and will include a 5.9 km loading loop at the mine site as well as additional tracks for train car storage. The loading loop is designed to accommodate 240-car trains, which will be loaded in the Concentrate Load-out (Section 3.2.3.8). It is currently proposed that the railway will not be used to transport supplies to the site, such as diesel and these supplies will be transported to site by vehicle. The proposed alignment requires one bridge where it crosses Flora Lake (single span through truss type railway bridge with clear span of 85.0 m and with concrete ballasted deck), 10 level crossings and 14 culverts for cross drainage.

The possible locations where the alignment crosses existing roads are expected to provide access to rail vehicles for inspections and maintenance. For the last 10.6 km of alignment towards the loading loop where no easy access is possible, a continuous access road is proposed along the alignment. The access road is described in Section 3.3.8.

Loaded trains will travel south on the Kami Railway Line to connect directly to the QNS&L. Once the loaded trains reach the Chemin de fer Arnaud (CFA) at the Arnaud Junction interchange near Sept-Îles, Québec, the SFPPN will take over the operation of conducting the loaded train to the Pointe-Noire Terminal. Once unloaded, the empty trains will return to the Project site, traveling northbound on the CFA and QNS&L railways, back to the Kami Railway Line. Any additional infrastructure or track upgrades to the existing CFA and QNS&L railway tracks will be assessed and managed by the SFPPN through a separate approval process and is therefore not included as part of the Project scope for this registration.

A preliminary route alignment is illustrated in red in Figure 3-10. This preliminary alignment was developed based on available information and considered factors such as topography of the area, access required for maintenance, visual impact, and construction cost of the Project. Design of the railway alignment is preliminary, and Champion will assess additional alignment alternatives, considering railway constructability, environmental and social impacts as the Project advances through the Feasibility Study. Additional information on Project Alternatives is presented in Section 6.1.3.1.



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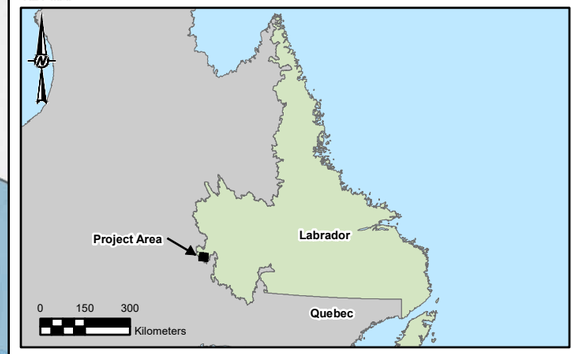

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LEGEND

PROJECT DATA

- Proposed Railway
- Proposed Infrastructure
- Proposed Infrastructure
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- Existing Road
- River/Stream
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary
- Public Water Supply

0 625 1,250 2,500

1:60,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES LTD.

PROJECT

KAMI IRON ORE MINE PROJECT (KAMI PROJECT)
WABUSH, NL

TITLE

ALIGNMENT OF THE KAMI RAILWAY LINE

CONSULTANT

wsp

YYYY-MM-DD	2024-04-30
DESIGNED	----
PREPARED	####
REVIEWED	SPC
APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
TE23930010	0001	A	Figure 3-10

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3.2.7.1 *Summary of Proposed Optimizations – Railway Line*

Table 3-7 summarizes the proposed optimizations to the railway line compared to the railway line that was defined and assessed within previous EA process. The rationale for implementing the proposed optimization is also provided.

Table 3-7: Summary of Proposed Optimizations to the Railway Line

Component	Previously Proposed	Currently Planned	Rationale
Railway line	The railway comprises of 3.9 km of loop track connecting to a 10.6 km line which travels generally northward along the east side of Elephant Head Lake and east of the Scully Mine waste rock piles and loop track. The route continues north crossing the Iron Ore Company of Canada's (IOC) Wabush 3 tailings line, Jean River, IOC's Wabush 3 main access road, and then between the IOC rail spur and the Wabush Industrial Park. Near the north end of the industrial park, the route continues to parallel Cliffs' rail spur to the east, across Route 500 where a new rail overpass will be constructed, and then connecting to the Northlands District of the QNS&L rail line.	The proposed Kami Railway Line will be 23.2 km of single track and will include a 5.9 km loading loop at the mine site as well as additional tracks for train car storage. It is currently proposed that the railway will not be used to transport supplies to the site, such as diesel and these supplies will be transported to site by truck. The proposed alignment requires one bridge where it crosses Flora Lake (single span through truss type railway bridge with clear span of 85.0 m and with concrete ballasted deck), 10 level crossings and 14 culverts for cross drainage. Furthermore, diesel fuel will no longer be transported by rail and instead will be transported to site by truck. Only iron concentrate will be transported by rail to the mine site.	Improved mitigation and environmental practices: Champion has consulted with the towns of Wabush and Labrador City on the proposed railway alignment, which is similar to the initial alignment that was proposed by Alderon in the 2012 EIS[(a)]. Through this consultation, Champion understands that the previous concerns with the railway alignment were due to the proposed approach of transporting diesel by rail and potential for train derailment within the protected water supply area. To mitigate this concern, Champion has committed to transporting diesel by truck.

a) Alderon changed the alignment that was presented in the 2012 EIS through amendments to the EIS. The main concern from local stakeholders and regulatory agencies with the alignment presented in the 2012 EIS was the risk of a diesel spill within the water supply protection area.

3.2.8 Access Roads

3.2.8.1 *Site Access Roads*

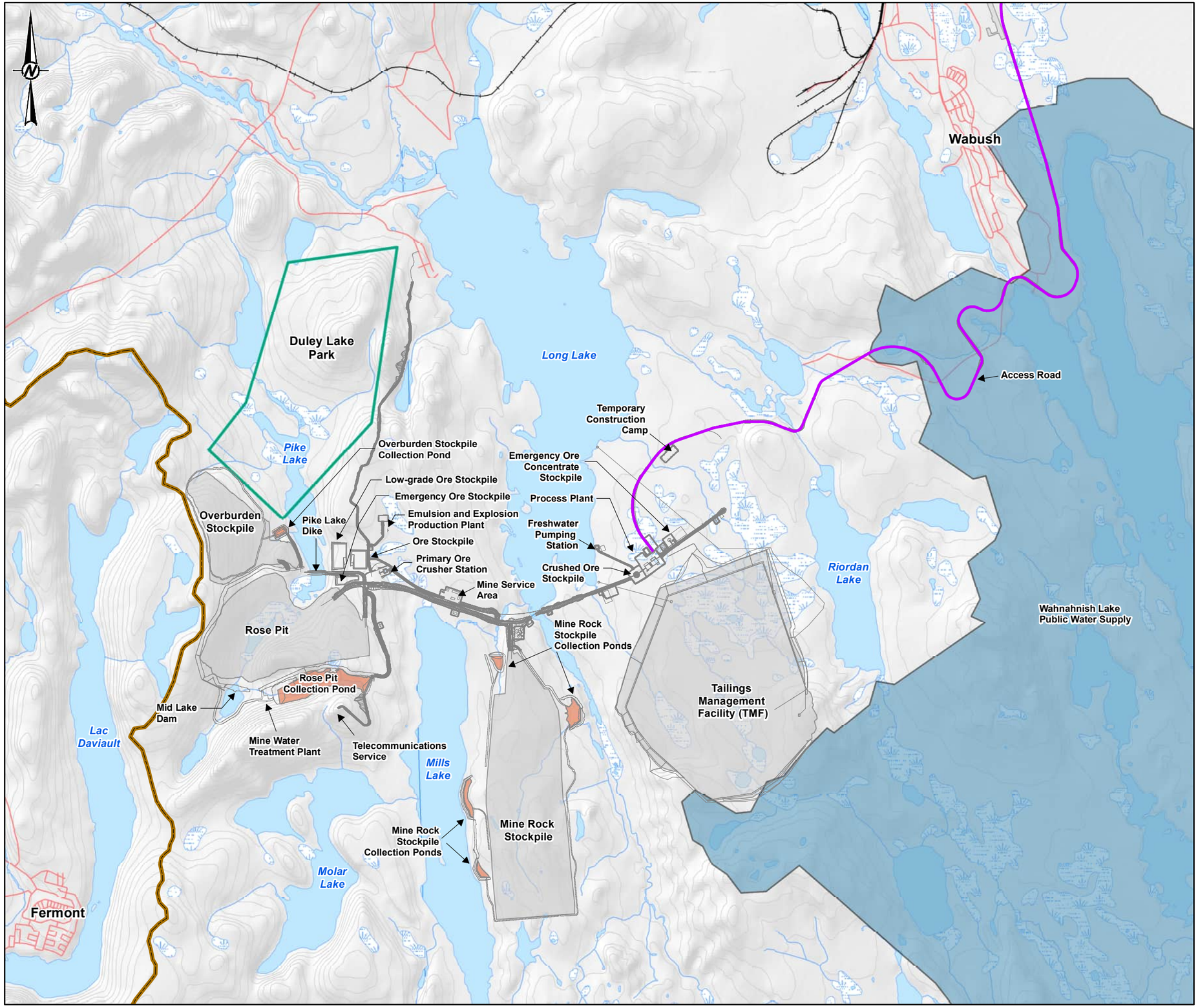
Road access to the Project site will be through a new road, which will have a proposed length of 18.5 km and width of 10.5 m, from Highway 500 south, passing east of the Town of Wabush to the Kami site. A preliminary route alignment is illustrated in Figure 3-11. This preliminary routing alignment was selected so that traffic can bypass the Town of Wabush and is a similar alignment to the access road that was defined and assessed in the 2012 EIS that was released from the provincial EA process in 2014. It is currently proposed that supplies such as diesel will be transported to site by truck, using this access road. Design of the access road alignment is preliminary, and Champion will assess additional alignment alternatives, considering constructability, environmental and social impacts as the Project advances

through the Feasibility Study. Additional information on Project Alternatives is presented Project Alternatives is presented in Section 6.1.3.1.

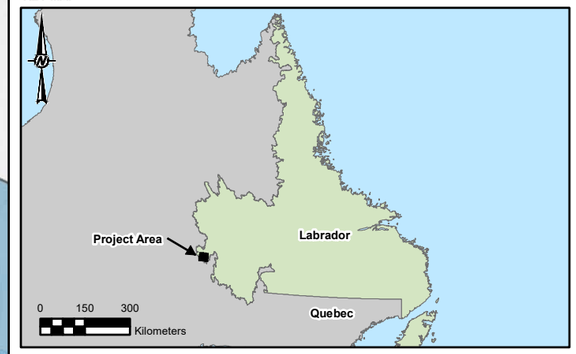
Another access road, to be used mainly during construction, will provide access to the west of the Project site, specifically to the Rose Pit and crusher areas. Gated guardhouses are proposed to control access to the facilities from both access roads.

3.2.8.2 On-Site Roads

Mine roads will be built on-site to connect the Rose Pit to the primary ore crushing station, the overburden, and Mine Rock Stockpiles and to the TMF. A road around Rose Pit, referred to as the ring road, will be developed to facilitate access to these facilities. The ring road embankment will be constructed with NPAG rockfill. The road structure will have a 1 m thickness of sand and gravel material. A 25-m wide, single lane bridge for heavy traffic will be constructed over the Waldorf River allowing mine trucks to transport waste rock to the TMF for dam construction.



KEY MAP



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LEGEND

PROJECT DATA

- Preliminary Access Road
- Proposed Infrastructure
- Proposed Infrastructure
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- Existing Road
- River/Stream
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary
- Public Water Supply

0 625 1,250 2,500

1:60,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES LTD.

PROJECT

KAMI IRON ORE MINE PROJECT (KAMI PROJECT)
WABUSH, NL

TITLE

PRELIMINARY ACCESS ROAD ALIGNMENT

CONSULTANT

wsp

YYYY-MM-DD	2024-04-30
DESIGNED	----
PREPARED	####
REVIEWED	SPC
APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
TE23930010	0001	A	Figure 3-11

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3.2.8.3 *Summary of Proposed Optimizations – Access Roads*

Table 3-8 summarizes the proposed optimizations to the access roads compared to the access roads that were defined and assessed within previous EA process. The rationale for implementing the proposed optimization is also provided. The on-site roads proposed by Champion are relatively similar to the on-site roads previously proposed and are therefore not discussed in Table 3-8.

Table 3-8: Summary of Proposed Optimizations to Access Roads

Component	Previously Proposed	Currently Planned	Rationale
Access Roads	Road access to the property will be by means of a new access road that will extend south from the Trans Labrador Highway to the Project area. The new gravel surface road will be approximately 12 km in length, with an estimated width of approximately 6.8 m	Road access to the Project site will be through a new road, which will have a proposed length of 18.5 km and width of 10.5 m, from Highway 500 south, passing east of the Town of Wabush to the Kami site. Supplies such as diesel will be transported to site by truck, using this access road.	Design consideration: This preliminary routing alignment was selected so that traffic can bypass the Town of Wabush and is a similar alignment to the access road that was defined and assessed in the 2012 EIS. As Champion will no longer be transporting diesel fuel and other consumables by train, transport of materials will be completed by truck, with the exception of explosives material, which will be generated on site.

3.2.9 Electricity

In the 2012 EIS, Alderon proposed that provincial utility, Nalcor Energy, would provide power to the site during both the Construction and Operation Phases. For the Construction Phase, Alderon proposed several options, including Nalcor Energy (Nalcor) providing power to the site from the existing electrical line between Labrador and Fermont, Québec, which would require the construction and operation of a new 46 kV distribution line to the site, which would bring power directly to the plant main substation through a transmission line corridor and infrastructure to be defined and established by Nalcor. If this option proved to not be viable, Alderon noted that Nalcor would provide power by bringing in diesel generators as required. Neither of these options were considered in the scope of the Project, and therefore they were not assessed through the previous EA process.

For the Operation Phase of the Project, Alderon requested that Nalcor undertake a planning process to provide power to the Project. Nalcor had committed to supplying power to the Project from a new 315 kV switching station that will be located west of Wabush Lake and North of the QNS&L rail line. The utility would then build, own and operate a 13.7 km long, 315 kV wood-pole power line from the aforementioned switching station to the proposed Kami mine site main substation (315-34.5 kV), which would be constructed and operated by Alderon as part of the scope of the current Project. The substation would be located near the northeastern edge of the concentrator.

Champion estimates that the electrical power needs of the Project are approximately 172 megawatts (MW). This power will be delivered to the Project site through a proposed transmission line from the 315 kilovolt (kV) Flora Lake substation, located 18 km away. Both the Flora Lake substation and the transmission line will be built by the current provincial utility, Newfoundland & Labrador Hydro (NL Hydro), and assessed through a separate approval process and is therefore not included as part of the Project scope of this Project Registration document.

3.2.9.1 Local Site Distribution

The incoming 315 kV from the Flora Lake substation will be stepped down to 34.5 kV using three transformers that are owned and operated by Champion, in which the total electrical load is shared amongst the three transformers. The 34.5 kV will then be distributed using on-site transmission lines to various load centers within the Project site, where it will be further stepped down to 13.8 kV, 7.2 kV, 4.16 kV or 600 V for powering mining, process, and auxiliary loads. Three 2,500 kW generator sets will provide backup power to the plant for selected process loads and critical components requiring emergency power in case of a power failure.

3.2.9.2 Summary of Proposed Optimizations – Electricity

The proposed transmission line to support the Project was deemed outside the scope of the Project and would be assessed and completed as part of the planning processes of the provincial electrical utility. As such, no specific additional optimizations are proposed by Champion.

3.2.10 Worker Accommodations

Worker accommodations will be provided during the Construction and Operation Phases through the development of two on-site camps: a temporary construction camp and permanent operations camp. Both camps will be built during the Construction Phase to house the peak construction workforce. The temporary construction camp will be decommissioned within the first few years of the Operation Phase.

3.2.10.1 Temporary Construction Camp

The temporary construction worker camp and its facilities are designed to provide individual rooms for up to 400 workers and support staff. The temporary construction camp will be located approximately 1.5 km northeast of the Process Plant along the site access road. The camp will be provided with kitchen and cafeteria to fit up to 200 at a time people. The camp will also be provided with its own potable water from the Long Lake pumping station (Section 3.3.10) and wastewater treatment systems. It is assumed that most the construction workers will reside within the camp; however, some provisions will be made for alternate accommodation within Wabush and Labrador City. It is currently proposed that the temporary construction camp will be decommissioned following the initiation of the Operation Phase. Figure 3-12 presents a conceptual drawing of the temporary construction camp.

Figure 3-12: Conceptual Drawing of the Temporary Construction Camp

3.2.10.2 Permanent Camp

The permanent camp and its facilities will be built beside the temporary construction camp during Year 1 of the Construction Phase to accommodate the peak construction workforce. The permanent camp facilities will be built at approximately 1 km northeast of the concentrator next to the main access road. The camp is designed to provide individual rooms for 600 workers and support staff. The camp will be provided with kitchen and cafeteria to fit 300 people. The camp will also be provided with its own potable and wastewater treatment systems. It is assumed that most the operating employees will reside within the camp, however, some provisions will be made for alternate accommodation within the Towns of Wabush and/or Labrador City.

3.2.10.3 Summary of Proposed Optimizations – Worker Accommodations

Table 3-9 summarizes the proposed optimizations to workforce accommodations compared to the workforce accommodations that were defined and assessed within previous EA process. In the 2012 EIS, Alderon determined that a temporary camp would be developed for the Construction Phase, but for the Operation Phase, its workforce would be housed within the Towns of Wabush and/or Labrador City. The socio-economic context of the region evolves in the last 10 years, and Champion must be considering factors such as the proposed timing of construction, the estimated size of the required labour force, current issues regarding housing availability, and the current use and capacity of other services and infrastructure in Labrador West communities. Champion is currently proposing worker accommodations for the Construction and Operation Phases within on-site facilities and is committed to continuing to

work with the municipalities and government agencies to determine the best approach to addressing worker accommodations within the timelines required for commencement of the Construction Phase of the Project.

Table 3-9: Summary of Proposed Optimizations to Workforce Accommodations

Component	Previously Proposed	Currently Planned	Rationale
Camps	A temporary construction camp was proposed. Housing for the Operation phase workforce was to be primarily sourced from the local communities.	Due to the reduction in local unemployment and availability of a skilled workforce to staff the Operation Phase effectively, Champion is proposing a permanent camp that will be used to house the operation workforce.	Design consideration: Through the PFS, Champion, a permanent operation camp is required to effectively staff the Project during the Operations phase. Champion is committed to prioritize local hiring and will work with the towns of Wabush and Labrador City to support this commitment.

3.2.11 Supporting Infrastructure

The Project will also include the following supporting infrastructure, which are similar to those proposed in the 2012 EIS:

- The mine service area, which will consist of a temporary megadome mine garage, workshop, warehouse, mine employee's facilities, five 79,000 L capacity diesel fuel tanks for mine operations (located near the mine garage) and one 50,000 L capacity diesel fuel tank for the 2.5 MW emergency generator. A permanent mine garage, employee facilities, workshop and warehouse will be built after 5 years of operation replacing the temporary facilities. The temporary megadome mine garage will be converted for use as a warehouse.
- Two freshwater pumping stations, one located south-east of Long Lake and one located at Mills Lake. The water pumped from Long Lake will be used for freshwater requirements for various facilities, occasional make-up water, and potable water for the concentrator area. A small pumping station located at Mills Lake provides service water for the crusher and mine service area.
- A borrow pit will be located east of Mills Lake and of the Mine Rock Stockpile and will provide construction materials for the Project.
- Telecommunication services will be provided with a 15km fibre optic cable using the 34 kV construction and maintenance power transmission line. A Starlink service will be installed and available for telecommunication services during the Construction Phase and afterward as a communication link backup. Mobile communication for the mining activities will be based on a private LTE (Long Term Evolution) in addition to public LTE coverage available in this area.

- A steam boiler room will be located on the north-west corner of the Process Plant building. The steam boiler room will host equipment required to generate steam, as well as other mechanical equipment such as heat exchangers, pumps, air handling units and/or fire protection equipment.
- Fire protection systems will be located across the mine site. Four (4) fire protection systems will cover either the primary ore crusher station, mine service area, Process Plant and auxiliary buildings, or the concentrate load-out area. Each system contains a water tank and a diesel-powered fire water pump, except for the system covering the Process Plant, which contains an electrical pump with a diesel pump as backup.
- The crushing plant will produce crushed materials to be used for blasthole stemming and road.

3.3 Occupations

This section provides a high-level overview of the projected workforces during the Construction Phase and Operation Phase. A projected number of positions during the Closure Phase will be completed as the Project advances through the Feasibility Study. This section also provides an overview of how Champion is committed to inclusion, diversity, and employment equity.

3.3.1 Construction Phase

The Construction Phase workforce will consist of contractor crews of different disciplines. Each crew will be comprised of foreman, journeymen, apprentices, and general labour roles. It is anticipated that the Construction Phase workforce will roster two weeks on and one week off (2/1) schedule, with an anticipated seventy-hour work week (7 hours x 10 days). The Construction Phase Workforce is anticipated to peak during year 2 and 3 of construction.

Table 3-10 provides a preliminary breakdown of the Construction Phase workforce by discipline.

Table 3-10: Projected Construction Phase Workforce

Discipline	Year-4	Year-3	Year-2	Year-1
Civil works	160	128	-	-
Concrete	-	75	124	50
Structural	-	22	53	13
Architectural	-	17	41	10
Mechanical	-	32	78	100
Piping	-	15	61	68
Tailings Pipelines	-	-	-	30
Electrical	-	24	41	47
Transmission line to Flora Lake Substation	90	10	-	-

Discipline	Year-4	Year-3	Year-2	Year-1
Automatic / Telecom / Information Technology	-	4	11	21
Professionals	-	209	232	224
Projected Number of Positions During Construction Phase	250	408	641	563

3.3.2 Operation Phase

The workforce during the Operation Phase will be divided into different departments, such as operations, maintenance, engineering, and geology. The operations team is responsible for achieving production targets in a safe manner. The engineering and geology teams will provide support to the operations team by providing short-term and long-term planning, grade control, surveying, mining reserves estimation and all other technical functions. Hourly positions will be in a roster schedule of 14 days on / 14 days off. Staff positions (i.e., management, supervision, and technical services) will also be on roster schedule. In some cases where 24-hour support in the staff role is necessary, the staff position is planned to be on the same 14 days on / 14 days off schedule as the hourly positions. A few positions are considered local and are on a 5 days on /2 days off schedule. Table 3-11 provides a preliminary breakdown of the projected number of positions during the peak of the Operation Phase, organized by department.

Table 3-11: Projected Peak Annual Operation Phase Workforce

Department	Projected Number of Positions
Mining	327
Processing	210
Tailing And Water Management	61
Minesite G&A	79
Total Projected Number of Positions During Operation Phase	677

3.3.3 Diversity, Equity, and Inclusion

Champion's goal is to attract, retain and develop the best possible talent that meets its values and culture. At the same time, Champion recognizes that diversity is important to ensure that the organization reflects the necessary range of perspectives, experience and expertise required to achieve effective stewardship and management, that diversity is a business, social and ethical imperative and that Champion's stakeholders expect Champion to foster the creation and maintenance of an inclusive workplace.

Champion's commitment to building a diverse and inclusive workforce and maintaining diversity for all positions, with an emphasis on gender diversity. Moreover, Champion seeks to create employment opportunities and provide training for members of local Indigenous communities as an important contribution to its Indigenous partner communities. As of December 31, 2022, Champion generates more than 100 direct and indirect Indigenous jobs (Champion, 2022).

Champion also strives to increase women's representation in leadership positions and in its workforce. In 2022, women held 12% of positions across the Company (excluding the executive and Board level). While the remote, fly-in/fly-out work environment for its employees creates challenges for attracting women to its workforce at existing mine operations, approximately 34% of Champion's head-office workforce are women, 25% of the Board of Directors and 14% of Champion's Montréal executive team are also women. While Champion presently does not track non-binary gender diversity, its policies, and practices of respect for individuals apply to all, regardless of sexual or gender identity.

Champion is committed to gender pay equity for same roles and positions. In 2022, Champion implemented two pay equity programs, for both unionized employees and management and professionals. Overall, there was a fairly even age distribution within Champion's workforce (Champion, 2022).

3.4 Rehabilitation and Closure Planning

Champion is developing a Rehabilitation and Closure Plan in accordance with the Newfoundland and Labrador *Mining Act* (SNL 1999 M-15.1 Sections 8, 9, and 10), and *Mining Regulations* (42/00 Section 7). The intent of the Rehabilitation and Closure Plan is to ensure long term physical and chemical stability at the operation's ultimate closure while ensuring maximum benefits to the local area surrounding the mine site and the Province of NL. The intent of the Rehabilitation and Closure Plan is to limit long term potential effects of the mining operation and associated facilities on the surrounding environment. The Rehabilitation and Closure Plan will be aligned with the environmental assessment process.

The Rehabilitation and Closure Plan is being developed to support future land use of accessible environmental, recreational, and future development opportunities where possible across the rehabilitated site. Key activities in achieving this future land use include:

- Accelerated flooding of the Rose Pit with limited recontouring to support stability and vegetation establishment, while maintain surface flow rates in surrounding water bodies.
- Temporary access control measures will be in place during the flooding period (anticipated to be approximately 10 years).
- Soil cover and revegetation of the TMF.
- Progressive regrading, soil cover and revegetation of the overburden and Mine Rock Stockpiles.
- Dismantling and removal of buildings, equipment and electrical infrastructure not required for monitoring or support of future land use purposes.

- Grading, scarification and revegetation of pads and roads not required for monitoring or support of future land use purposes.
- Dismantling and removal of railway infrastructure.
- On-site treatment of contaminated soil or off-site disposal in accordance with regulations.
- Re-establishment of passive surface water drainage following the pit-flooding period.
- Water treatment until acceptable water quality is achieved for passive discharge (anticipated to be approximately 5 years).

Additional interim care and maintenance and monitoring activities are expected during the Closure Phase and Post-Closure Period. These additional activities include interim care and maintenance during the anticipated 10-year pit flooding period and 40 years of long-term post-closure monitoring. Short term monitoring and maintenance is anticipated to include water quality, air quality, wildlife effects, and vegetation monitoring, as well as cover system and vegetation maintenance. Long term monitoring is associated with monitoring tailings dam structures (Rehabilitation and Closure Plan Guidance Document Section 17.7 h.). A conceptual rehabilitation and closure plan summary is provided in Appendix E.

3.5 Summary of Project Related Effluent, Emissions and Waste Management

This section provides a summary of the anticipated effluent, emissions and waste generated from the Project. Through the early planning and design of the Project, Champion has identified and implemented Project improvements or environmental design considerations that will reduce predicted effects from the Project, including effects from the release of effluent, emissions and through waste management. Adverse effects from Project activities that result in the generation and subsequent release of effluent, emissions or storage of waste will continue to be assessed as the Project progresses.

3.5.1 Project Related Effluent

Mine waste management, including the management of overburden and mine rock are discussed in Section 3.3.4. Management of Tailings is presented in Section 3.3.5, and Water Management Infrastructure and Facilities, including the management of contact water, is presented in Section 3.3.6.

Current assumptions regarding the management of Project effluent are based on the PFS design and will be refined as the design advances through the Feasibility Study. Project effluent will be managed to ensure compliance with the provincial *Environmental Control Water and Sewage Regulations, 2003* under the *Water Resources Act* and federal *Metal and Diamond Mining Effluent Regulations* (MDMER), under the *Fisheries Act*.

As presented in Section 3.3.6, two water treatment plants are currently proposed for the Project; one treatment plant located to the west of the Rose Pit Collection Pond that will discharge to Pike Lake (PLWTP), and one located within the Process Plant that would discharge to Long Lake (LLWTP). The water treatment plant adjacent to the Rose Pit Collection Pond is currently designed to treat contact water originating from Rose Pit, the Overburden Stockpile, Mine Rock Stockpile and other facilities on the west side of the site before discharging to Pike Lake. The LLWTP is designed to treat contact water from the

TMF and other facilities before discharging to Long Lake. As described previously, contact water management and optimization is being advanced through the Feasibility Study to maximize water recycle, minimize freshwater reclaim, and minimize effluent discharge.

Sewage generated by the Project will be similar to what was proposed by Alderon in the 2012 EIS. Sewage will be treated on site using either a septic tank system or a commercial sewage/wastewater treatment system. The processes included in a commercial wastewater system, if such a system is required, will be determined during the permitting phase of the Project based on the nature and quantity of sewerage and wastewater requiring treatment.

3.5.2 Project Related Emissions

3.5.2.1 Air Quality and Greenhouse Gases

Project activities during the life of the Project will result in the release of several criteria air contaminants (CACs), including combustion gases such as carbon monoxide (CO), nitrogen oxides (NO_x) sulphur dioxide (SO_2) and generation of dust and particulate matter, including particulate matter less than or equal to 2.5 µm ($PM_{2.5}$), particulate matter less than or equal to 10 µm (PM_{10}), and total particulate matter (TPM).

Project activities that are anticipated to result in the release of CACs include, but are not limited to, site preparation and clearing, transportation of staff, mining activities such as drilling, blasting, crushing ore and mine rock, hauling, conveying, and stockpiling ore and mine waste, processing ore concentrate, and operation of the train rail cars through the shipment of iron ore concentrate.

Project activities will also result in the emissions of several greenhouse gases (GHGs), including carbon dioxide (CO_2), methane (CH_4) and Nitrous Oxide (N_2O). Greenhouse gases that will be emitted from the Project will be primarily through the combustion of fuel in construction and mining equipment.

Champion has incorporated additional environmental design feature into the design of the Project through the PFS that will reduce predicted emissions from the Project, including the implementation of the IPCC, which will reduce CACs and GHGs through reduced hauling requirements for mine rock. The number of haul trucks needed is reduced by up to 85%, from a maximum of 50 presented in the 2012 EIS during the Operation phase to 8 trucks in the current optimized Project.

3.5.2.2 Noise, Vibration and Light

Construction and operation activities will produce noise, vibration, and light. The main sources of Project noise and vibration will be from drilling and blasting activities during predevelopment mining (Construction Phase), the development of the Rose Pit (Operation Phase) and the operation of mine vehicles during all phases of the Project. The main sources of light emissions from the Project will be lighting on buildings, mine vehicles and equipment. The Project is anticipated to run for 24-hours a day, 7 days per week from initiation of the Construction Phase to completion of the to Closure Phase.

3.5.3 Waste Management

Mine waste management, including the management of overburden and mine rock are discussed in Section 3.3.4. Management of Tailings is presented in Section 3.3.5.

Diesel fuel for mine equipment will be transported by truck from Sept-Îles. Diesel storage tanks will be installed at the mine site to ensure a total storage capacity for 8 days. Initially, five 79,000 L reservoirs, are proposed to be installed. Over the life of the mine, more reservoirs may be installed as needed. A mine truck diesel filling station is proposed in the mine services area, near the primary crushing station. Two additional diesel storage tanks with a capacity of 50,000 L will be installed to support the back-up generators. A gasoline filling station with a tank capacity of 50,000 L will be installed near the concentrator for light vehicles.

Domestic waste generated from the Project will either be collected and hauled to a licenced facility in Wabush or will be deposited in an approved landfill within the vicinity of the Project.

3.6 Capital Cost and Funding

The Project will be privately funded and is not dependant on any provincial or federal government funding.

The initial capital and sustaining cost estimates were developed through the completion of the PFS, with a target accuracy of +/20% (Champion 2024). The estimate is expressed in constant Canadian dollars with a base date of December 22, 2023. The capital cost estimate totals $3,864 million (M), which encompasses all capital expenditures anticipated during the Construction Phase, up to the commencement of the Operation Phase. This comprehensive cost also includes initial operational expenditures incurred in the pre-production phase (last year of the Construction Phase), such as mine pre-stripping, construction of the mine waste stockpile, TMF, operational costs, and capital costs associated with the IPCC. Table 3-12 provides a summary of capital costs by major Project component area, and Table 3-13provides a summary of sustaining capital costs over the life of mine by major Project component area.

Table 3-12: Capital Cost by Major Component Area

Project Component	CAN$
Mine site	627 M
Mining fleet	183 M
Mining pre-production	64 M
Processing	1,135 M
TMF	472 M
Pre-production	5 M
Other	41 M
Total direct CAPEX	2,528 M
Owners Cost	105 M
Contingency	474 M
Others Indirect	551 M

Project Component	CAN$
Total Indirect	1,130 M
Total direct and Indirect	3,659 M
Kami Railroad	205 M
Total CAPEX Initial CAPEX	3,864 M

Table 3-13: Sustaining Capital by Major Component Area Over Operations

Project Component	CAN$
Mine Site	325 M
Processing	137 M
Mining Fleet	589 M
TMF	900 M
Total Sustaining	1,952

3.6.1 Closure and Rehabilitation Cost Estimate

Based on the existing Project layout and operations, a provisioned cost of $300 M was estimated for the closure and rehabilitation of the mine site. As described in Section 3.4, the closure and rehabilitation costs include the dismantling, removal of facilities, flooding of the Rose Pit, and revegetation of the area. Possible revenue from the salvage of equipment and materials was not considered.

4.0 EXISTING ENVIRONMENT

Baseline field programs were undertaken in 2011 and 2012 in the vicinity of the Project to characterize the existing environment and to support the assessment of Project and cumulative effects to selected valued ecosystem components (VECs) in the 2012 EIS. In 2023, Champion undertook a comprehensive environmental baseline field program which sought to replicate the field programs that were completed for the Project in 2011 and 2012, supplemented with additional data collection stations or sampling locations which also reflect changes in regulatory requirements.

This section provides a summary of the existing environment within the vicinity of the Project and has been organized by the VECs that were previously selected and assessed in the 2012 EIS, which includes:

- Atmospheric environment
- Landforms, Soils, Snow and Ice
- Water Resources
- Wetlands
- Freshwater Fish, Fish Habitat and Fisheries
- Birds, Other Wildlife and Their Habitats, and Protected Areas
- Species at Risk and Species of Conservation Concern
- Historic and Cultural Resources
- Current Use of Lands and Resources for Traditional Purposes by Indigenous Persons
- Other Current Use of Lands and Resources
- Health and Community Health
- Community Services and Infrastructure
- Economy, Employment and Business

Each VEC section may be broken into additional discipline sections. For example, water resources (Section 4.3) consist of separate sections for hydrogeology and surface water. The only VEC without a dedicated section below is Health and Community Health. This VEC will rely upon the baseline data collected through other disciplines, such as the atmospheric environment, water resources and the socio-economic VECs. To describe the existing environment, each discipline section includes a summary of the applicable baseline field investigations that were completed in 2011, 2012 and 2023.

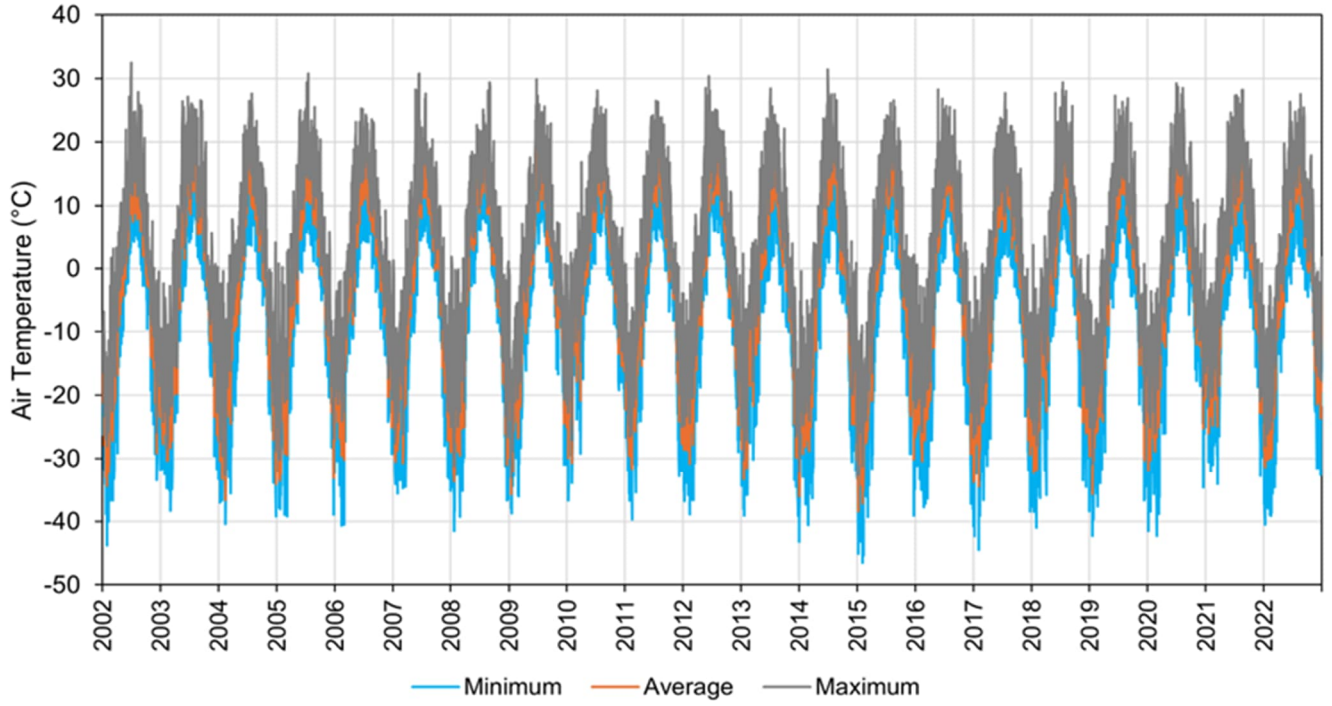
4.1 Atmospheric Environment

This section provides a summary of the existing baseline conditions in the vicinity of the Project for the disciplines that make up the atmospheric environment VEC. The atmospheric environment VEC is comprised of five disciplines: climate, air quality, noise, vibration, and light.

4.1.1 Climate

To understand the existing climate at the Project site, Champion completed a desktop review of data from local meteorological stations to develop a climate dataset for the Project over the last 20 years (2002 to 2022). The daily average, minimum and maximum air temperatures in the vicinity of the Project were derived using the hourly data recorded at the Wabush Lake A, Wabush A (1) and Wabush A (2) climate stations, which are all approximately 14 km from the Project in varying directions. Data gaps in the climate record were supplemented with data from the closest grid point from the Natural Resources Canada meteorological dataset to the Wabush Lake A climate station.

The climate in the region is typical of north-central Québec/Western Labrador (subarctic climate). Typically, winters are harsh, lasting approximately six to seven months with heavy snow from December through April. Freezing temperatures and snowfall persist from January to mid-April at the start of the year and from the end of October through December. The maximum snow water equivalent in the area varies from 184 to 470 millimetres (mm), with an average of 322 mm per year. Summers are generally cool and wet; mean annual precipitation ranged from 850 mm to 1,190 mm between 2002 and 2022, with an average of 1,000 mm. Mean annual air temperature was -2.0°C for the 2002-2022 period. Monthly average temperatures range from -20.1°C in January to 14.6°C in July. The prevailing winds are from the west and have an average speed of 14 km per hour, based on 30 years of records at the Wabush A station. Figure 4-1 displays the long-term daily minimum, average, and maximum air temperatures for the 2002-2022 period. Figure 4-2 illustrates two wind roses from the Wabush A station that showcases the prevailing winds from the west.



Source: Lorax 2024

Figure 4-1: Daily Minimum, Average and Maximum Air Temperatures for the 2002 to 2022 Period

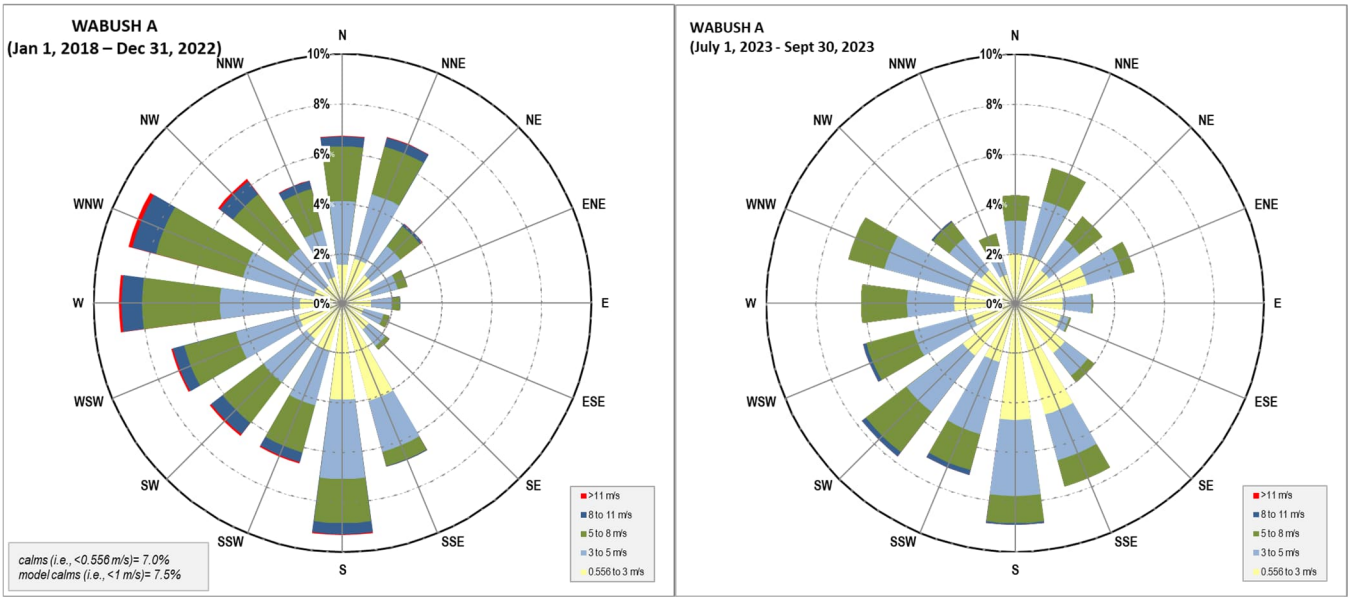


Figure 4-2: Wind Roses for the Wabush A Station

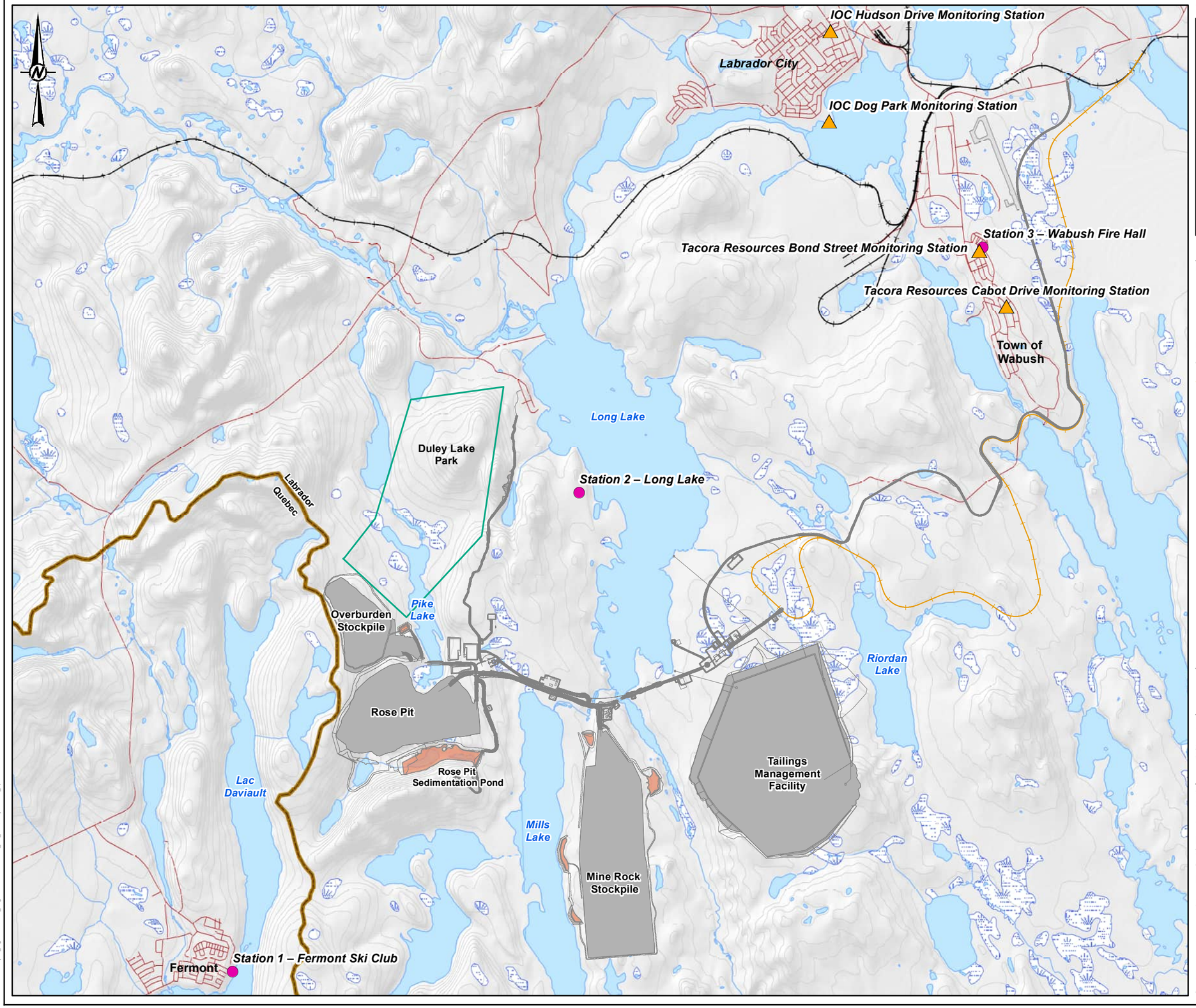
4.1.2 Air Quality

The Project is situated between several existing mining operations, including Tacora's Scully Mine and the IOC Wabush 3 Open Pit Mine. Activities at these mining sites, including blasting, material hauling, ore processing and tailings deposition can result in dust generation and emission of particulates, particularly particulate matter less than or equal to 2.5 µm ($PM_{2.5}$), particulate matter less than or equal to 10 µm (PM_{10}), and TPM.

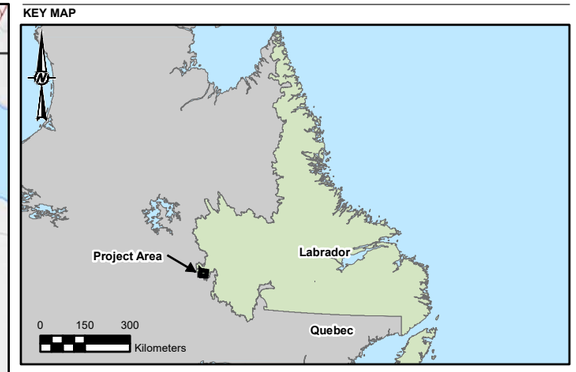
Based on a review of the annual 2022 Ambient Air Monitoring Report published by the Department (Department of Environment and Climate Change 2023), there were a few exceedances of the NL Ambient Air Quality (NL AAQ) standards for TPM and PM_{10} at the air quality monitors located in the Town of Labrador City (located approximately 10 km from the Project), and one exceedance for TPM at the air quality monitors located in the Town of Wabush (located approximately seven km from the Project). Overall, the 2022 Ambient Air Monitoring Reports note that the air quality in communities across the province of NL is generally considered good with some periodic decreases in air quality at locations adjacent to industrial operations.

Measured SO_2 and NO_2 concentrations were obtained from the Department for air quality monitoring stations across the province for the period of June through August 2023. Following a review of the data from these stations, the Hudson Drive (Firehall) in Labrador City station operated by IOC (located approximately 14 km northeast from Rose Pit), was selected as the monitoring station most representative of the baseline air quality conditions in the vicinity of the Project. The maximum measured rolling average and maximum measured daily averages for SO_2 and NO_2 concentrations at the Hudson Drive (Firehall) station were below the NL AAQ standards.

In 2023, Champion completed a baseline ambient air quality monitoring program in the communities surrounding the Project (Appendix F) to further characterize current air quality conditions in the vicinity of the Project. The air quality baseline monitoring program focused on particulate matter given the concern from local communities of dust generated from existing mining operations in the region. Air quality monitoring stations for particulate matter were deployed from July 26 to September 17, 2023, at Ville de Fermont (located approximately five km from the Project), the Town of Labrador City and the Town of Wabush. Air quality sampling locations are shown in Figure 4-3. Overall, there were no exceedances of the NL AAQ standards for TPM, PM10 and PM2.5 measured during the air quality monitoring period.



KEY MAP



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LEGEND

- Baseline Air Quality Monitoring Stations
- Air Quality Monitoring Stations

PROJECT DATA

- Proposed Infrastructure
- Proposed Railway
- Proposed Infrastructure
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- Watercourse
- Roads
- Contour
- Waterbody
- Bog/Wetland
- Labrador/Quebec Boundary

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - NEWFOUNDLAND AND LABRADOR
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT
CHAMPION IRON MINES

PROJECT
KAMI IRON ORE PROJECT
WABUSH, NL

TITLE
BASELINE AIR QUALITY MONITORING STATIONS

CONSULTANT

YYYY-MM-DD	2024-04-25
DESIGNED	----
PREPARED	JMA
REVIEWED	JT
APPROVED	----

PROJECT NO.	CONTROL	REV.	FIGURE
TE23930010	0001	A	Figure 4-3

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4.1.3 Noise and Vibration

In the vicinity of rural towns such as the Town of Wabush, Town of Labrador City, and Ville de Fermont, noise levels are typically driven by anthropogenic sources, such as vehicle traffic and construction. Mining activities at surrounding mines, including Tacora's Scully Mine and IOC's Wabush 3 Open Pit Mine, are sources of noise and vibration in the Town of Wabush, Town of Labrador City and Ville de Fermont.

Baseline noise monitoring was completed at four monitoring sites in the summer of 2011 and winter of 2012 to characterize existing noise levels at the Project site, which informed the assessment of noise and vibration completed for the 2012 EIS (Alderon 2012).

During the summer monitoring period, 24-hour noise monitoring was conducted at three sites: Ville de Fermont (Site 1), Duly Lake (Site 2) and the Town of Wabush (Site 3). During the winter noise monitoring period, 24-hour noise monitoring events were carried out at Site 1, Site 3 and a fourth additional site near both a school and church in the Town of Wabush. Noise monitoring was not conducted at Site 2 during the winter period due to power and access limitations to the sites. The average noise levels monitored during the day (L_d), night (L_n) and average noise levels during the day and night (L_{dn}) are presented in Table 4-1 and Table 4-2. The results of the noise monitoring were aligned with expectations for human settlements, with average noise levels ranging from between 39.6 A-weighted decibels (dBA) at night to 53.1 dBA during the day in the summer and 32.7 dBA at night to 46.8 dBA during the winter.

Table 4-1: Average Day, Night and Day Night Average Noise levels for 2011 Summer Monitoring Sites

Site Number	UTM Coordinates[(a)] Northing/Easting	Site Description	L_d (dBA)	L_n (dBA)	L_{dn} (dBA)
Site 1	5851022/629449	Residential property in Ville de Fermont, Québec	43.4	39.6	46.9
Site 2	58612308/634479	Recreational area near Duley Lake	42.0	39.7	46.7
Site 3	5863138/643272	Residential property in the Town of Wabush, Labrador	53.1	46.7	52.9

Source: Alderon 2012

UTM coordinates based on NAD83 Zone 19.

dBA = A-weighted decibels; Ld. = daytime noise levels (7:00 am and 10:00 pm); Ln = nighttime noise levels (10:00 om to 7:00 am); Ldn = day and night average noise levels.

Table 4-2: Average Day, Night and Day Night Average Noise levels for 2012 Winter Monitoring Sites

Site	UTM Coordinates Northing / Easting[(a)]	Site Description	L_d (dBA)		L_n (dBA)		L_{dn} (dBA)	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Site 1	5851022 / 629449	Residential property in Ville de Fermont, Québec	40.8	46.5	34.6	38.6	42.6	47.4
Site 2	58612308 / 634479	Recreational area near Duley Lake	46.4	43.8	37.5	32.7	46.8	43.4
Site 4	5863138 / 643263	Location near a school and church in the Town of Wabush, Labrador	45.1	-	35.4	-	45.2	-

Source: Alderon 2012

UTM coordinates based on NAD83 Zone 19.

dBA = A-weighted decibels; L_d = daytime noise levels (7:00 am and 10:00 pm); L_n = nighttime noise levels (10:00 om to 7:00 am); L_{dn} = day and night average noise levels.

Most normal industrial vibration sources are attenuated below perception over the first 100 m from the source. No known vibration generation sources were identified within or near the Project, other than from existing mining operations. Due to the absence of major anthropogenic activities in the vicinity of the Project, ambient vibration was expected to be well below average human perception, except for the blasting operations at the existing mines (Alderon 2012).

4.1.4 Light

The urban areas of the Town of Labrador City, the Town of Wabush, and Ville de Fermont are primarily residential areas, and most sources of industrial lighting are located outside of the residential areas.

To define existing light levels in the vicinity of the Project, a baseline light monitoring program was completed by Alderon in 2011 (Alderon 2012) A series of light readings were taken at night (between 0:00 and 1:00) in the Town of Wabush, the Town of Labrador City, Duley Lake, and Ville de Fermont. These readings measured sky glow, which measures stray light that is scattered in the atmosphere, brightening the natural sky and reducing star visibility. The lower the sky glow measurement, the greater the proportion of light that is reflected in the atmosphere from anthropogenic sources. Sky glow measurements ranged from 15.37 magnitude per square second of arc (mag/arcsec^2) in the Town of Labrador City to 20.26 mag/arcsec^2 at Duley Lake (Alderon 2012). A sample set of representative sky

glow values for typical situations and environments are provided in Table 4-3 to provide context to the range of measurements recorded in 2011.

Table 4-3: Sky Glow for Sample Situations and Environments

Sample Situation / Environment	Sky Glow (mag/arcsec^2)
Standard natural background (zero sky glow)	21.6
Limit for astronomical site of international standing	21.5
Limit for dark sky site for most astronomers	21.2
Full moon night sky	18
Night sky in densely populated area	17
Clear sky 30 minutes after sunset	15
Heavily overcast daytime sky	8
Clear daytime sky	3

Source: Narisada and Schreuder 2004.

Mag/arcsec^2 = magnitude per square second of arc.

4.2 Landforms, Soils, Snow and Ice

This section provides a summary of the baseline desktop and field investigations completed to inform the existing environment in the vicinity of the Project as it relates to the landforms, soils, snow and ice VEC. The landforms, soils, snow and ice VEC is organized into four separate discipline sections: snow and ice, soils and terrain, geology, and geochemistry.

4.2.1 Snow and Ice

The amount of daily snow was estimated from the monthly precipitation records from the Wabush A station over the last 5 and 10 years, using a temperature threshold of 0°C (Table 4-4). When the daily temperature was below 0°C, all precipitation was considered to be snow. Based on reviewing the 5-year and 10-year mean monthly precipitation record, precipitation was found to be snow-dominated from November to April and rain-dominated from May to October.

Table 4-4: Monthly Temperature and Precipitation Means at ECCC Wabush A (2014 to 2023)

Wabush A	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean / Annual [(a)]
2023 Temp (°C)	-19.8	-19.8	-11.7	-2.4	4.4	11.8	15.5	14.3	9.2	3.6	-6.8	-12.5	-1.2
10-yr Temp (°C)	-21.8	-21.6	-14.1	-5.7	3.4	10.0	14.5	13.3	7.4	2.0	-8.4	-14.8	-3.0

Wabush A	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean / Annual [(a)]
5- year Precipitation (mm)	13.3	15.5	25.2	36.6	58.1	89.1	92.8	107.1	66.3	57.5	34.2	42.2	638
5-year snow (mm)	13.3	15.5	24.9	25.9	1.02	2.1	0	0	0	8.06	24.9	29.6	145
10-year Precipitation (mm)	13.1	13.9	16.8	32.7	55.9	77.4	89.7	109.2	58.7	57.4	37.2	31.3	590
10-year snow (mm)	13.1	13.9	16.6	25.2	4.5	1.2	0.0	0.0	0.0	12.6	30.2	25.0	142

a) Values presented for temperature are mean values, the values presented for precipitation and snow are annual totals.

4.2.2 Soils and Terrain

In 2023, Champion conducted a comprehensive baseline field program to characterize the existing soil and terrain features (i.e., landforms) within the vicinity of the Project (Appendix G), building upon previously completed baseline field investigations completed in 2011 and 2012 to support Ecological Land Classification (ELC) mapping (Stassinu 2012a), which were completed as part of the terrestrial vegetation baseline studies.

The Project is situated in hilly terrain, marked by lakes and valleys with a northeast-southwest orientation. Topography is relatively planar in most areas, with inclined and rolling landscapes with slopes between 10% and 20% grade. These landforms are generally located adjacent to lakes and fluvial systems and any steep slopes (up to 97%) were generally found to be in association with bedrock outcrops.

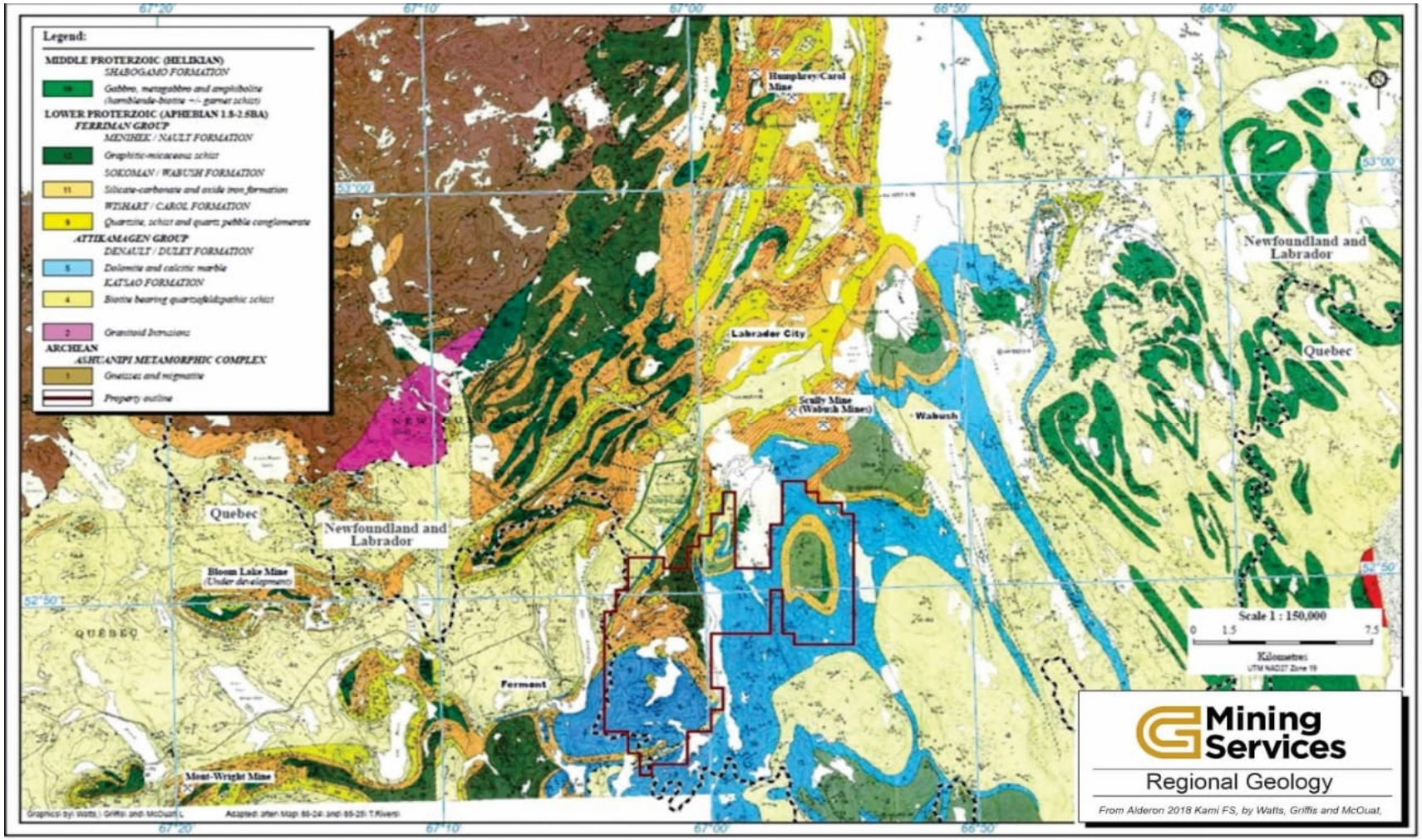
Surficial materials present are dominated by till (moraine) occupying over 75% of the Project site and organic accumulations occupying approximately 14.6% of the site. The majority (approximately 98%) of the Project is mapped as stable terrain (Class I, II, and III), with minor areas (1.2%) mapped as potentially unstable ([Class IV] or 46.5 ha,), and 1.4% mapped as unstable (Class V). Samples obtained from geotechnical and exploration boreholes drilled by Alderon in 2011 indicated that the overburden exhibits a highly variable range in thickness. In general, glacial till thicknesses ranged from 0.2 m to 62.2 m, with an average of 21.6 m (Stantec, 2013ab).

Soils within the Project site are generally well to moderately well drained Brunisols and Podzols. There are some areas of very poorly drained areas associated with Organic soils. Reclamation suitability for soils is generally classified as unsuitable due to very low pH values (less than 3.5) in the upper soil horizons or because of very high coarse fragment contents. Mineral soils were generally at a moderate risk for wind erosion, very low risk for water erosion, and low risk for soil compaction. Organic soils were not rated for reclamation suitability or erosion and compaction risk as the rating systems are not designed to include Organic soils. Approximately 64.0% of the Project site is considered to be well drained, 0.1% is considered to be very rapidly drained, and 8.1% is mapped as having imperfect to poor drainage where water tables fluctuate, or inundation or seepage is present. Very poor drainage associated with areas of organic accumulation where also observed in the vicinity of the Project.

4.2.3 Geology

The Project is situated in the highly metamorphosed and deformed metasedimentary sequence of the Grenville Province, Gagnon Terrane of the Labrador Trough, adjacent to and underlain by Archean basement gneiss (Figure 4-4). The Labrador Trough extends for more than 1,200 km along the eastern margin of the Superior Craton from Ungava Bay, Québec to Lake Pletipi, Québec (Neal, 2000). The belt is approximately 100 km wide in its central part and narrows considerably to the north and south. The southern part of the Labrador Trough is crossed by the Grenville Front, representing a metamorphic fold-thrust belt in which Archean basement and Early Proterozoic platformal cover were thrusted north-westwards across the southern portion of the southern margin of the North American Craton during the 1,000 Ma Grenvillian orogeny (Brown et al. 1992).

North of the Grenville Front, the Labrador Trough rocks in the Churchill Province have been only subject to greenschist or sub-greenschist grade metamorphism and the principal iron formation unit is known as the Sokoman Formation. The Sokoman Formation is underlain by the Wishart Formation (quartzite) and the Attikamagen Group including the Denault Formation (dolomite) and the Dolly/Fleming Formations (shale). In the Grenville part of the Labrador Trough where the Project is located, these same Proterozoic units can be identified, but are more metamorphosed and deformed. In the Grenville portion of the Labrador Trough, the Sokoman rocks are known as the Wabush Formation, the Wishart as the Carol Formation (Wabush area) or Wapusakatoo Formation (Gagnon area), the Denault as the Duley Formation and the Fleming as the Katsao Formation (Neal, 2000; Corriveau et al., 2007).



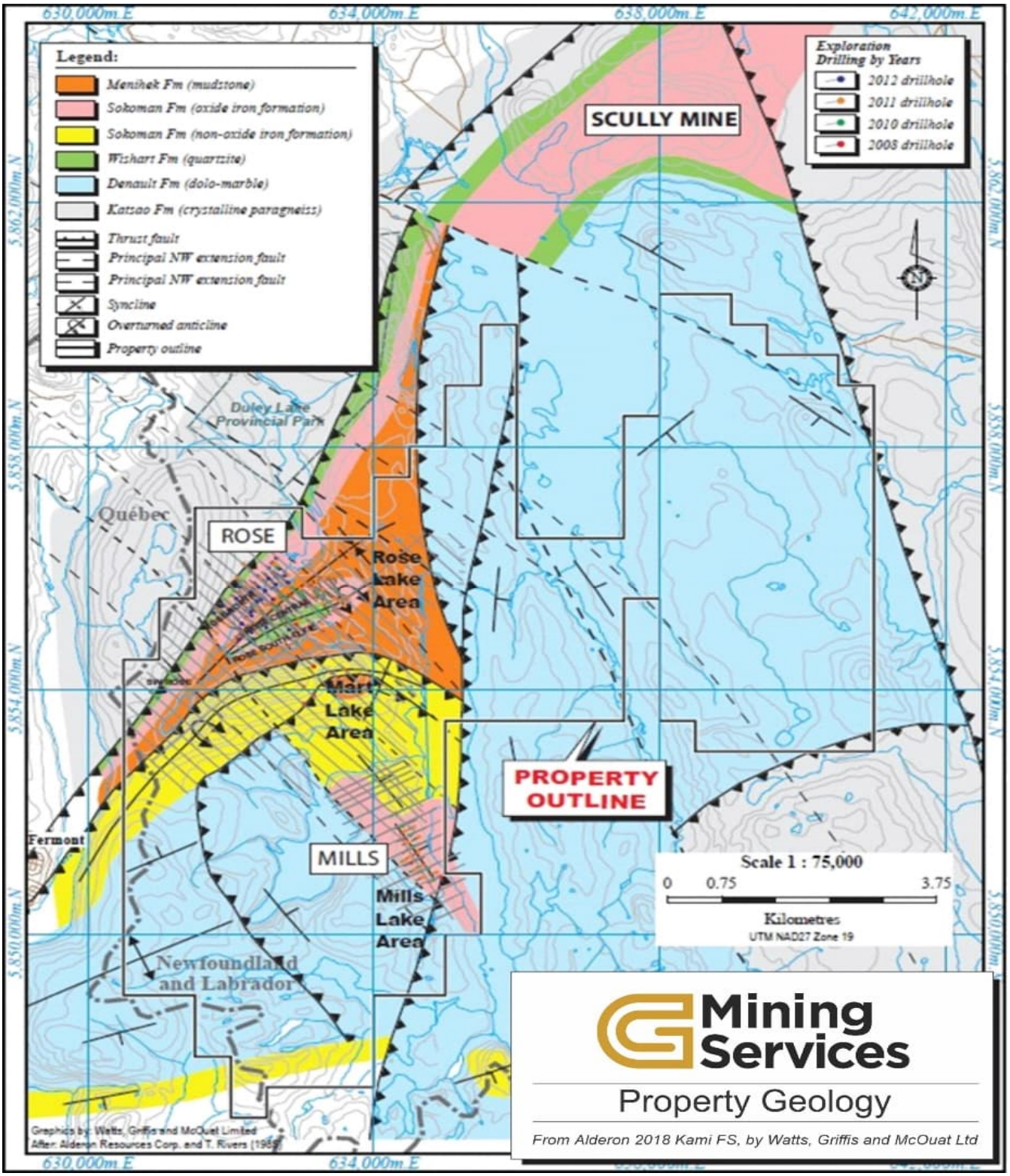
Source: Alderon 2018

Figure 4-4: Regional Geology

The Project site is underlain by folded, metamorphosed sequences of the Ferriman Group and includes (from oldest to youngest): Denault (Duley) Formation dolomitic marble (reefal carbonate) and Wishart Formation quartzite (sandstone) as the footwall to the Sokoman Formation. The Sokoman Formation includes iron oxide, iron carbonate and iron silicate facies and hosts iron oxide deposits. The overlying Menihek Formation resulted from clastic pelitic sediments derived from emerging highlands into a deep-sea basin and marks the end of the chemical sedimentation of the Sokoman Formation (Alderon 2018). The Project site includes two iron oxide hosting basins juxtaposed by thrust faulting. The principal basin, named the “Wabush Basin”, contains the majority of the known iron oxide deposits on the Project site. Its trend continues north-northeast from the Rose Lake area for 9 km to IOC’s Wabush 3 Open Pit Mine and beyond the Town of Wabush. The second basin, named the "Mills Lake Basin", lies south of the Elfie Lake Thrust Fault and extends southwards, parallel with the west shore of Mills Lake. Each basin has characteristic lithological assemblages and iron formation variants. In some areas of the Project site, the Sokoman Formation is underlain primarily by Denault (Duley) Formation dolomite. In other areas of the Project site, both Denault (Duley) Formation dolomite and Wishart Formation quartzite units are present (Alderon 2018).

The most comprehensive geological mapping in the vicinity of the Project site was done by T. Rivers (Rivers and Clarke 1980) as part of his Labrador Trough mapping program of the mid-1980s. Figure 4-5 is based mainly on T. River’s work with modifications made by Alderon and Altius Minerals through mapping, drilling, and interpretation of geophysical survey results including an airborne gravity survey from 2010 (Alderon 2018).

In 2023, Champion completed a re-evaluation and analysis of geological data and drilling exploration logs to refine the structural understanding of the rock formations encountered at the Project mining deposit, leading to the creation of a three-dimensional (3D) geological Leapfrog model (GMining 2023). The results of this analysis confirmed that, from deepest to shallowest, the rock formation sequence across the Project site consists of Archean gneiss (Katsao Formation), dolomitic marble (Denault [Duley] Formation), quartzite sandstone (Wishart formation), iron formations (Sokoman Formation) and mica schist (Menihek Formation).



Source: Alderon 2018

Figure 4-5: Property Geology

4.2.4 Geochemistry

Champion is currently undertaking a geochemical characterization program to determine the metal leaching/acid rock drainage (ML/ARD) risk of units identified as future mine rock during the Operation Phase of the Project (Appendix C). To meet updated best practice guidelines, Champion has completed additional geochemical sampling and analysis of existing core. Geochemical sampling and analysis were expanded upon based on previous characterization work (WorleyParsons 2014a; Stantec 2013a) and provides a comparison based on interpretations of initial static test results (i.e., acid-base accounting (ABA) and whole rock analysis) received to date.

Results from Phase 1 of the ongoing characterization program are generally consistent with previous analyses completed in 2013 (Appendix C). Results of the ABA indicate that potentially acid generating (PAG) material is present in all mine rock units except for the Denault Formation, although most of the PAG samples were concentrated in the Menihek Formation. However, more samples were identified as PAG within the Sokoman and Wishart Formations within the new sample set, which may be related to different block models used between the two studies or naturally occurring heterogeneities. Ore, iron ore concentrate, and tailings were previously determined to be NPAG, with low metal-leaching potential based on static tests (Stantec 2013a). Overburden contains some PAG materials (6 out of 71 samples) though most of the PAG risk from the overburden is associated with being over the Menihek Formation (Alderon 2014).

The Phase 1 report explored the availability of sufficient neutralization potential (NP) to neutralize potential acidity generated to include the latest static test results and updated mine rock volumes planned for the TMF dam embankment. Following guidelines from Price (2009), a neutralization potential ratio (NPR) >2 indicates that there is sufficient NP to classify mine rock as NPAG. After removing an estimated 82.4 Mt of NPAG mine rock required for the TMF dam embankment, the total average and median NPR values were 5.0 and 7.2 respectively for the remaining rock in the Mine Rock Stockpile, indicating that there is sufficient NP available to neutralize potential acidity generated from sulfide oxidation. Cross sections of the Project deposit were developed showing sample locations and their respective neutralization potential ratios. Interpretation of these results show that zones of PAG mine rock may be present at relatively shallow depths in the Project deposit (associated with the Menihek Formation).

WorleyParsons (2014a) highlighted risk of metal mobility from static leach tests, including Ag, Al, As, Cd, Cr, Co, Cu, Fe, Hg, Mo, Ni, Se, and U from mine rock, as well as Cu, Ni, and Zn from overburden, however metal most samples with increased mobility that were flagged were associated with the minority of samples. Previous kinetic testing (Stantec, 2013a) demonstrates an increase in metal concentrations for humidity cell tests that went acidic (associated with the Menihek Formation). A blended humidity cell test which consists of the different geological formations with an average planned Mine Rock Stockpile NPR is currently ongoing to determine the influence of blending to maintain neutral conditions and their control on metal release. Results of this blended kinetic test will be reported in Phase 3 of the geochemical characterization.

4.3 Water Resources

This section provides a summary of the baseline desktop and field investigations completed to inform the existing environment in the vicinity of the Project as it relates to the water resources VEC. The water resources VEC is organized into two separate discipline sections: hydrogeology and surface water.

4.3.1 Hydrogeology

Alderon completed baseline hydrogeological field investigations and preliminary geotechnical investigations in 2011 and 2012 throughout the Project site and its vicinity (Stantec 2012). The investigations consisted of borehole exploration drilling programs, site-specific hydrogeological testing, automated and manual groundwater level monitoring, and water quality sampling collected from October 2011 to April 2012. Hydrogeological baseline data was collected and reviewed to develop a conceptual understanding of the groundwater flow conditions and baseline groundwater chemistry throughout the Project site.

Several EA conditions associated with the EA released in 2014 related to further understanding and characterizing the hydrogeological environment in the vicinity of the Project. Conditions included updating and refining the hydrogeological model to gain further knowledge on the existing hydrogeological environment around the proposed open pit, and to refine hydraulic conductivity estimates when additional investigations of soil and bedrock hydraulic properties are carried out during detailed design of the Project.

In 2023, Champion completed a desktop review of hydrogeological data, undertook additional site investigations, and developed an updated conceptual hydrogeological model, including the development of calibrated hydraulic conductivity estimates. These investigations and updated hydrogeological model provide a better understanding of the hydrogeological conditions at the Project site. A summary of the existing hydrogeological environment based on the previous (Stantec 2012) and updated (Appendix A) desktop and field investigations is provided below.

4.3.1.1 Groundwater Levels and Gradients

Across the Project site, the groundwater flow generally follows the hydrographic drainage and flows towards the north (Pike Lake) and the northeast (Long Lake). In the Rose Pit area, groundwater levels closely correlate with topography and range from 11.64 metres below ground surface (mbgs) in areas of high elevation, to artesian conditions in areas of low elevation. The center of the valley represents a local discharge area where an alignment of lakes such as Mid Lake, Rose Lake and Pike Lake are formed. In contrast, topographic highs to the west (near Gleeson Lake) and south-east of the pit (North of Elfie Lake) act as preferential recharge areas. Considering annual precipitation for a dry or wet year, evaporation and runoff, recharge is estimated between 0 mm/year and 130 mm/year (Appendix A).

In the pit area, horizontal gradients were estimated between different pairs of wells, in the till/bedrock or the bedrock. Strong gradients are seen on slopes, in the bedrock, between 0.08 metre per metre (m/m) (northerly towards Pike Lake) and 0.17 m/m (northeast to southeast towards Rose Lake). More gentle gradients were estimated in the center of the valley, at the till-bedrock interface, between 0.02 m/m (southwest to northeast towards Pike Lake) and 0.03 m/m (easterly towards Pike Lake). Across the

Project site, groundwater gradients ranged from gradual (0.001 m/m) near lakes and wetlands to much steeper (0.07 m/m) along the slopes of upland areas (Alderon 2012).

4.3.1.2 Groundwater Quality

Groundwater quality sampling was completed by Alderon during winter conditions in 2011 to characterize the chemistry of water in overburden and bedrock throughout the site. Samples were recovered from 21 wells across the Project site. Samples were collected from the Rose Pit, main plant site, access road and railway areas. The TMF, Mine Rock Stockpile and Overburden Stockpile were not sampled. Samples were taken from eight wells screened in the overburden, four wells completed in bedrock (including three samples from open borehole exploration wells drilled by Alderon) and nine wells screened across the overburden-bedrock boundary. A summary of the results of the groundwater quality sampling of Rose pit area is provided below (Stantec 2012):

- In the overburden wells, all parameters except manganese (average concentration of 297 micrograms per litre [µg/L]) meet the Guideline for Canadian Drinking Water Quality (GCDWQ) (Health Canada 2010). In contrast to the deeper till/bedrock and bedrock chemistry, the overburden chemistry appears to be slightly higher in sodium, chloride, and Total Dissolved Solids concentrations, and lower in alkalinity, organic carbon, and trace metals concentrations.
- In the till/bedrock wells, all parameters except iron (average 517 µg/L) and manganese (average 442 µg/L) meet GCDWQ. The till/bedrock well samples typically had a higher total organic carbon concentration (mean 27.5 mg/L, maximum 120 mg/L) than the other units.
- In the bedrock wells, samples exceeded GCDWQ for iron (average 1469 µg/L) and manganese (mean 286 µg/L). In comparison to the overburden wells, the bedrock wells typically had higher concentrations of alkalinity, pH, copper, iron, and zinc.

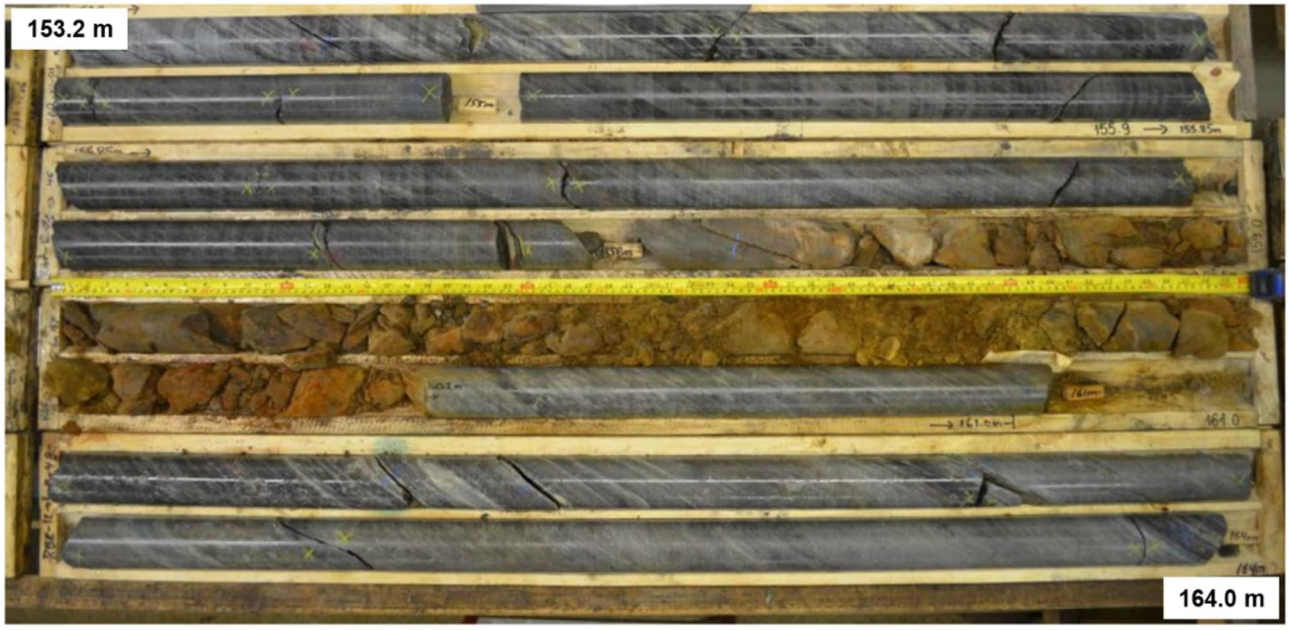
Champion completed additional field investigations in 2023 and collected 18 groundwater samples within the Rose Pit area to further analyze the general groundwater chemistry in the vicinity of the Project (Appendix A). Laboratory results for the 2023 field sampling program are still pending and, once available, will be considered as part of ongoing Project design.

4.3.1.3 Hydraulic Conductivity

As part of the 2011/2012 program, Alderon measured the hydraulic conductivity of the overburden (till) at six wells in the Rose Pit area, resulting in an average hydraulic conductivity of $1.2x10^{-6}$ metres per second (m/s) (Stantec 2012). The hydraulic conductivity of till/bedrock was also measured at four wells in the Rose Pit area, resulting in an average hydraulic conductivity of $1.8x10^{-7}$ m/s, which is approximately an order of magnitude lower than the till, indicating a probable drop in hydraulic conductivity in the lower till or in the surface bedrock. Hydraulic conductivity within the bedrock was also measured in 24 wells, mostly located south of Long Lake. An average hydraulic conductivity of $1.2x10^{-7}$ m/s was calculated for the bedrock.

Deep bedrock hydraulic conductivities were also measured through a series of packer injection tests in two inclined boreholes located in the centre of the proposed Rose Pit. Average hydraulic conductivities

of 2.4x10^{-6} and 1.5x10^{-6} m/s were calculated at the two boreholes, respectively. During borehole testing, an interval of pulverized sandy bedrock was revealed in the Sokoman Formation at a vertical depth in the bedrock of approximately 100 m (approximately 160 m along the borehole). Figure 4-6shows the bedrock with intense weathering intervals at this depth. These results and photos suggest the presence of a fault, referred to as the Central fault, located within the Sokoman formation. An estimate of the hydraulic conductivity at the fault was made based on the highest hydraulic conductivity values calculated during the packer injection testing (i.e., greater than 1x10^{-5} m/s).



Source: Stantec 2012

Figure 4-6: Intense Weathering Interval At RBR-12-01 Borehole

In 2023, Champion built a 3D numerical model of the Project site to further understand hydraulic conductivity across the Project site (Appendix A). The hydrogeological model was based on the interpretation of geological and hydrogeological data available for the Project site. Analysis of hydraulic conductivity data led to the identification of four distinct hydrostratigraphic units in the vicinity of the Project site: the overburden (from 0 to 60 metres below ground surface [mbgs]), the bedrock surrounding Rose Pit (from 0 to 450 mbgs), the deep bedrock below Rose Pit (from 450 to 650 mbgs) and the fault zones (from 0 to 450 mbgs). Two fault zones have been identified at the site: the Katsao-Wishart fault and the Central fault (Appendix A). These two faults were represented in the hydrogeological model as zones of higher permeability that could be preferential flow paths.

The hydrogeological model was calibrated against water levels from 29 piezometers, measured between November 2011 and June 2012, following industry standards. Calibrated and measured hydraulic conductivity values for each hydrostratigraphic units are presented in Table 4-5.

Table 4-5: Measured and Calibrated Hydraulic Conductivity for Hydrostratigraphic Units

Hydrostratigraphic Units	Hydraulic Conductivity K (m/s)	
	Mean Selected Value Estimated Through Slug Tests and Packer Tests (Stantec 2012)	Calibrated Values (Appendix A)
Overburden	$1.2x10^{-6}$	$1.0 x10^{-6}$
Bedrock	$1.2 x10^{-7}$	$5.0 x10^{-8}$
Deep Bedrock	$1.0 x10^{-8}$	$1.0 x10^{-8}$
Faults	$>1.0x10^{-5}$	$1.0 x10^{-5}$

4.3.2 Surface Water

The drainage pattern across the Project site is directed north and east through a network of watercourses, lakes and wetlands that are part of the Churchill River watershed headwaters. The west portion of the Project site drains into Pike Lake. Drainage is then collected by several lakes and streams connected to the Walsh River that discharge into Long Lake from the north. The south portion of the Project site follows an in-line lake pattern in the following order: Molar Lake, Mills Lake, and Long Lake. The Waldorf River and several streams from the south and southeast drain into Long Lake. One of these streams in the east connects Riordan Lake into Long Lake. Finally, Long Lake drains into Canning Lake and Harrie Lake on the northwest.

A surface water baseline study was completed by Alderon in 2012 to characterize baseline hydrological conditions, surface water quality and sediment quality in the watersheds in the vicinity of the Project (Stantec 2012). This study included the installation of seven continuous monitoring stations to monitor representative water levels and to estimate flow rates at selected representative locations. In addition, six manual measurement staff gauges were installed in ponds nearby the proposed Rose Pit. Bathymetric information at local lakes was also collected.

Building on the previously completed study, Champion conducted a hydrology baseline investigation from June to October 2023 (Appendix H). The study area encompassed several sub-watersheds of the Churchill River, including Mills Lake, Long Lake, Riordan Lake, Waldorf River, Pike Lake, Wabush Lake and several unnamed streams and lakes. The 2023 hydrology baseline investigation included:

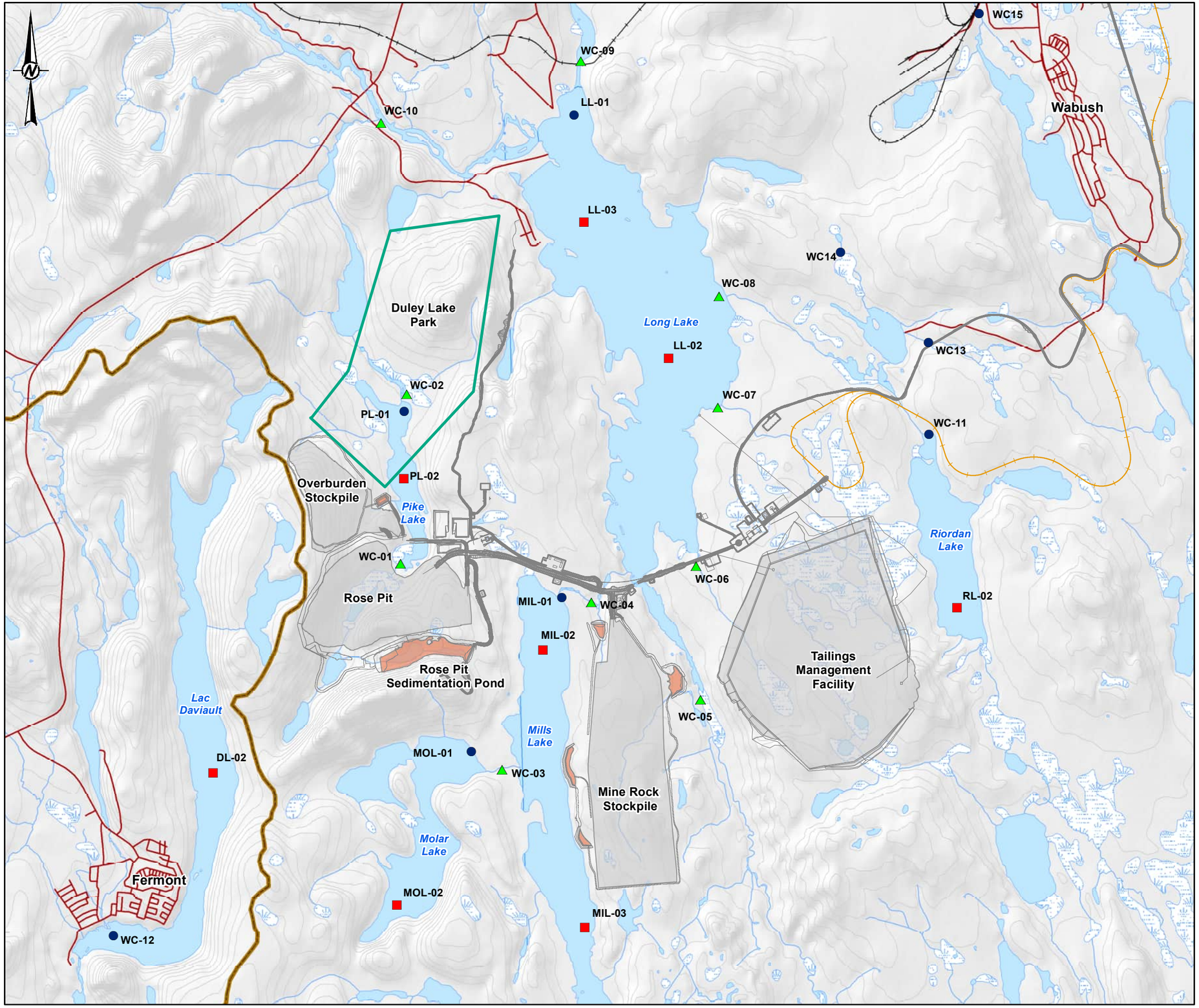
- water level and stream flow monitoring (at six lake stations and 11 watercourse stations);
- water column profiling at six lakes, which consisted of bathymetry and lake depth surveys, water column profile measurements and monitoring; and
- water and sediment quality sampling (a total of 23 samples were collected from lakes and watercourses).

The specific objectives of the 2023 baseline investigation were to:

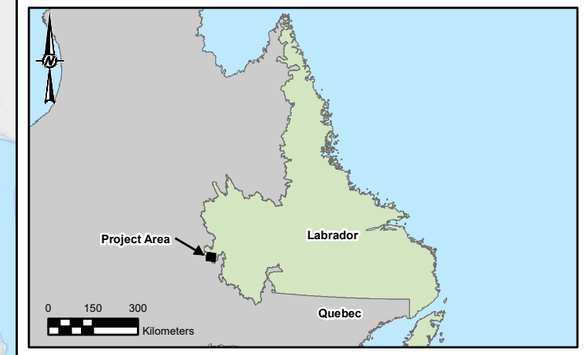
- Develop a detailed understanding of flow rates and associated seasonal fluctuations at key surface water locations to evaluate the relative proportions of surface water flow volumes.

- Characterize the seasonal patterns in water column profiles at Daviault Lake, Long Lake, Mills Lake, Molar Lake, Pike Lake, and Riordan Lake to evaluate the potential for lake stratification and/or turnover.
- Assess the spatial and seasonal variability of water quality at key surface water locations.
- Evaluate the potential influence that existing sources of metals and radionuclides from the surrounding watersheds have on the physical and chemical behaviour of key receiving waters.

Monitoring stations and sample locations are presented in Figure 4-7. The results of the 2023 hydrological baseline investigation are summarized in the following sections.



KEY MAP



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LEGEND

SAMPLE LOCATIONS
- Watercourse Station
- Lake Level Station
- Lake Basin Station

PROJECT DATA
- Proposed Infrastructure
- Proposed Railway
- Proposed Infrastructure
- Proposed Sedimentation Pond

BASEMAP INFORMATION
- Duley Lake Park
- Existing Railway
- River/Stream
- Existing Road
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary

0 625 1,250 2,500
1:60,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - NEWFOUNDLAND
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT
CHAMPION IRON MINES

PROJECT
KAMI IRON ORE PROJECT
WABUSH, NL

TITLE
2023 SURFACE WATER SAMPLING LOCATIONS

CONSULTANT

YYYY-MM-DD	2024-04-25
DESIGNED	----
PREPARED	JA
REVIEWED	SPC
APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
TE23930010	0001	A	Figure 4-7

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4.3.2.1 Water Level and Flow Monitoring

Lake Water Levels

Water level monitoring at lake outlet stations was completed to evaluate seasonal lake level regimes. The lake water level stations are outlined in Table 4-6 and presented on Figure 4-7.

Table 4-6 : Lake Water Level Stations

Station ID	UTM Coordinates[(a)] Northing/Easting	Description	Period of Record
LL-01	5863619/6355536	Long Lake – downstream portion near the outlet	June to October 2023
MIL-01	5855772/635414	Mills Lake – downstream portion near the outlet	June to October 2023
PL-01	5858813/632936	Pike Lake – downstream portion near the outlet	June to October 2023
MOL-01	5853371/634007	Molar Lake – downstream portion near the outlet	August to October 2023[(b)]

(a) UTM coordinates based on NAD83 Zone 19.

(b) Station was established in August 2023 as access to this location was not available in the June 2023.

During the monitoring period (i.e., June to October 2023), the monthly precipitation at the meteorological station at Wabush Airport varied between 65.4 and 114.1 mm, with August having the most precipitation and July having the least precipitation. Water levels were generally observed to gradually decrease from June 2023 to August 2023 (spring to summer) and then gradually increase from August 2023 to October 2023 (summer to fall) correlating with rain events. The water levels at the outlets of Long Lake and Mills Lake, generally reported a marked respond to rain events. At Molar Lake, water level records showed unusual sudden fluctuations, similar to that of a pumped system with rapid withdrawal and release setup, coupled with a general increase of lake level trend towards the fall. At Pike Lake, water levels showed an unusual steady increase in the lake level after mid-August 2023, which is not typical of hydrologic responses to rainfall events. Two beaver dams were observed during the fall visit located upstream of the outlet at Pike Level, which likely was the cause of the increased water levels.

Continuous Flow and Water Level Monitoring at Streams

Twelve additional monitoring stations were installed at streams within the study area (Figure 4-7 and Table 4-7) to evaluate seasonal water level and flow regimes.

Table 4-7: Continuous Flow and/or Water Level Stations

Station ID	UTM Coordinates[(a)] Northing/Easting	Description	Period of Record
WC-01	5856192/632810	Unnamed stream reporting to Pike Lake from the southwest	June to October 2023
WC-02	5858897/632920	Unnamed stream immediately downstream of Pike Lake Outlet	June to August 2023
WC-03	5853179/634709	Unnamed stream reporting to Mills Lake from the west	June to October 2023
WC-04	5855857/635378	Unnamed stream reporting to Long Lake from the southwest	June to October 2023
WC-05	5854636/637507	Waldorf River reporting to Long Lake from the south	June to October 2023
WC-06	5856351/637511	Unnamed stream reporting to Long Lake from the south	June to October 2023
WC-07	5858758/637921	Unnamed stream reporting to Long Lake from the southeast	June to October 2023
WC-08	5860478/637962	Unnamed stream reporting to Long Lake from the east	June to October 2023
WC-09	5863790/635635	Unnamed stream immediately downstream of Long Lake Outlet	June to October 2023
WC-10	5863449/632468	Walsh River reporting to Long Lake from the northwest	June to October 2023
WC-11	5858315/641017	Unnamed stream immediately downstream of Riordan Lake	August to October 2023
WC-12	5848673/628202	Unnamed stream immediately downstream of Daviault Lake	June to October 2023

(c) UTM coordinates based on NAD83 Zone 19.

Similar to the lake outlet water levels, stream station water levels were generally observed to gradually decrease from June 2023 to August 2023 (spring to summer) and then gradually increase from August 2023 to October 2023 (summer to fall). Most of the stream station water levels exhibited a marked, but gradual response to major rain events.

Manual flow measurements were also obtained at the stations during spring (June 2023), summer (August 2023) and fall (October 2023) and were observed to be higher in the summer period compared to the spring and fall, noting that the summer flow measurements followed major rainfall events in August. Manual flow measurement results are presented in Table 4-8.

Table 4-8: 2023 Manual Flow Measurements

Station ID	Unit	Spring	Summer	Fall
WC-01	L/s	57	150	110
WC-02	L/s	135	532	237
WC-03	L/s	110	209	164
WC-04	L/s	629	1,013	947
WC-05	L/s	(a)	189	(a)
WC-06	L/s	41	299	71

Station ID	Unit	Spring	Summer	Fall
WC-07	L/s	244	780	302
WC-08	L/s	313	621	540
WC-09	L/s	(a)	(a)	(a)
WC-10	L/s	(a)	(a)	(a)
WC-11	L/s	(b)	(b)	230
WC-12	L/s	(b)	(b)	1,191

(a) data not available due to unsafe stream conditions.

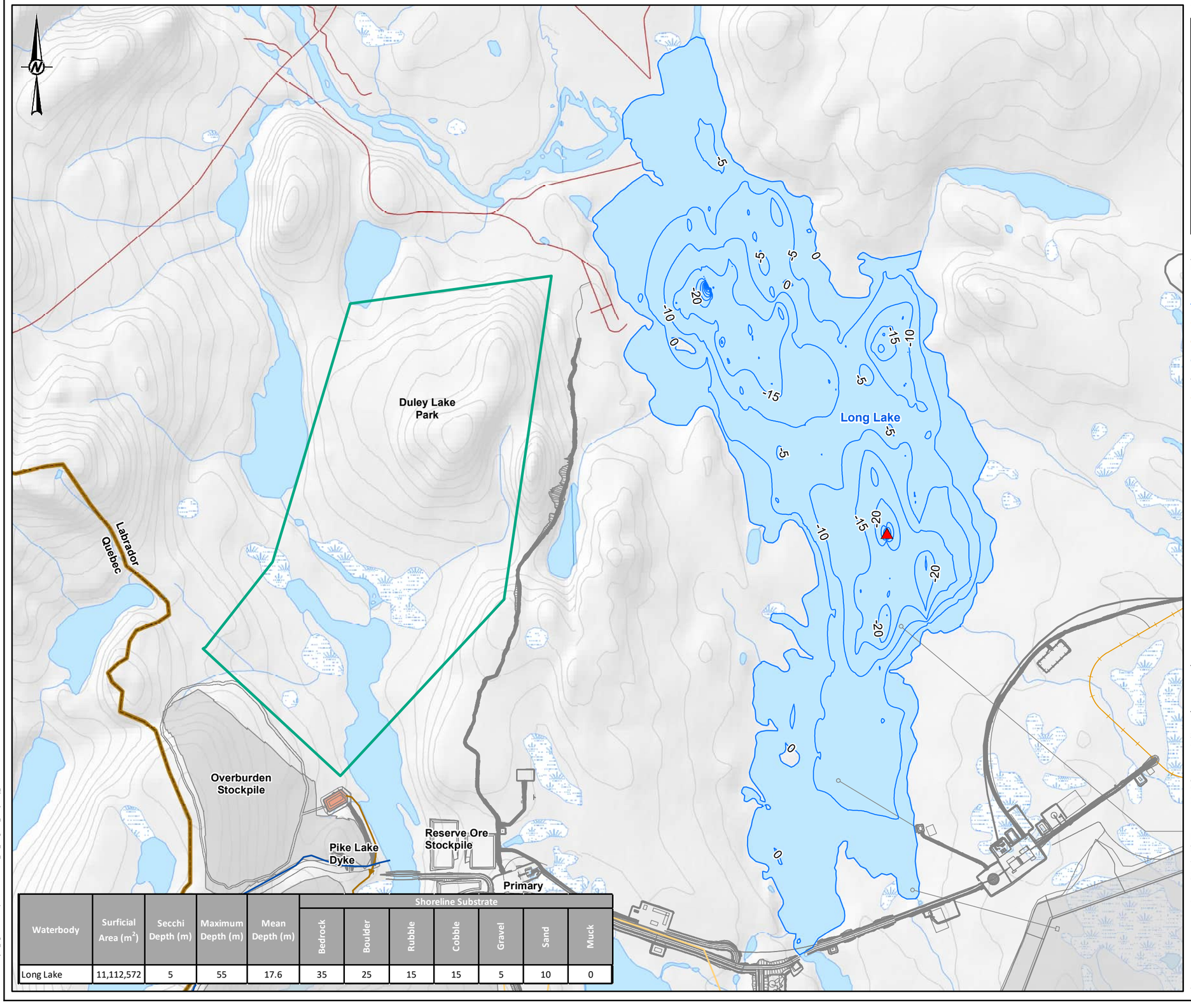
(b) data not available due to limited access during the monitoring event.

Stage – Discharge Rating Curves and Hydrographs

Manual flows were used to develop stage discharge rating curves, where applicable, and were used to generate flow hydrographs from the water level records. Measured flows, water levels, and channel geometry were obtained during the 2023 field campaign at the various continuous flow monitoring stations and tied to local benchmarks. In general, the stage-discharge rating curves at each station matched well with the measured manual flows and associated water levels (Appendix H).

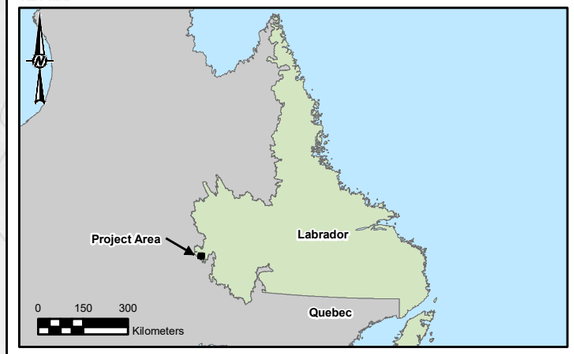
4.3.2.2 Bathymetry and Lake Depth Surveys

Bathymetric surveys were carried out at Long Lake, Mills Lake, Pike Lake, and Riordan Lake, while lake depth surveys were conducted at Daviault Lake and Molar Lake. The bathymetric and lake depth survey data was used to characterize the physical configuration of the various lake basins, as well as to select stations for lake column profiling and water quality sampling. The resulting water depth data were corrected for keel offset and, where possible, converted to elevation using local benchmarks (i.e., staff gauges) as an elevation reference. The data was then gridded and contoured, and bathymetric maps were prepared for each lake showing water depth. Figure 4-8 and Figure 4-9 present the bathymetry for Long Lake and Pike Lake, which are the two lakes in which treated effluent discharges from the Project are currently proposed.



Waterbody	Surficial Area (m^2)	Secchi Depth (m)	Maximum Depth (m)	Mean Depth (m)	Shoreline Substrate						
					Bedrock	Boulder	Rubble	Cobble	Gravel	Sand	Muck
Long Lake	11,112,572	5	55	17.6	35	25	15	15	5	10	0

KEY MAP



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PROJECT DATA

- Deepest Point in Lake
- Bathymetry (m)
- Contact Water
- Non-Contact Water
- Treated Water
- Proposed Infrastructure
- Proposed Railway
- Proposed Infrastructure
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Existing Railway
- River/Stream
- Existing Road
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary

0 335 670 1,340

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NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES

PROJECT

KAMI IRON ORE PROJECT
WABUSH, NL

TITLE

2023 LONG LAKE BATHYMETRY

CONSULTANT

wsp

YYYY-MM-DD	2024-03-25
DESIGNED	----
PREPARED	JMA
REVIEWED	SPC
APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
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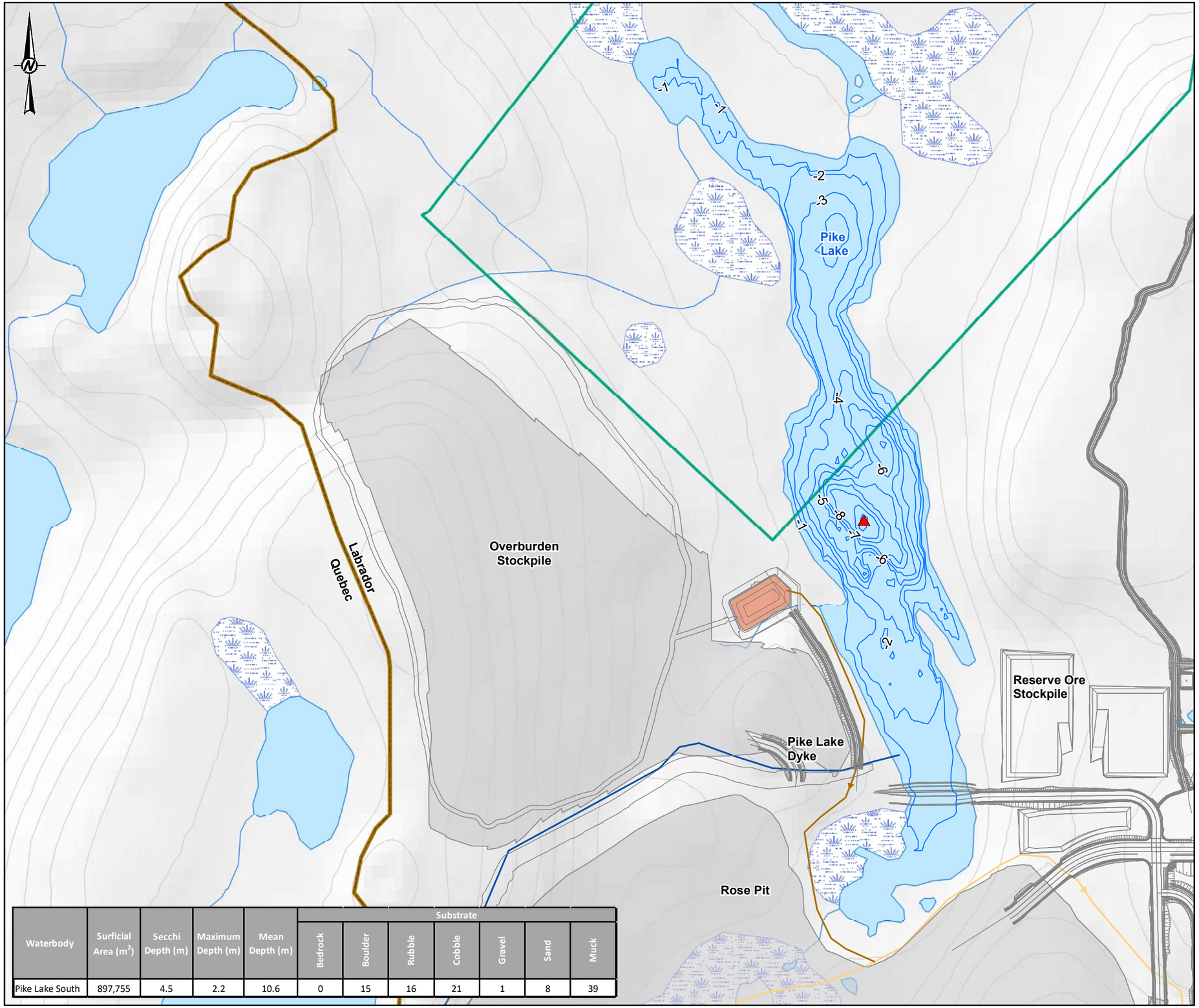
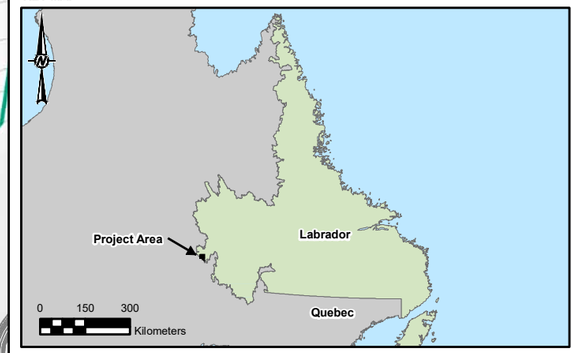


Waterbody	Surficial Area (m^2)	Secchi Depth (m)	Maximum Depth (m)	Mean Depth (m)	Substrate						
					Bedrock	Boulder	Rubble	Cobble	Gravel	Sand	Muck
Pike Lake South	897,755	4.5	2.2	10.6	0	15	16	21	1	8	39

KEY MAP



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PROJECT DATA

- Deepest Point in Lake
- Bathymetry (m)
- Contact Water
- Non-Contact Water
- Treated Water
- Proposed Infrastructure
- Proposed Railway
- Proposed Infrastructure
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Existing Railway
- River/Stream
- Existing Road
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary

0 137.5 275 550

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NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
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CLIENT
CHAMPION IRON MINES

PROJECT
KAMI IRON ORE PROJECT
WABUSH, NL

TITLE
2023 PIKE LAKE SOUTH BATHYMETRY

CONSULTANT

YYYY-MM-DD	2024-03-25
DESIGNED	----
PREPARED	JMA
REVIEWED	HJ
APPROVED	SPC

PROJECT NO.	CONTROL	REV.	FIGURE
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4.3.2.3 Water Column Profiling

Lake column profiles were completed at Long Lake, Pike Lake, Daviault Lake, Mills Lake, Molar Lake and Riordan Lake to characterize lake chemistry and physiology with depth. Lake column profiling was conducted at all lake basin stations in August and October 2023, as well as for select locations in June 2023.

Temperature profiles at each station in June 2023 were characterized by a slight warming zone in the upper layer of the lakes. Temperature profiles at each lake basin station in August 2023 were observed to be well stratified and included a marked thermocline through the intermediate layers. Water column profile measurements at each of the lake basin stations in October 2023 were well mixed and thermally stratified conditions were no longer present.

The pH conditions at all lake basin stations in July, August and October of 2023 were generally near neutral throughout the water column and demonstrated minor variations over depth and season.

Water column profiles at each of the lake basin stations in June and August of 2023 showed relatively stable specific conductivity and dissolved oxygen with depth.

4.3.2.4 Water and Sediment Quality

Water and sediment quality sampling was conducted at 23 watercourses and waterbodies in the study area. Samples were collected during three sampling events (June, August, and October 2023). Samples were analyzed for several parameters including general chemistry, anions and nutrients, metals, radionuclides, and polycyclic aromatic hydrocarbons (PAHs). For the purposes of assessing in-situ and lab water quality and sediment quality results, comparison was made to the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Aquatic Life – Freshwater (CCME 1999a) and CCME Sediment Quality Guidelines for the Protection of Aquatic Life Freshwater and Marine ISQG/PEL (CCME 1999b).

The water quality and sediment quality results demonstrated that, with some exceptions, samples at all stations were below the relevant CCME water and sediment quality guidelines. Only a few water quality samples reported slight exceedances of the CCME guidelines for a small group of metals and nutrients (i.e., phosphorus, aluminum, iron, manganese, lead, and copper).

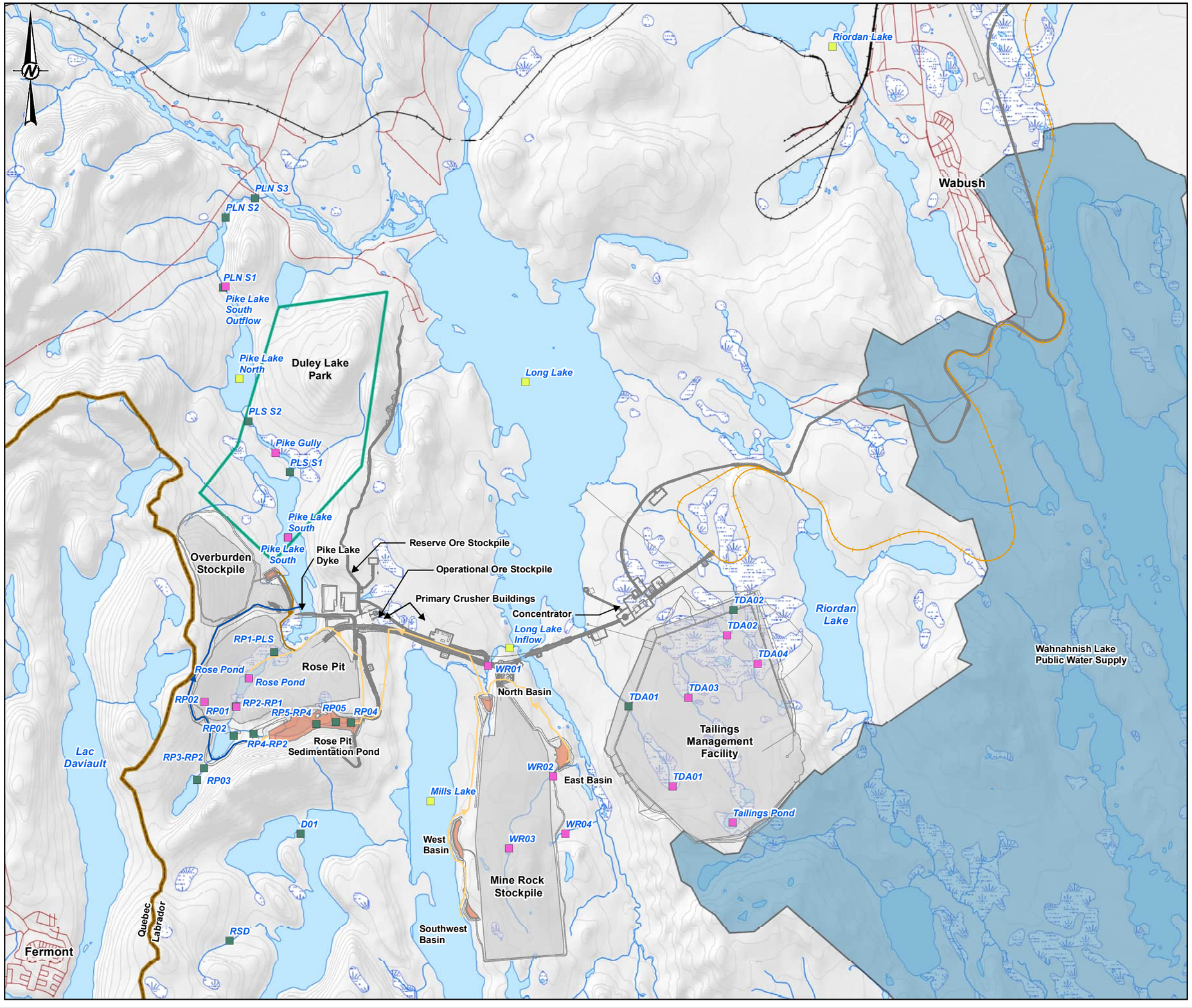
The sediment quality results observed elevated concentrations of some metals (i.e., arsenic, cadmium, chromium, copper, lead, mercury, and zinc) at certain sampling locations.

4.4 Fish, Fish Habitat and Fisheries

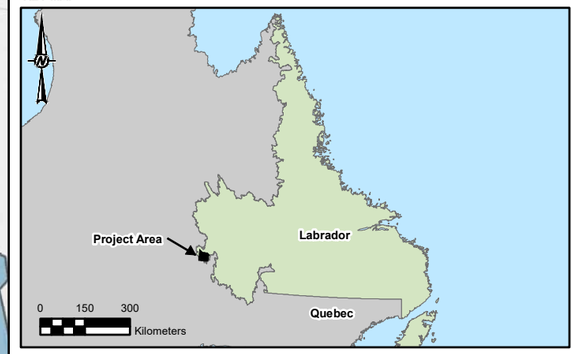
Fish and fish habitat baseline programs previously took place in 2011 and 2012 (AMEC, 2012). In 2023, Champion completed an updated fish and fish habitat baseline program. The objectives of the 2023 program were to:

- Identify the gaps in the 2011 and 2012 baseline surveys in accordance with the proposed Project components.
- Determine fish presence, population estimates, and fish species composition in watercourse waterbodies likely to be affected by the Project. Fishing methods include fyke net trapping and gillnetting of lacustrine (lake or pond) habitat and index (qualitative) electrofishing of stream habitat.
- Conduct bathymetric surveys of lacustrine habitat likely to be affected by the Project. Classify lacustrine habitat and generate habitat maps depicting depth, substrate, presence of aquatic vegetation, and extent of the littoral zone.

Collect baseline data regarding fisheries (recreational, commercial, and Indigenous) within the baseline study area. Figure 4-10 provides an overview of the fish and fish habitat sampling locations from the 2011, 2012 and 2023 programs. The *Fisheries Act* provides protection to fish and fish habitat by protecting the fish community and the productivity of the habitat that supports them. The trigger for authorization is any undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat (HADD) as determined by Fisheries and Oceans Canada (DFO). The results of the 2011, 2012 and 2023 baseline studies will be used to support the assessment of potentially adverse effects from the Project and will assist in quantifying the potential HADD of fish habitat. Results of the 2011, 2012 and 2023 baseline studies are summarized in this section.



KEY MAP



SCALE 1:20,000,000

PROJECT DATA

Sample Location (by year)

- 2011
- 2012
- 2023
- Proposed Infrastructure
- Proposed Railway
- Contact Water
- Non-Contact Water
- Treated Water
- Proposed Infrastructure
- Proposed Sedimentation Pond

OTHER MAP DATA

- Public Water Supply

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- River/Stream
- Existing Road
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary

0 625 1,250 2,500

1:60,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES

PROJECT

KAMI IRON ORE PROJECT
WABUSH, NL

TITLE

FISH AND FISH HABITAT SAMPLE LOCATIONS

CONSULTANT

wsp

YYYY-MM-DD	2024-04-25
DESIGNED	----
PREPARED	JMA
REVIEWED	MG
APPROVED	MC

PROJECT NO.	CONTROL	REV.	FIGURE
TE23930010	0001	A	Figure 4-10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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4.4.1 Lacustrine or Pond Habitat

A total of 18 ponds and lakes in the vicinity of the Project were surveyed, characterized and/or quantified in terms of fish species presence and fish habitat using DFO guidelines. One lake (RP01; Rose Lake) is located within the direct footprint of the Rose Pit and four ponds may be within the direct footprint of other proposed infrastructure. The others are either in proximity to proposed Project features or are downstream of proposed Project features and/or activities.

4.4.2 Riverine or Stream Habitat

A total of five general areas were surveyed, characterized and quantified in terms of stream habitat and fish species presence using DFO guidelines: Rose Pit, the Pike Lake outflows, the TMF, the Mine Rock Stockpile, and proposed crossing (i.e., rail, road, conveyor) locations. The Rose Pit area has a total of seven streams of which two would be within the direct footprint of the proposed pit area. The TMF has a total of three streams which would all have at least a portion within the footprint. The Mine Rock Stockpile has a total of four streams that would be within the footprint and there are a total of 11 proposed stream crossings associated with rail, road and/or conveyors.

4.4.3 Fish Species Presence and Abundance

Numerous waterbodies and streams have been surveyed for fish species presence and abundance since 2011, with effort focused on the Rose Pit, TMF and large receiving waterbodies located downstream and in the vicinity of the Project. A total of 14 fish species have been confirmed or have the potential to occur within the waterbodies sampled in the 2011, 2012 and 2023 field programs (Table 4-9). No fish species at risk were identified during the field programs.

Table 4-9: Species Present within the Study Area

Common Name	Scientific Name	Present in Riverine Habitats	Present in Lacustrine Habitats
Brook Trout	*Salvelinus fontinalis*	•	•
Burbot	*Lota lota*	•	•
Lake Chub	*Couesius plumbeus*	•	•
Lake Trout[(a),(b)]	*Salvelinus namaycush*		•
Lake Whitefish	*Coregonus clupeaformis*		•
Longnose Dace	*Rhinichthys cataractae*	•	•
Longnose Sucker	*Catostomus catostomus*	•	•
Ouananiche[(a)]	*Salmo salar*		
Northern Pike	*Esox lucius*	•	•
Pearl Dace	*Margariscus nachtriebi*	•	•
Round Whitefish	*Prosopium cylindraceum*		•
Sculpin[(c)]	*Cottis bairdii/C.ognatus*	•	•
White Sucker	*Catostomus commersonii*	•	•

(a) Species not observed throughout field surveys but were indicated as present in area by local anglers and are likely present based on literature review.

(b) Species not observed throughout field surveys, however, remains from angling were observed

(c) Two species of Sculpin likely present. Field identification is difficult, therefore Mottled and Slimy Sculpin are recorded as Sculpin (Cottis sp.)

Throughout the lacustrine habitat surveys, relative abundance has generally been relatively low, with catch-per-unit-efforts (CUPE) typically being less than 10 fish/net-night, with overall CPUEs ranging from 1.0 to 326.0 fish/net-night. Overall, Lake Chub have been the most abundant species captured throughout the baseline study area, primarily due to high catch rates in Rose Pond during 2011 (Appendix I).

Brook Trout were the most abundant species captured in riverine sampling locations (Appendix I). The highest abundance estimates of Brook Trout were obtained in 2012 from streams located within the TMF.

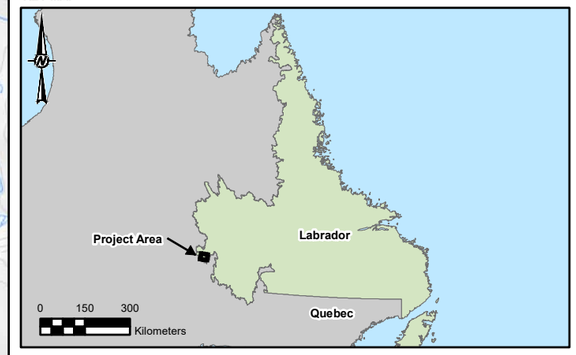
4.5 Wetlands

Wetlands of varying types occur throughout the Project site and larger regional landscape. Previous work undertaken for the 2012 EIS (Stassinu 2012b) identified a total aerial extent of wetlands of 1,763 ha over an area that generally covered the mineral licences for the Project (approximately 161 square kilometres [km^2]). Individual wetland size ranged from 0.05 ha to over 500 ha. The initial studies identified five general wetland classes based upon Canadian Wetland Classification System classification criteria. These were slope fens (1,285.5 ha), Atlantic ribbed fens (317.5 ha), stream fens (139.8 ha), shore fens (5.5 ha) and lacustrine marsh (15.0 ha). In some cases, multiple wetland classes were combined to form a wetland complex (when three or more of the wetland classes occur adjacent to each other or contiguously). Wetland functions were initially assessed in 2012 using the NovaWET assessment protocol. Presently, wetland functional assessments in Atlantic Canada use the Wetland Ecosystem Services Protocol – Atlantic Canada (WESP-AC) as the standard wetland functional assessment tool.

To better understand the functionality of wetlands within the area, Champion assessed several wetlands that may be impacted by the Project in 2023 (directly within the Project footprint or within a potential zone of influence) using the WESP-AC protocol (WSP 2024e). The assessment included wetland delineation, determination of species composition and using field data collected on wetland characteristics and species composition to provide a functional assessment of each surveyed wetland using the WESP-AC protocol (WSP 2024e). An overview of the wetlands surveyed in 2023 is provided in Figure 4-11.

Labrador City
Wabush
Long Lake
Duley Lake Park
Pike Lake
Overburden Stockpile
Pike Lake Dyke
Reserve Ore Stockpile
Operational Ore Stockpile
Primary Crusher Buildings
Concentrator
Rose Pit
Rose Pit Sedimentation Pond
North Basin
East Basin
Tailings Management Facility
Riordan Lake
Wahnahnish Lake Public Water Supply
Lac Daviault
Mills Lake
West Basin
Southwest Basin
Mine Rock Stockpile
Quebec
Labrador
Fermont

KEY MAP



SCALE 1:20,000,000

PROJECT DATA
- 2023 Wetlands Survey
- Proposed Infrastructure
- Proposed Railway
- Proposed Infrastructure
- Proposed Sedimentation Pond

OTHER MAP DATA
- Public Water Supply

BASEMAP INFORMATION
- Duley Lake Park
- Existing Railway
- Existing Road
- River/Stream
- Contour
- Waterbody
- Bog/Wetland
- Labrador/Quebec Boundary

0 750 1,500 3,000
1:73,750 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - NEWFOUNDLAND AND LABRADOR
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT
CHAMPION IRON MINES

PROJECT
KAMI IRON ORE PROJECT
WABUSH, NL

TITLE
SURVEYED WETLANDS IN 2023

CONSULTANT
wsp

YYYY-MM-DD	2024-04-25
DESIGNED	----
PREPARED	JMA
REVIEWED	----
APPROVED	JG

PROJECT NO. TE23930010 | CONTROL 0001 | REV. A | FIGURE Figure 4-11

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The presence/absence of wetlands was evaluated in accordance with the U.S. Army Corps of Engineering Wetland Delineation and the Northcentral and Northeastern Interim Regional Supplement (USACE 2012). For an area to be identified as wetland it must show positive indicators in three areas of assessment as follows; hydrophytic vegetation (vegetation adapted to growing in soils that are flooded or saturated for a prolonged periods), hydric soils (soils formed under saturated low oxygen conditions), and wetland hydrology (generally locations that are covered with surface water, have a high-water table and/or saturated soils). Wetlands assessed in 2023 ranged in size from 6.2 to 387.5 ha and were classified as either fen, fen bordered by a treed swamp or marsh bordered by a shrub swamp. In all cases when soil pits were excavated histosols were present that were more than 40 cm deep, there was a high-water table with surface water visibly present within the wetland. Wetlands were slightly basic (pH 7.30 to 7.74), suggesting they lie overtop of calcareous soils, or were mildly acidic (pH 5.24 to 5.46).

4.6 Birds, Other Wildlife and their Habitats and Protected Areas

This section provides a summary of the existing environment in the vicinity of the Project as it relates to the birds, other wildlife and their habitats and protected areas VEC. To understand existing bird and other wildlife habitats and protected areas, an understanding of the ecological setting is required. Therefore, this section includes a high-level overview of the ecological setting of the Project, as well as a summary of the previous and/or recently completed desktop and field baseline investigations for avifauna (i.e., birds) and other wildlife species.

4.6.1 Ecological Setting

The Project is within the Boreal Shield Ecozone which experiences a continental climate comprised of long, cold winters (average mid-winter temperature of -15°C) and short, warm summers (average mid summer temperature 17°C) with precipitation ranging from 400-1000 mm (Wiken et al. 1996). Due to a short growing season, frequent forest fires, and acidic soils, the ecozone is primarily comprised of several adaptable tree species such as black spruce (*Picea mariana*), white spruce (*Picea glauca*), balsam fir (*Abies balsamea*), eastern larch (*Larix laricina*) and jack pine (*Pinus banksiana*); but other species such a white birch (*Betula papyrifera*) and trembling aspen (*Populus tremuloides*), white pine (*Pinus strobus*) and red pine (*Pinus resinosa*) may occur in suitable habitats (ESWG 1995; Wiken et al. 1996).Throughout the ecozone there are numerous wetlands (bogs, fens, swamps and marshes) that are species diverse, while in areas that were scoured during glaciation a variety of lichen, low growing shrubs and forbs are common (ESWG 1995; Wiken et al. 1996).

At the ecoregion level the Project is within the Mid Subarctic Forest. This ecoregion encompasses the flat and rolling plateaus of central and western Labrador. In general, this ecoregion is dominated by moist forests, over top of coarse textured till and glaciofluvial deposits (PAANL 2008). Evidence of glacial activity in this ecoregion is evident from the abundance of drumlins and eskers (PAANL 2008). String bogs and string fens are common with black spruce the most common tree species found in the ecoregion (PAANL 2008). Black spruce can be found within poorly drained sites, within more upland lichen woodlands with a shrub understory of Labrador tea (*Ledum groenlandicum*) and shrub birches (*Betula* spp.) and in areas where the forest floor is covered by an understory of sphagnum moss

(*Sphagnum* spp.) (PAANL 2008). In more northern portions of the ecoregion where wetlands are less frequent and the soils more well drained, white spruce may be dominant (PAANL 2008). White spruce and balsam fir also occur on protected slopes where drainage is good (PAANL 2008). Eastern larch and trembling aspen and jack pine may also be found growing in this ecoregion (PAANL 2008).

At a more local level the Project is situated within the Wabush Eco-district. This eco-district covers a small portion of western Labrador (1,339 km^2 or, 0.5 % of Labrador's landmass) with elevations ranging from 524-904 m (mean 631 m) (Riley et al. 2013). The average annual temperature and precipitation are -3.1°C and 849.1 mm, respectively (Riley et al. 2013). The fractured bedrock terrain supports open lichen-spruce woodlands, with lakes, ponds and wetlands found in the lowlands (Riley et al. 2013). Lower hillslopes are dominated by closed black spruce/balsam fir stands, while upper hillslopes are dominated by open black spruce stands interspersed with white spruce and birch (Riley et al. 2013). Wetlands occupy a small proportion (less than one percent) of the eco-district, while 12.6% is occupied by open water (Riley et al. 2013). This eco-district has been significantly affected by forest fires with 15.7% of the district being previously burned (Riley et al. 2013).

4.6.2 Avifauna

A range of bird species are well represented in the proximity of the proposed Project, including waterfowl, sparrows, thrushes, and wood warblers. Collectively, these species inhabit all terrestrial and riparian habitats including black spruce dominated forest, early successional post-fire habitat, and wetlands. Birds of prey also utilize this area (e.g., bald eagle [*Haliaeetus leucocephalus*], northern goshawk [*Accipiter spp.*]) though abundance is low as is expected for this upper-level trophic group. Common waterfowl species confirmed to nest in the vicinity of the Project include American black duck (*Anas rubripes*), common goldeneye (*Bucephala clangula*), and both merganser species (*Mergus spp.*).

Forest songbird and waterfowl surveys were completed in 2011 (Stassinu 2012d and Stassinu 2012e) to support the 2012 EIS. In the spring of 2023, Champion completed an updated baseline field program, which consisted of two separate surveys: an early season observation survey for migratory bird species and a point count survey for migratory songbirds (Appendix J).

During the early season observation survey, the available habitats within the study area were surveyed, including large lakes with rocky shorelines, smaller ponds (i.e. smaller than 1 km^2) with emergent vegetation, shallow meandering streams, and sphagnum bog with standing water. Large congregations of migrating waterfowl were not observed, suggesting an absence of significant staging areas for waterfowl within the area of the Project; however, seven waterfowl species were recorded that had initiated breeding. The earlier than normal onset of spring may have resulted in a shorter stopover period in this region during the northward migration of this species group. Observations of bird species were made at the wetland habitats, including Canada goose (*Branta canadensis*), red-breasted merganser (*Mergus serrator*), common merganser (*Mergus merganser*), common goldeneye, American black duck, and green-winged teal (*Anas carolinensis*). Other wetland associated species detected during this sampling period included common loon (*Gavia immer*), Wilson's snipe (*Gallinago delicata*), and common tern (*Sterna hirundo*). These are all expected species for boreal regions at this latitude and the

occurrence of paired individuals observed during the surveys indicates that these birds are local breeders.

Early morning (6:00 to 10:00) point count surveys were conducted for breeding birds at 71 locations representing the available terrestrial habitats within the area of the Project, with an emphasis on the most dominant forest classes (i.e., mature black spruce forest and post-fire regenerating forest). The six most common species detected (by frequency of occurrence) were ruby-crowned kinglet (*Corthylio calendula*), white-throated sparrow (*Zonotrichia albicollis*), yellow-rumped warbler (*Setophaga coronata*), hermit thrush (*Catharus guttatus*), American robin (*Turdus migratorius*), and Tennessee warbler (*Leiothlypis peregrina*). The species detected during this survey were 'expected' species given their known distribution in western Labrador and their prevalence in the Cornell Lab of Ornithology eBird record (2024).

Overall, the assemblage of bird species found in the vicinty of the Project is reflective of community composition that has been more extensively described for this region of Labrador from long-term submissions of data to eBird and the Atlantic Canada Conservation Data Centre (ACCDC).

4.6.3 Wildlife

Wildlife includes mammals, including ungulates such as caribou (*Rangifer* sp.) and moose *(Alces alces*) and furbearers such as black bear (*Ursus americanus*) and wolverine (*Gulo gulo)*, and amphibians. Wildlife species at risk are discussed in Section 4.7. In 2023, Champion undertook a literature review of previous wildlife surveys conducted in the Labrador City-Wabush to define a range of mammal species are known or are likely to occur within the Project area (Appendix K; Table 4-10). These include American beaver, muskrat, and river otter within aquatic habitats, black bears, Canada lynx, American marten, and red squirrels within black spruce dominated forest, and red fox, meadow vole, and meadow jumping mouse in open, barren habitats. There were no available data from which population sizes could be inferred, thus, the review was limited to reporting the presence, absence, and relative abundance of species. Through the completion of other discipline baseline field investigations in 2023, there were limited observations of certain species (Appendix L).

Table 4-10: Mammal Species that are Known or Potentially Occur within the Vicinity of the Project in Western Labrador

Species	Scientific Name	Relative Abundance	Occurrence	Date Source
Black bear	Ursus americanus	Common	Confirmed	Province of NL
Red fox	Vulpes vulpes	Uncommon	Confirmed	JWEL 2001; AMEC 2012
Arctic fox	Alopex lagopus	N/A	Unconfirmed	N/A
Gray wolf	Canis lupus	Uncommon	Confirmed	AMEC 2012
Eastern coyote	Canis latrans	Uncommon	Confirmed	AMEC 2012

Species	Scientific Name	Relative Abundance	Occurrence	Date Source
Canada lynx	Lynx canadensis	Uncommon	Confirmed	Labrador Iron Mines Ltd.
American marten	Martes americana	Common	Confirmed	JWEL 2001; AMEC 2012
Fisher	Martes pennanti	N/A	Unconfirmed	N/A
Wolverine	Gulo gulo	N/A	Unconfirmed	N/A
River otter	Lontra canadensis	Common	Confirmed	JWEL 2001; Minaskuat 2008a
American mink	Mustela vison	Common	Confirmed	Minaskuat 2008a; AMEC 2012
Short-tailed weasel	Mustela erminea	Common	Confirmed	AMEC 2012
Moose	Alces alces	Common	Confirmed	Province of NL
Woodland caribou	Rangifer tarandus caribou	N/A	Unconfirmed	N/A
Snowshoe hare	Lepus americanus	Common	Confirmed	AMEC 2012
Arctic hare	Lepus arcticus	NA	Unconfirmed	NA
Beaver	Castor canadensis	Common	Confirmed	WSP 2023
Red squirrel	Tamiasciurus hudsonicus	Common	Confirmed	AMEC 2012; WSP 2023
Northern flying squirrel	Glaucomys sabrinus	N/A	Unconfirmed	N/A
Muskrat	Ondatra zibethicus	Common	Confirmed	Labrador Iron Mines Ltd.
Porcupine	Erethizon dorsatum	Uncommon	Confirmed	Minaskuat 2008b; AMEC 2012
Woodchuck	Marmota monax	N/A	Unconfirmed	N/A
Meadow vole	Microtus pennsylvanicus	Common	Confirmed	AMEC 2012
Southern red-backed vole	Clethrionomys gapperi	Common	Confirmed	AMEC 2012
Meadow jumping mouse	Zapus hudsonicus	Uncommon	Confirmed	Simon et al. 2002

Species	Scientific Name	Relative Abundance	Occurrence	Date Source
Woodland jumping mouse	Napaeozapus insignis	Common	Confirmed	Stantec Consulting Ltd. 2010
Eastern heather vole	Phenacomys ungava	N/A	Unconfirmed	N/A
Deer mouse	Peromyscus maniculatus	N/A	Unconfirmed	N/A
Northern bog lemming	Synaptomys borealis	N/A	Unconfirmed	N/A
Masked shrew	Sorex cinereus	Common	Confirmed	AMEC 2012
Rock vole	Microtus chrotorrhinus	N/A	Unconfirmed	N/A
Little brown myotis	Myotis lucifugus	N/A	Unconfirmed	N/A
Northern myotis	Myotis septentrionalis	N/A	Unconfirmed	N/A

N/A = not applicable or not available.

Wildlife baseline field programs were previously completed in 2012, which consisted of winter wildlife aerial surveys and summer amphibian surveys to define wildlife and amphibian presence in the vicinity of the Project (Stassinu 2012e,f). The winter wildlife aerial surveys consisted of aerial strip transect surveys throughout the Project area. Ten terrestrial wildlife species or evidence of their presence were detected in the Project area during the two strip transect surveys. Snowshoe hare (Lepus americanus) were the most frequently detected species. No unusual or unexpected species were encountered, and no caribou or other species of conservation concern were observed or detected (Stassinu 2012e). The dedicated amphibian surveys consisted of a variety of field techniques, based on target species and habitat encountered. Three amphibian species were confirmed in the Project area during the surveys. The most frequently detected species were wood frogs (Rana [Lithobates] sylvatica) and American toads (Bufo [Anaxurys] americana). These species are likely widespread and abundant in the Project area. Northern two-lined salamanders (Eurycea bislineata) were found on two occasions. Blue spotted salamanders (Ambystoma laterale) and mink frogs (Rana [Lithobates] septentrionalis) are recorded in the area, but no observances of these species were made during these field surveys (Stassinu 2012f).

4.7 Species at Risk and Species of Conservation Concern

An integral part of assessing the existing terrestrial environment is evaluating whether species at risk may occur within the Project area or may be influenced by the Project. In this context, species at risk include the species and their habitats that are protected by federal or provincial legislation. Species that are protected under federal legislation include those under Schedule 1 of the *Species at Risk Act* (SARA) listed as endangered, threatened or special concern. Provincially protected species include those that

are listed as endangered (Schedule A), threatened (Schedule B), or vulnerable (Schedule C) by the *Endangered Species List Regulations* under the *Newfoundland and Labrador Endangered Species Act* (NLESA).

4.7.1 Vegetation

Baseline field investigations were completed in 2011 and 2012 to support ELC mapping (Stassinu 2012a). The investigation encompassed a 396 km^2 area, which included the previously proposed Project footprint plus a significantly larger area to capture regional habitat variability. This field program and subsequent ELC mapping identified a variety of vegetated ecotypes within proximity of the Project including a variety of forested, previously burned/regeneration and wetland ecotypes. Table 4-11 outlines the ecotypes identified as part of the ELC, the aerial extent of each ELC ecotype, and proportion of the assessment area that each ELC ecotype encompassed.

Table 4-11: Ecological Land Classification Categories Within the Vicinity of the Project

Ecological Land Classification Ecotype	Classification Number	Area (km^2)	Percentage of ELC Area
Alpine Heath	1	1.0	0.2
Hardwood Forest	2	5.4	1.4
Mixedwood Forest	3	17.5	4.4
Black Spruce-Labrador Tea -Feathermoss	4	91.5	23.1
Black Spruce-Lichen	5	19.7	5
Black Spruce/Tamarack-Sphagnum Woodland	6	49.6	12.5
Tamarack/Black-Spruce-Feathermoss (Water Track)	7	30.1	7.6
Softwood Burn/Regeneration2	8	40.2	9.3
Hardwood Burn/Regeneration2	9	36.7	10.2
Riparian Thickett	10	0.3	0.1
Riparian Marsh (Fen)	11	0.6	0.2
Patterned Shrub Fen	12	3.1	0.8
Non-Patterned Shrub Fen	13	9.3	2.3
Graminoid Fen (Included in aerial extent of Ecotype 12 and 13).	14	Included as a sub-component in aerial extent of Ecotype 12 and 13.	
Open Water	15	54.5	13.7
Shallow Water with Vegetation	16	5.0	1.3
Anthropogenic/Bare Ground	17	22.4	5.7
Non-ELC	18	9.5	2.4

Note: Table produced from data from Stassinu (2012 a, c).

In 2023, Champion completed vegetation survey in each of the fourteen previously identified vegetated habitat ecotypes (Stassinu 2012a) outlined in Table 4-11 (Appendix K). The previously developed ELC maps were used guide location of sample plots. Plots were completed between June 2023 and August 2023, which allowed data to be collected while early flowering species were in bloom (June surveys) and the collection of data when late flowering species were in bloom or bearing seeds (August surveys).

Summaries were developed of the various regional ecotypes (e.g., species composition, moisture regime, soil drainage, humus depth) during the 2023 field surveys. In general, the ELC mapping and baseline investigations complete in 2011 and 2012 aligned with the results of the 2023 investigation (WSP 2024e).

A review of the Species at Risk Registry administered by ECCC (2024) for vascular plants, lichens and mosses in NL identified eleven species at risk that occur in the province. However, based upon a review of the Committee on the Status of Endangered Species in Canada (COSEWIC) status reports and other information from the Species at Risk Registry, it was determined that the occurrence of species at risk in the area of the Project was unlikely based upon known species distributions, climatic variables and/or habitat requirements.

A review of the provincial NLESA identified a total of thirty-four vascular plant, moss or lichen species combined that are listed as endangered, threatened or vulnerable within the province. Based upon a review of the Species Status Advisory Committee (SSAC) status reports or applicable information sheet it was determined that it is unlikely that the listed species may occur the Project area based upon known species distributions, climatic variables and/or habitat requirements (SSAC 2023). Generally, the species listed under the NLESA are found either within more temperate locations, locations with a maritime influence or with a specific restricted habitat (e.g., the limestone barrens found on the Northern Peninsula of insular Newfoundland). There are historic records of the endangered Mountain Bladder Fern (*Cystopteris montana*) occurring in the area (Smokey Mountain – Labrador City). However, the species is listed as endangered for the insular portion of the province only and is not either listed as threatened or vulnerable within Labrador.

In 2023, WSP completed two baseline field programs to verify the presence/absence of species at risk (Appendix K). The first survey (herein referred to as the spring survey) was completed in June to identify "spring ephemeral" species that are only identifiable early in the spring. The spring survey focused mainly on high potential areas for species at risk to occur, such as wetlands and watercourse crossings. The second vegetation survey in late August (summer survey) covered general terrain in the area of the Project, when most vegetation is mature and identifiable to species level. Vegetation surveys did not identify species at risk in the area, which is consistent with the results of previous surveys (Stassinu 2012a).

In addition, the results of an ACCDC data search did not identify the occurrence of any Federally or Provincially listed species at risk within proximity of the project or in general region. The ACCDC data search did identified 66 species of conservation concern that have the potential to occur within the study area. For this assessment the focus was on species that were critically imperiled or imperiled at the provincial level (S1 or S2 ranking). A total of eleven (11) species fell into this range, eight of which were identified within the vicinity of the Project.

Table 4-12 outlines the species ranked S1 or S2 identified during by the ACCDC search, and which were identified within the Project footprint or broader Project area within baseline field investigations completed in 2011/2012 or 2023.

Table 4-12: Species of Conservation Concern from ACCDC Search of the Baseline Study Area Ranked S1 or S2

Common Name	Scientific Name	S-Rank	N-Rank	G-Rank	Identified within the Project Footprint	Identified within the Project Area
Green Spleenwort	*Asplenium viride*	S1S2	N5	G5	No	No
Beautiful Sedge	*Carex concinna*	S2	N5	G5	Yes	Yes
Small Yellow Lady's-Slipper	*Cypripedium parviflorum*	S1	N5	G5	Yes	Yes
Mountain Bladder Fern	*Cystopteris montana*	S2	N4N5	G5	No	No
Daisy Fleabane	*Erigeron hyssopifolius*	S2	N5	G5	No	Yes
Limestone Polypody	*Gymnocarpium robertianum*	S1	N3N4	G5	No	No
Running Pine	*Lycopodium clavatum*	S1S3	N5	G5	Yes	Yes
Marsh Muhly	*Muhlenbergia glomerata*	S2	N5	G5	No	Yes
Jack Pine	*Pinus banksiana*	S1	N5	G5	Possibly[a]	Yes
Northern Valerian	*Valeriana dioica subsp. sylvatica*	S2	N4N5	G5T4T5	Yes	Yes
Green False Hellebore	*Veratrum viride var. viride*	S2	N2	G5TNR	Yes	Yes

a) Project components such as the rail line, and other project infrastructure may be within the vicinity of species location.

4.7.2 Avifauna

Eight bird species at risk have the potential to occur within the proposed Project area and the adjacent landscape. Of this group, two were recorded during systematic point count surveys completed in 2014 and in 2023: common nighthawk (*Chordeiles minor*) (AMEC 2014) and olive-sided flycatcher (*Contopus cooperi*) (Appendix J).

The other six species (harlequin duck [*Histrionicus histrionicus*], barrow's goldeneye [*Bucephala islandica*], red knot [*Calidris canutus rufa*], peregrine falcon [*Falco peregrinus anatum*], short-eared owl [*Asio flammeus*] and rusty blackbird [*Euphagus carolinus*]) were identified through literature review. These species are either listed on Schedule 1 of the federal SARA or under the NLESA. It should be noted that critical habitat has not been designated for any of these species.

The SARA prohibits the harming or harassing of wildlife species at risk and the damage or destruction of their residences (i.e., nests or dens). Under the Act, Schedule 1 is the official list of wildlife species at risk. SARA also protects these species' habitat on federally owned lands. On other lands, SARA allows for the designation and protection of "critical habitat" of these species, namely, habitat necessary for the survival or recovery of endangered, threatened or extirpated species. Critical habitat may be designated in species-specific recovery strategies or action plans.

Like SARA, NLESA protects individuals, their residences, and designated critical habitat or recovery habitat of wildlife species designated under the Act. Critical habitat or recovery habitat may be identified during species recovery planning and may be designated for protection under NLESA.

The only species at risk detected during 2023-point count surveys was olive-sided flycatcher though an actively nesting common nighthawk was recorded in the Project area in 2014 (AMEC 2014). Several other species at risk are known to occur in the region of the Town of Labrador City (i.e., short-eared owl, rusty blackbird, harlequin duck) but were not found during our limited survey window in 2023. Table 4-13 provides an overview of the species at risk and their possibility of occurrence in the Project area.

Table 4-13: Species at Risk Birds that are Known or Potentially occur Within the Project Area

Species	Scientific name	Applicable Act	SAR status	Chance of Occurrence
Harlequin duck	*Histrionicus histrionicus*	NLESA SARA	Vulnerable Special Concern	Not Likely
Barrow's goldeneye	*Bucephala islandica*	NLESA SARA	Vulnerable Special Concern	Not Likely
Red knot	*Calidris canutus rufa*	NLESA SARA	Endangered	Not Likely
Peregrine falcon	*Falco peregrinus anatum*	NLESA SARA	Vulnerable Special Concern	Not Likely
Short-eared owl	*Asio flammeus*	NLESA SARA	Vulnerable Special Concern	Likely
Olive-sided flycatcher	*Contopus cooperii*	NLESA SARA	Threatened	Possible (Identified in 2014 and 2023 surveys)
Rusty blackbird	*Euphagus carolinus*	NLESA SARA	Vulnerable Special Concern	Highly likely
Common nighthawk	*Chordeiles minor*	NLESA SARA	Threatened	Possible (Active nest detected in 2014 survey)

NLESA = Newfoundland and Labrador Endangered Species Act; SARA = Federal Species at Risk Act.

4.7.3 Wildlife

Based on literature reviews of previous wildlife surveys conducted in the Labrador City-Wabush region as well as limited observations during other resource component surveys (Appendix L), there are five mammalian SAR that potentially occur within the proposed Project area and the adjacent landscape:

- Woodland caribou;
- Wolverine;
- Polar bear;
- Little brown myotis; and
- Northern myotis.

These species are either listed on Schedule 1 of SARA or under the NL ESA, Table 4. It should be noted that critical habitat has not been designated for any of these species. A brief description of each species and the likelihood they are active within the area of the Project are provided below.

4.7.3.1 Woodland Caribou

Woodland caribou (*Rangifer tarandus caribou*) are an important ecological component of Labrador and northern Quebec and have special cultural and recreational value to both Aboriginal and local people of this region. Two distinct populations (ecotypes) of woodland caribou occur in western Labrador/north-eastern Quebec:

- Migratory woodland caribou (the George River herd); and
- Sedentary woodland caribou (including the Red Wine, Mealy Mountains and Lac Joseph herds).

Although the George River Herd has historically occurred closer to Labrador City during the winter season, there is no evidence that animals have extended as far south as the Trans Labrador Highway in recent years (Appendix L). George River caribou now appear to winter closer to their calving area to the north and evidently utilize the Project area to a much lower extent than has previously been observed (DOEC 2012).

Among the three sedentary woodland caribou herds present in Labrador (all of which are listed as threatened under the NL ESA and SARA; Schmelzer 2011), the Lac Joseph Herd has been the most extensively studied through aerial surveys and telemetry (Schmelzer et al. 2004; Schmelzer 2011). Recent surveys indicate that these caribou primarily occur in an area south of Labrador City-Wabush and well outside of the proposed Project area (Appendix L).

4.7.3.2 Wolverine

Wolverines historically occurred on the Ungava Peninsula, although there have been no verified reports from Labrador since 1965 (COSEWIC 2003). Wolverines have exceptionally large territories and encompass a wide range of habitats within these home ranges (Fortin et al. 2005). Wolverines could

potentially utilize the area encompassed by the proposed Project (based on habitat suitability) however, this species is currently considered absent from this area (Appendix L).

4.7.3.3 Polar Bear

Polar bears are listed as Vulnerable under the NL ESA. This species is relatively common along coastal regions of eastern Labrador but is not known to occur in western Labrador (Appendix L).

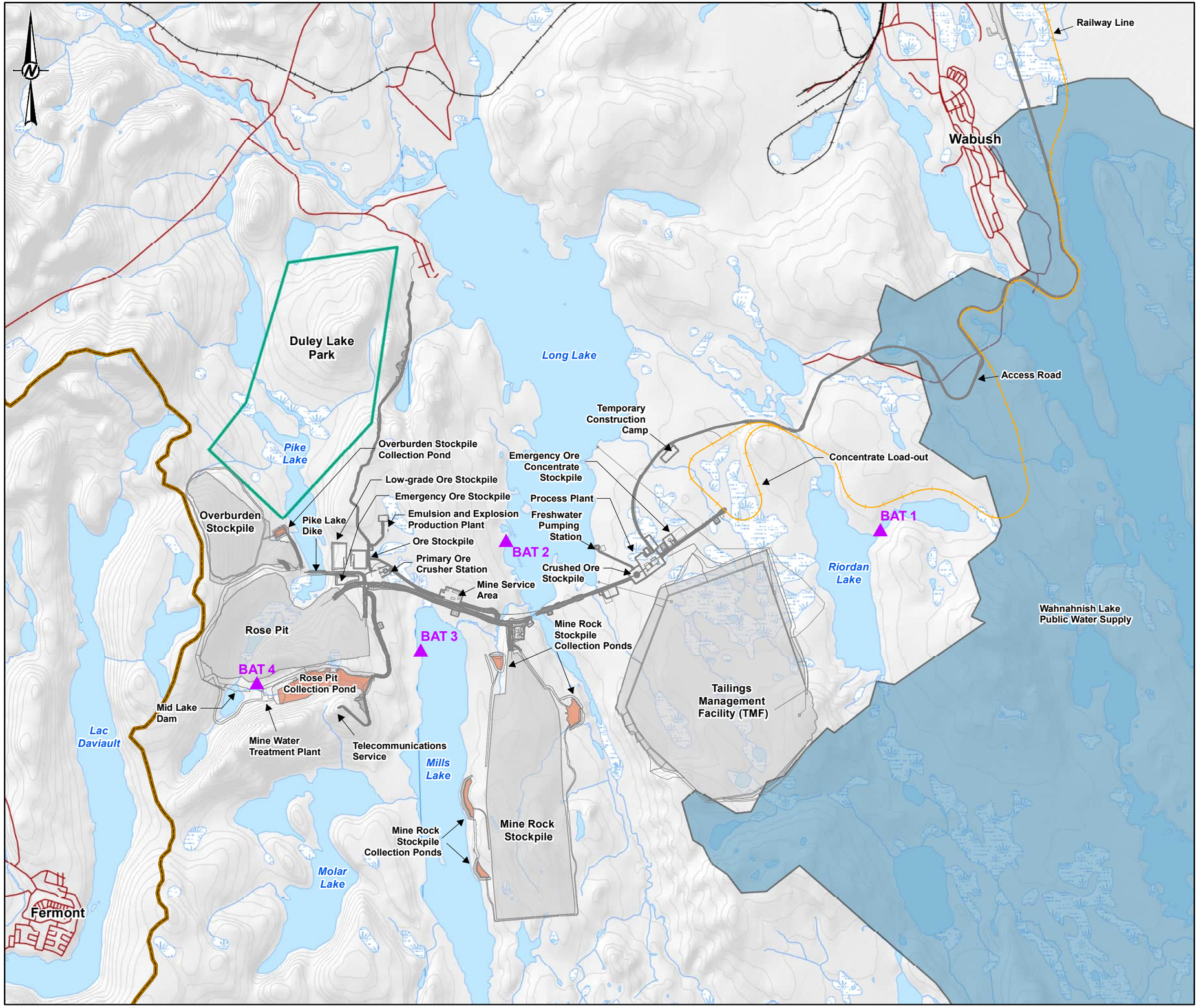
4.7.3.4 Little Brown Myotis and Northern Myotis

it is likely that little brown myotis (*Myotis lucifugus*) and Northern myotis (*M. septentrionalis)* occur in the area of the Project. A desktop review suggests that bat hibernacula are unlikely to occur in the area, however the potential exists for maternity roost habitat and foraging habitat (Appendix L).

In 2023, four bat acoustic monitors were deployed at Long Lake, Harris Lake, Mills Lake, and Mid Lake to determine the occurrence of bat species in the area of the Project (Figure 4-12). Autonomous recording units were deployed to capture the breeding and fall migration periods, between June 16th, 2023 and September 8th, 2023, with the exception of the Harris Lake ARU which was deployed August 1st, 2023 to September 8th, 2023.

Acoustic monitoring surveys confirmed the presence of both little brown myotis and Northern myotis bat species within the study area, as well as three (3) Species of Conservation Concern (SOCC): the Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*L. cinereus*), and Silver-haired Bat (*Lasionycteris noctivagans*). were recently assessed as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2023). They are currently under review for listing as Endangered under Schedule 1 of SARA. All three species' migratory populations are ranked by ACCDC as Critically Imperiled, but there is currently insufficient information to rank their breeding populations. These three (3) species are considered migratory species because they come to Canada to breed but migrate to overwinter farther south.

The monitoring station located at Mid Lake (BAT04) had the highest number of bat detections (approximately 80% of all detections), and this pattern was most notable for the SAR species as approximately 85% of all SAR were detected at the Mid Lake station (Appendix L).



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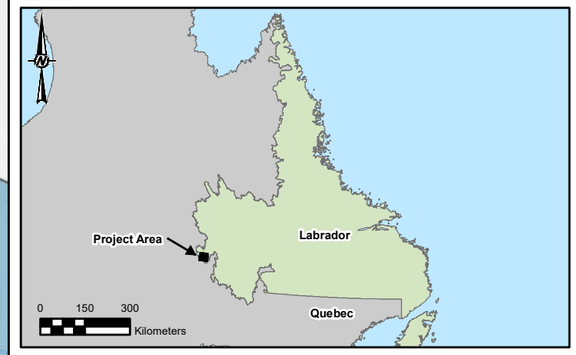

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LEGEND

PROJECT DATA

- Bat Monitoring Location
- Proposed Infrastructure
- Proposed Infrastructure
- Proposed Railway
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- Existing Road
- River/Stream
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary
- Public Water Supply

0 625 1,250 2,500

1:60,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES LTD.

PROJECT

KAMI IRON ORE MINE PROJECT (KAMI PROJECT)
WABUSH, NL

TITLE

BAT MONITORING SURVEY LOCATIONS

CONSULTANT

wsp

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PREPARED	####
REVIEWED	SPC
APPROVED	HJ

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4.8 Historic Heritage and Cultural Resources

Historic heritage and cultural resources include sites objects, landscapes or places of historic and archaeological, cultural, spiritual, architectural and paleontological importance. In NL, such resources fall under the authority of the Provincial Archaeology Office (PAO) of the Department of Tourism, Culture, Arts and Recreation. The *Historic Resources Act* (1990), administered by the PAO, protects the province's more than 5000 documented archaeological sites and prohibits any unauthorised interference with newly discovered historic and heritage resources. In addition, areas exhibiting elevated potential for undiscovered archaeological resources have been identified throughout the province, both on land and in coastal waters (PAO 2015).

Previous mapping work and desktop reviews completed in 2011 and 2012 (Stassinu 2012h), including information available from PAO, indicated generally low potential for heritage resources in the vicinity of the Project. No sites of historical, cultural, spiritual, paleontological, or architectural importance were identified in the vicinity of the Project. Building off the previous assessment, in 2024 Champion conducted a desktop review of previously completed Project assessments, online heritage inventories, historical background research, historical maps, and historical aerial imagery (Appendix M). The results of the desktop review screened for the presence of known and potential built heritage resources and cultural heritage landscapes and confirm the results of the previous assessments.

In 2023, Champion completed a separate desktop investigation of archaeological historic sites within the area of the Project (Appendix N). The goals of the study were to identify known archaeological and historic sites and to delineate areas of archaeological potential. Environmental attributes and historical settlement and development patterns of the study area and surrounding region were reviewed to provide the necessary information for evaluating the area's archaeological potential. The background study focused primarily on previous archaeological research and assessments carried out within, or in proximity to, the Project.

According to the PAO in 2023, there are no known archaeological resources within, or near, the immediate area of the Project. However, previous archaeological investigations have demonstrated the region's archaeological significance with respect to Archaic, Intermediate, Late Pre-contact, Innu and Naskapi cultures (Loring 1992; McCaffrey 2006; Schwarz 2007; Thomson 1984).

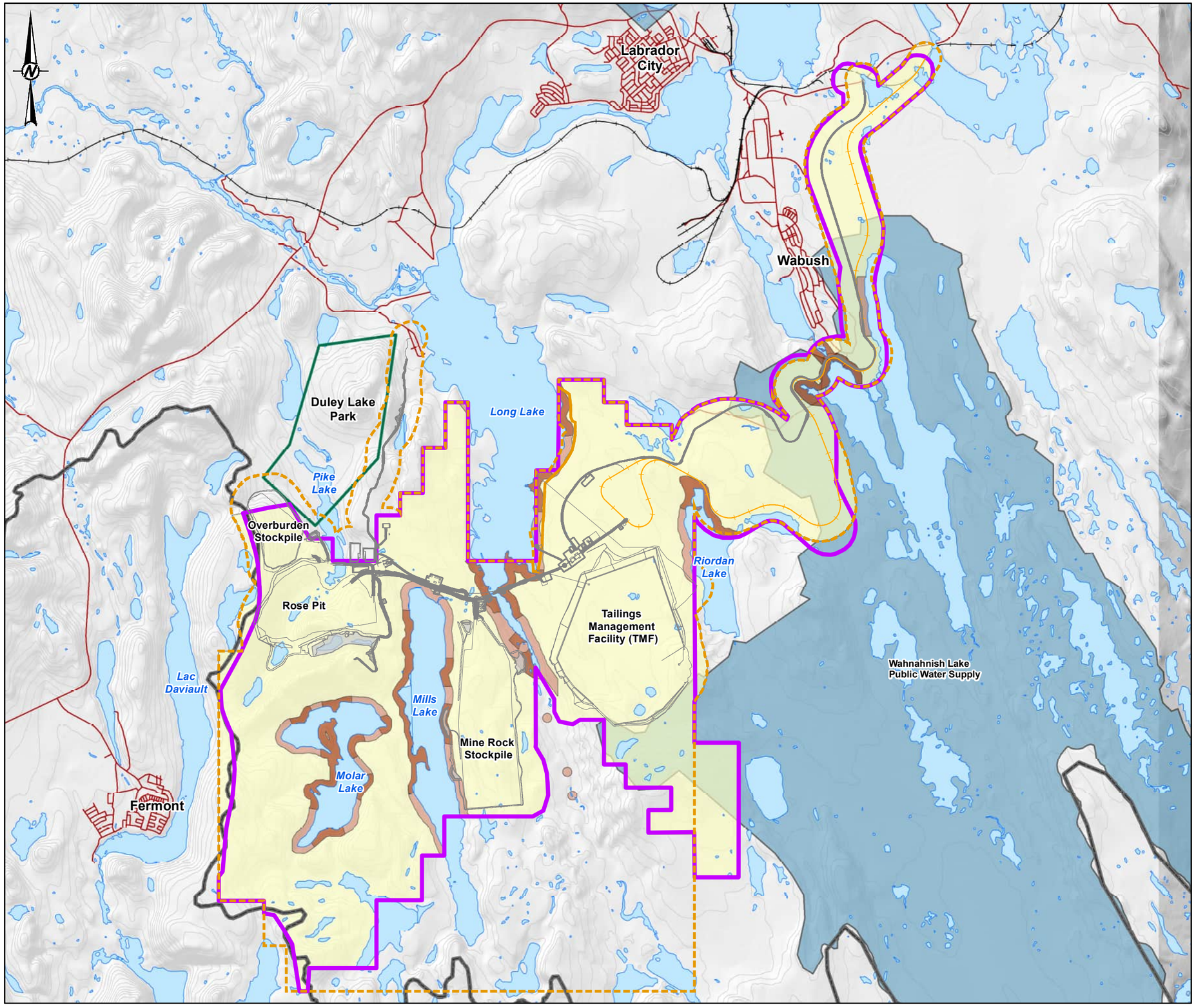
A Historic Resources Overview Assessment (HROA) was completed for the area of the Project in 2011 (Stassinu 2012h). The HROA consisted of background research, visual assessment, and limited subsurface testing in select areas determined to exhibit high potential for archaeological resources (Stassinu 2012h). Several additional areas of high archaeological potential were identified within the area of the Project, but outside of planned Project impacts at that time. The remainder of the area of the Project was determined to exhibit low archaeological potential, and no further archaeological investigation was required in those areas.

The 2011 HROA concluded that additional field assessment may be required in areas of high archaeological potential once Project design has been finalized (Stassinu 2012h). Based on a review of the Project as currently proposed by Champion, there are three areas within the Project site that

intersect with areas of high archaeological potential. Specifically, the Waldorf River outflow crossing, the Mine Rock Stockpile and associated water collection ponds. The review also identified several areas that could potentially be impacted by the Project that were not included in the 2011 assessment, which include:

- the North portion of Overburden Stockpile
- Low-grade Ore Stockpile
- the road leading north along the east side of Duley Lake Park
- the proposed road and railway from Elephant Head Lake to Wabush

These areas are presented on Figure 4-13. Champion will complete further investigations in these areas upon completion of the final design and prior to ground disturbance to determine if archaeological resources are present.



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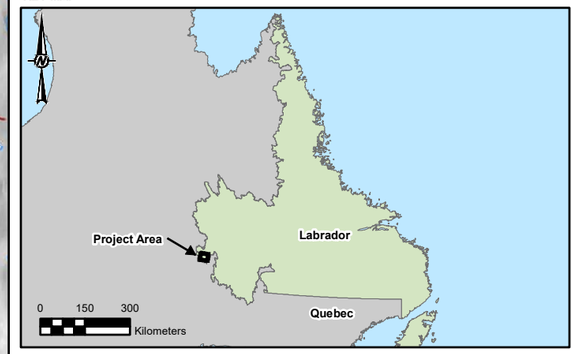

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LEGEND

PROJECT DATA

- Local Study Area
- 2011 Assessment Area
- Proposed Infrastructure
- Proposed Railway
- Proposed Infrastructure

2011 Potential Ratings

- Low
- Moderate
- Higher

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- Existing Road
- River/Stream
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary
- Public Water Supply

0 875 1,750 3,500

1:85,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES LTD.

PROJECT

KAMI IRON ORE MINE PROJECT (KAMI PROJECT)
WABUSH, NL

TITLE

AREAS OF ARCHAEOLOGICAL POTENTIAL WITHIN THE PROJECT AREA

CONSULTANT

wsp

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REVIEWED	SPC
APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
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4.9 Use of Land and Resources for Traditional Purposes by Indigenous Persons

This section presents an overview of the available information on Use of Land and Resources for traditional purposes, as presented in the 2012 EIS. The 2012 EIS included information on the following Indigenous groups identified as rightsholders for the Project:

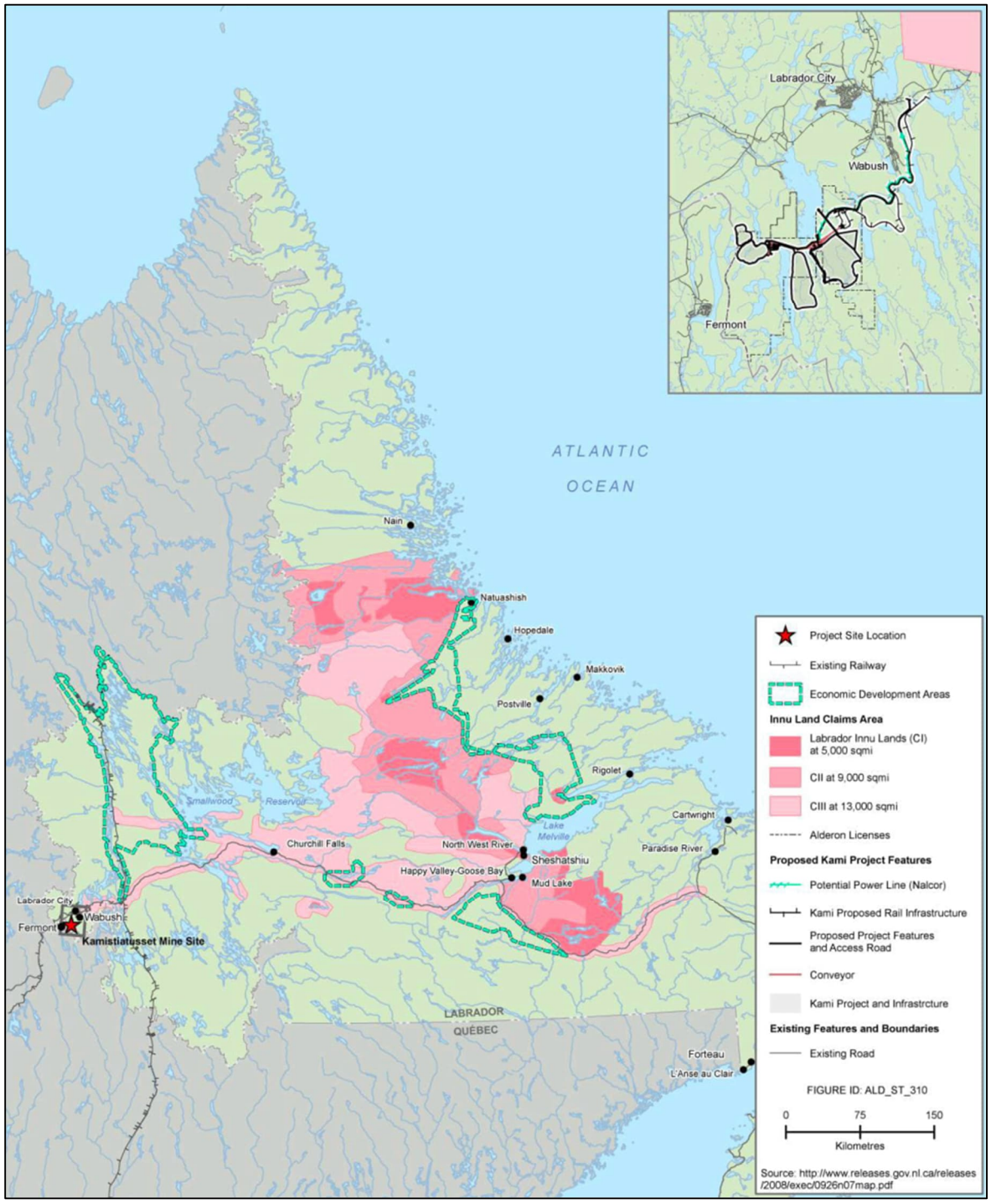
- Innu Nation;
- Innu Takuaikan Uashat mak Mani-Utenam (ITUM);
- La Nation Innu Matimekush-Lac John (NIMLJ);
- Naskapi Nation of Kawawachikamach (NNK); and
- NunatuKavut Community Council (NCC).

4.9.1 Innu Nation

Figure 4-14 presents the Labrador Innu Land Claims Agreement-in-Principle (AIP) area, as presented in the 2012 EIS.

Existing and available information in 2012 indicated that the Labrador Innu partake in a few traditional land and resource use activities, including hunting, fishing, and gathering. Some activities were found to have occurred in Western Labrador generally; however, Alderon did not identify any evidence of current land and resource use activities for traditional purposes in or near the Project area. Information available to Alderon did not contain references to sites of cultural or spiritual significance within the LSA. The Project area did not overlap the Labrador Innu Land Claims AIP area.

Indigenous Knowledge studies with information on the Innu Nation's current use of lands and resources for traditional purposes were not available for the 2012 EIS.



Source: Alderon, 2012

Figure 4-14:Labrador Innu Land Claims AIP Areas

4.9.2 Innu Takuaikan Uashat mak Mani-Utenam (ITUM)

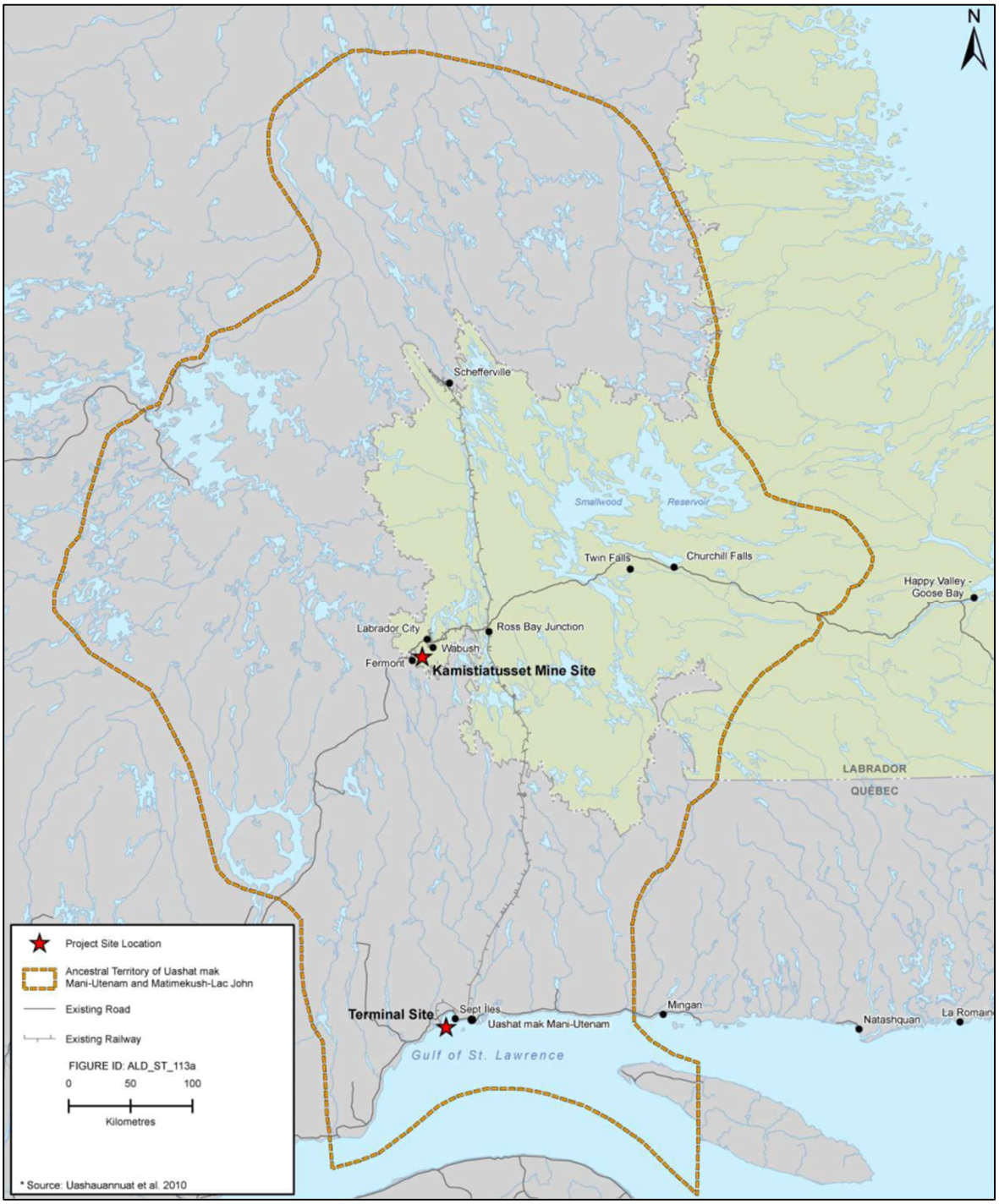
Figure 4-15 presents the traditional territory of the ITUM and NIMLJ, as presented in the 2012 EIS. Existing and available information in 2012 indicated that the ITUM were involved in a tradition of seasonal migration, migrating from the mouths of the Sainte-Marguerite and Moisie rivers on Québec's Lower North Shore to the interior of the Québec-Labrador Peninsula to hunt caribou, geese, and other game. In 2012, the ITUM continued to utilize its traditional territories. Expanded roadways, railways, snowmobile trails, and campsites increased access and encouraged more frequent visits to traditional hunting and trapping areas. Alderon did not identify any evidence of current land and resource use activities for traditional purposes, or sites of cultural or spiritual significance, within the study areas of the 2012 EIS.

Indigenous Knowledge studies with information on the ITUM's current use of lands and resources for traditional purposes were not available for the 2012 EIS.

4.9.3 La Nation Innu Matimekush-Lac John (NIMLJ)

Existing and available information in 2012 indicated that the NIMLJ traditionally used and occupied a vast territory ranging over the Québec-Labrador Peninsula, down to the coast of the Lower North Shore, with historic travel corridors overlapping the LSA. The hunting of caribou and other wildlife, fishing, and other types of harvesting, were noted in the 2012 EIS to play a central role in the lives and culture of the NIMLJ. Alderon did not identify any evidence of current land and resource use activities for traditional purposes within study areas of the 2012 EIS.

Indigenous Knowledge studies with information on the NIMLJ's current use of lands and resources for traditional purposes were not available for the 2012 EIS.



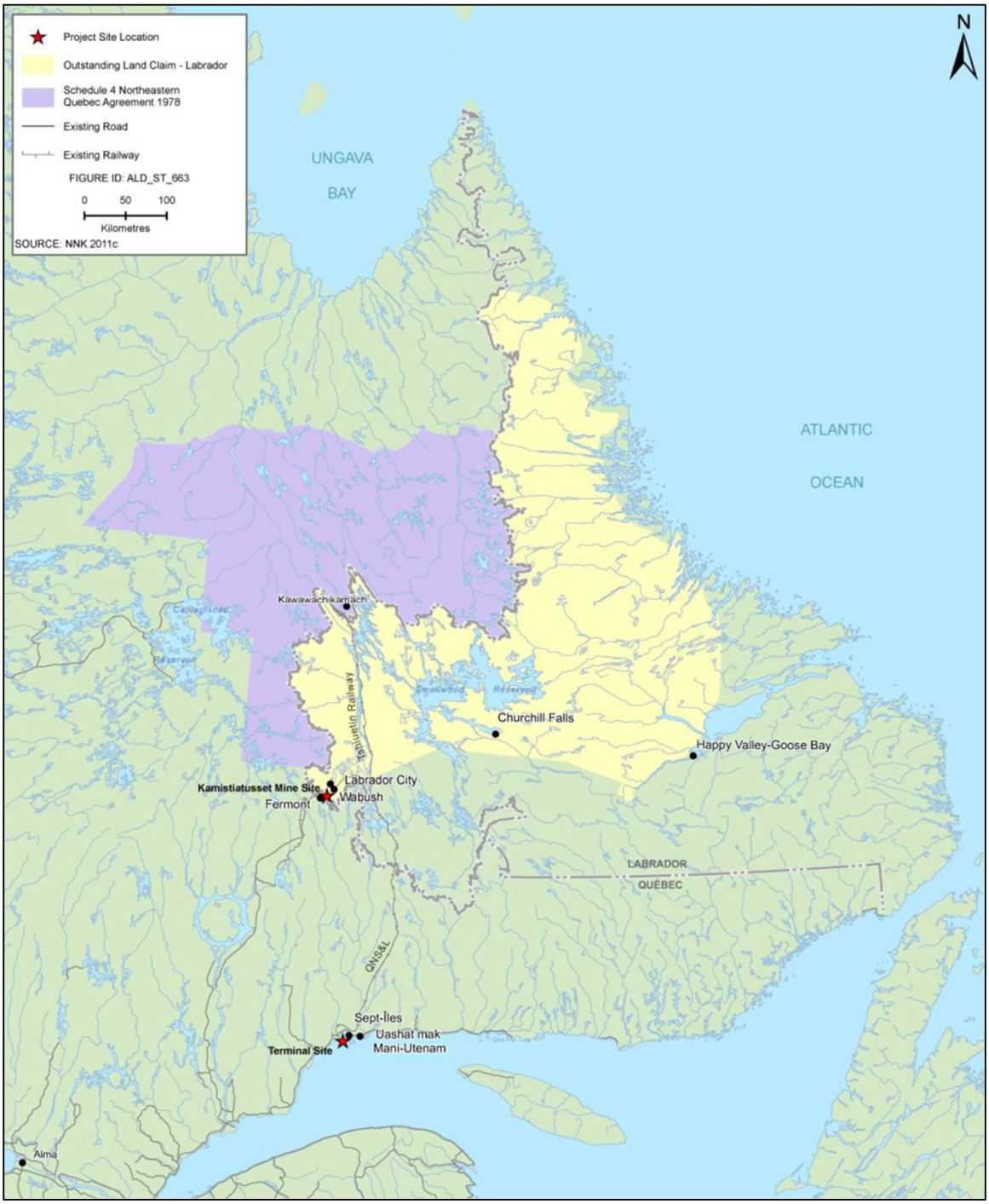
Source: (Alderon Iron Ore Corp., 2012)

Figure 4-15: Traditional Territory of the ITUM and NIMLJ

4.9.4 Naskapi Nation of Kawawachikamach (NNK)

Figure 4-16 presents the land claim areas of the NNK, as presented in the 2012 EIS. Existing and available information in 2012 indicated that the Naskapi traditionally followed the migration patterns of the George River caribou heard across the Québec-Labrador Peninsula. After residing more permanently in the Schefferville area in the 20th century, NNK land and resource activities increasingly focused on local, adjacent areas. Available information in 2012 indicated that hunting, trapping, and fishing played a significant role in the culture and economy of the NNK. Alderon did not identify any evidence of current land and resource use activities for traditional purposes, or sites of cultural or spiritual significance, within the study areas of the 2012 EIS.

Indigenous Knowledge studies with information on the NNK's current use of lands and resources for traditional purposes were not available for the 2012 EIS.



Source: (Alderon Iron Ore Corp., 2012)

Figure 4-16: NNK Land Claim Areas

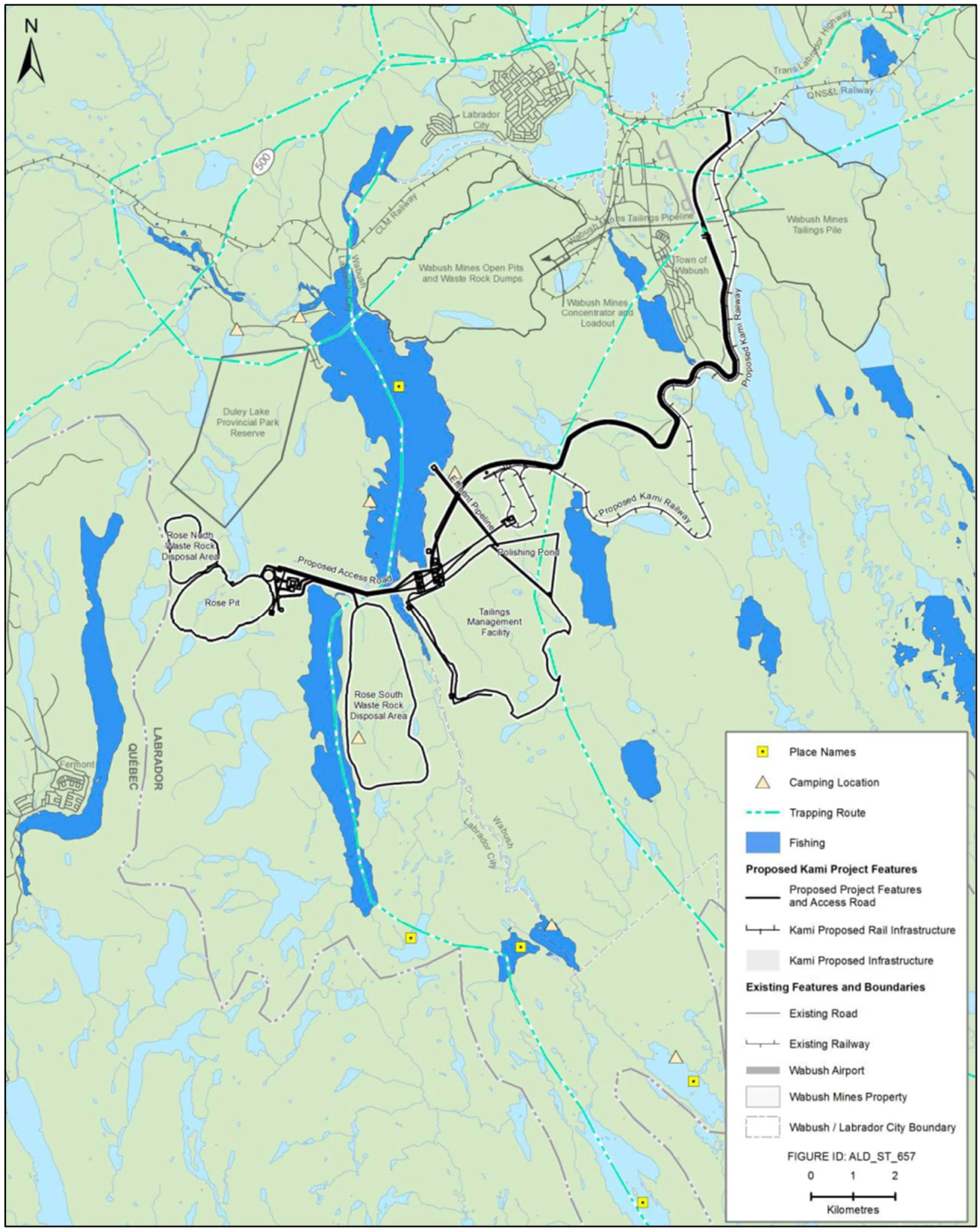
4.9.5 NunatuKavut Community Council (NCC)

Figure 4-17 presents the asserted land claim area of the NCC, as presented in the 2012 EIS, which was informed by a 2012 Land Use Study NCC provided to Alderon for use in the EIS. The information collected in the Land Use Study indicated that NCC members residing in Labrador City and Wabush undertake a few land and resource activities throughout Western Labrador, including in areas near Labrador City, Wabush, and the Smallwood Reservoir. These activities include hunting, fishing, berry picking, camping, and travel across the land. NCC members in the Land Use Study indicated that fishing activities took place in local waterbodies, including Long Lake, Mills Lake, Riordan Lake, Rectangle Lake, and others. The Land Use Study concluded that total area for species harvesting by NCC members in Labrador is often wide-ranging, and the Project area comprised a small portion of the total harvested land base.

Figure 4-18 presents NCC land uses in and near the Project area, as presented in the Land Use Study and 2012 EIS. Information available to Alderon did not contain references to sites of cultural or spiritual significance within the local study area defined for the 2012 EIS.

Source: (Alderon 2012)

Figure 4-17: NCC Asserted Land Claim Area



Source: (Alderon 2012)

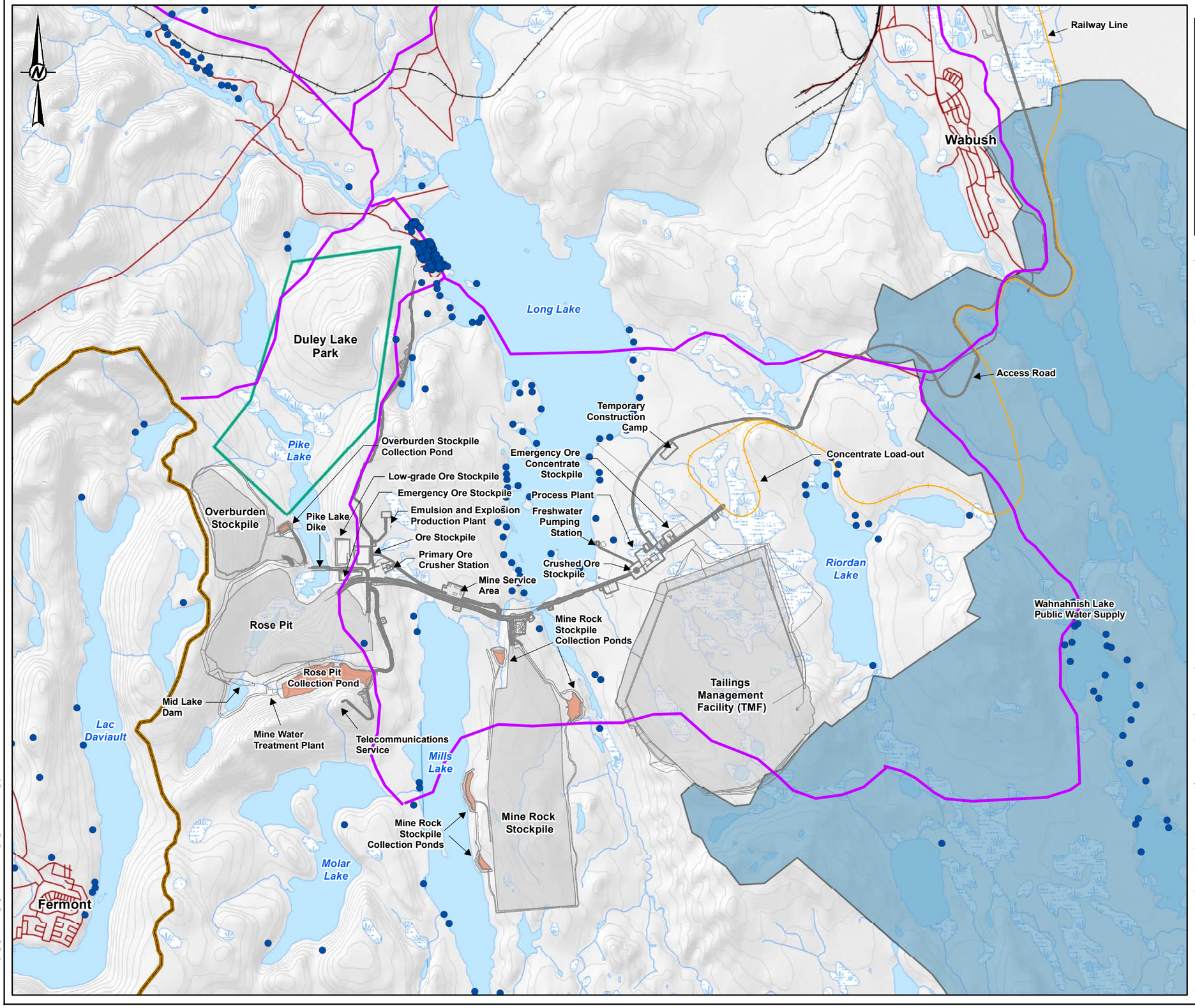
Figure 4-18: NCC Land Uses in and Near the Project Area

4.10 Other Current Use of Lands and Resources

Other forms of land and resource use in the vicinity of the Project area includes industrial activities, cabin use, hunting and trapping, angling, wood harvesting, berry picking, snowmobiling, and boating among other recreational activities. Due to the proximity to the Towns of Labrador City and Wabush, recreational land use in this area is extensive. A number of recreational cabins have been identified within the vicinity of the Project and are presented on Figure 4-19.

The White Wolf Snowmobile Club (WWSC) in Labrador West was formed in 1997 to enhance recreational snowmobiling and to help develop the snowmobiling industry as a whole throughout Labrador. Western Labrador has greater than 800 km of groomed trails including the Lagoped snowmobile trails in Fermont. WWSC groom in excess of 500 km of trails each year. Segments of the trails managed by the WWSC intersect the Project area. These trails are also presented on Figure 4-19.

The Town of Wabush and Town of Labrador City each have Municipal Plans for 2018-2018 that define their municipal planning areas, guides growth and development within the planning areas and direct future growth to use municipal services and land resources efficiently, while considering aspects of land development like safety, aesthetics, and environmental protection (Labrador City 2018, Wabush 2018). The Project is situated between both municipal planning areas.



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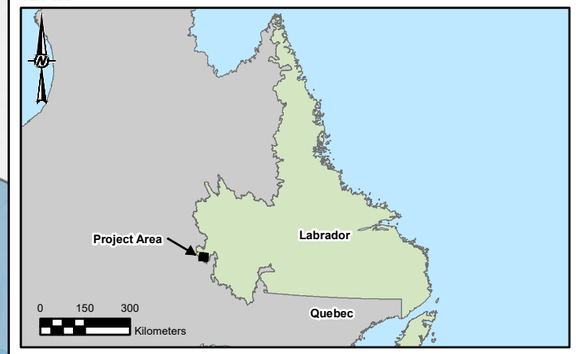

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LEGEND

PROJECT DATA

- Cabin Location
- Snowmobile Trail (Approx.)
- Proposed Infrastructure
- Proposed Infrastructure
- Proposed Railway
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- Existing Road
- River/Stream
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary
- Public Water Supply

0 625 1,250 2,500

1:60,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES LTD.

PROJECT

KAMI IRON ORE MINE PROJECT (KAMI PROJECT)
WABUSH, NL

TITLE

CABINS AND WHITE WOLF SNOWMOBILE CLUB TRAILS NEAR THE PROJECT SITE

CONSULTANT

wsp

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APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
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4.11 Socio-economic Valued Ecosystem Components

To better understand local social and economic conditions a baseline desktop assessment was completed in 2023 (Appendix O), updating the previously completed baseline assessment for the 2012 EIS (Stassinu 2012i) with data from the 2021 Census.

A Gender-Based Analysis Plus (GBA+) lens was applied when completing the baseline assessment, as information has been included and, where possible, disaggregated in a way allowing for greater understanding of how local baseline conditions differ based on gender and other identity factors. GBA+ is an analytical tool for assessing systemic inequalities. GBA+ considers intersecting identity factors such as gender, race, ethnicity, age, and mental or physical disabilities, and seeks to understand how individuals may experience policies, programs, and initiatives differently.

The Government of Canada and Province of NL have a duty to consult, and where appropriate, accommodate Indigenous groups when it considers conduct that might adversely impact potential or established Aboriginal or treaty rights. Although no Indigenous communities exist in close proximity to the Project, the Project is located in an area which five Indigenous groups assert as their traditional territory. To that end, the following Indigenous communities were considered in the baseline study area, based on the above understanding and consistent with the 2012 EIS:

- Innu Nation;
- ITUM;
- NIMLJ;
- NNK; and
- NCC.

The study area for the baseline assessment also included the following three municipalities in proximity to the Project site:

- Town of Labrador City;
- Town of Wabush; and
- Ville de Fermont.

The results of this socio-economic desktop assessment, organized by Indigenous groups and local municipalities then arranged by community services and infrastructure and economy, employment and business are summarized below.

4.11.1 Indigenous Groups

4.11.1.1 *Community Services and Infrastructure*

Residents and visitors in Indigenous communities have access to the follow community services and infrastructure (Appendix O):

- recreation and leisure facilities, including community centres, libraries, and museums;
- social services, including crisis centres and counselling services;
- health services, including hospital and public health, preventive measures, health education, and community health services and facilities;
- education service, including primary, secondary, and post-secondary schools;
- employment and economic development services, including employment and recruitment services;
- housing services, including affordable housing and financial assistance;
- temporary accommodations, including hotels;
- emergency services, including police, fire, and EMS services; and
- transportation and utilities, including communication and transportation services, which includes the Wabush Airport (YWK).

4.11.1.2 Economy, Employment, and Business

For men+, the labour force participation rate ranged from 45.5% to 67.6%, and the unemployment rate ranged from 13.0% to 33.3%. Employment income accounted for between 60.0% and 78.0%, and the average employment income ranged from $40,000 to $85,800 (Appendix O).

For women+, the labour force participation rate ranged from 46.1% to 63.8%, and the unemployment rate ranged from 7.7% to 16.7% for women+. Employment income accounted for between 43.6% and 68.4% and the average employment incomes ranged from $36,00 to $56,600 for women+ (Appendix O).

4.11.2 Municipalities

4.11.2.1 *Community Services and Infrastructure*

Residents and visitors in the study area municipalities have access to the follow community services and infrastructure (Appendix O):

- recreation and leisure facilities, including community centres, libraries, and museums;
- social services, including crisis centres and counselling services;
- health services, including hospital and public health, preventive measures, health education, and community health services and facilities;
- education service, including primary, secondary, and post-secondary schools;
- employment and economic development services, including employment and recruitment services;
- housing services, including affordable housing and financial assistance;
- temporary accommodations, including hotels;

- emergency services, including police, fire, and EMS services; and
- transportation and utilities, including communication and transportation services, which includes the Wabush Airport (YWK).

4.11.2.2 Economy, Employment, and Business

For men+, the labour force participation rate ranged from 78.3% to 86.0% and the unemployment rate ranged from 1.8% to 4.7%. Mining, quarrying, and oil and gas extraction, and public administration, were the top industries, with trades, transport and equipment operators, and related occupations as the top occupation category. In Wabush, Labrador City, and Fermont, employment in the mining, quarrying, and oil and gas extraction industry increased by 66.1%, 18.2% and 2.2% between the 2016 and 2021 census (Appendix O).

For women+, the labour force participation rate ranged from 66.5% to 78.7% and the unemployment rate ranged from 4.1% to 6.5%. Mining, quarrying, and oil and gas extraction; health care and social assistance; and public administration were the top industries, with sales and service occupations and occupations in education, law, and social, community, and government services as the top occupation categories. In Wabush, Labrador City, and Fermont, employment in the mining, quarrying, and oil and gas extraction industry increased by 13.1%, 57.1% and 50.7% between the 2016 and 2021 census (Appendix O).

For men+, employment income accounted for between 88.4% and 96.4%, and average employment incomes ranged from $115,600 to $137,500. For women+, employment income accounted for between 78.8% and 84.0%, and average employment incomes ranged from $66,000 to $73,600 (Appendix O).

5.0 PROJECT-ENVIRONMENT INTERACTIONS AND SCREENING OF POTENTIALLY ADVERSE EFFECTS

For a Project-environment interaction to occur, there needs to be a Project activity, a valid pathway from the Project activity to an environmental component or discipline, and a receptor within that environmental component or discipline that may be positively, neutrally or adversely affected. Figure 5-1 provides a conceptual representation of potential pathways that may occur between an open-pit mining and milling operation and environmental components.

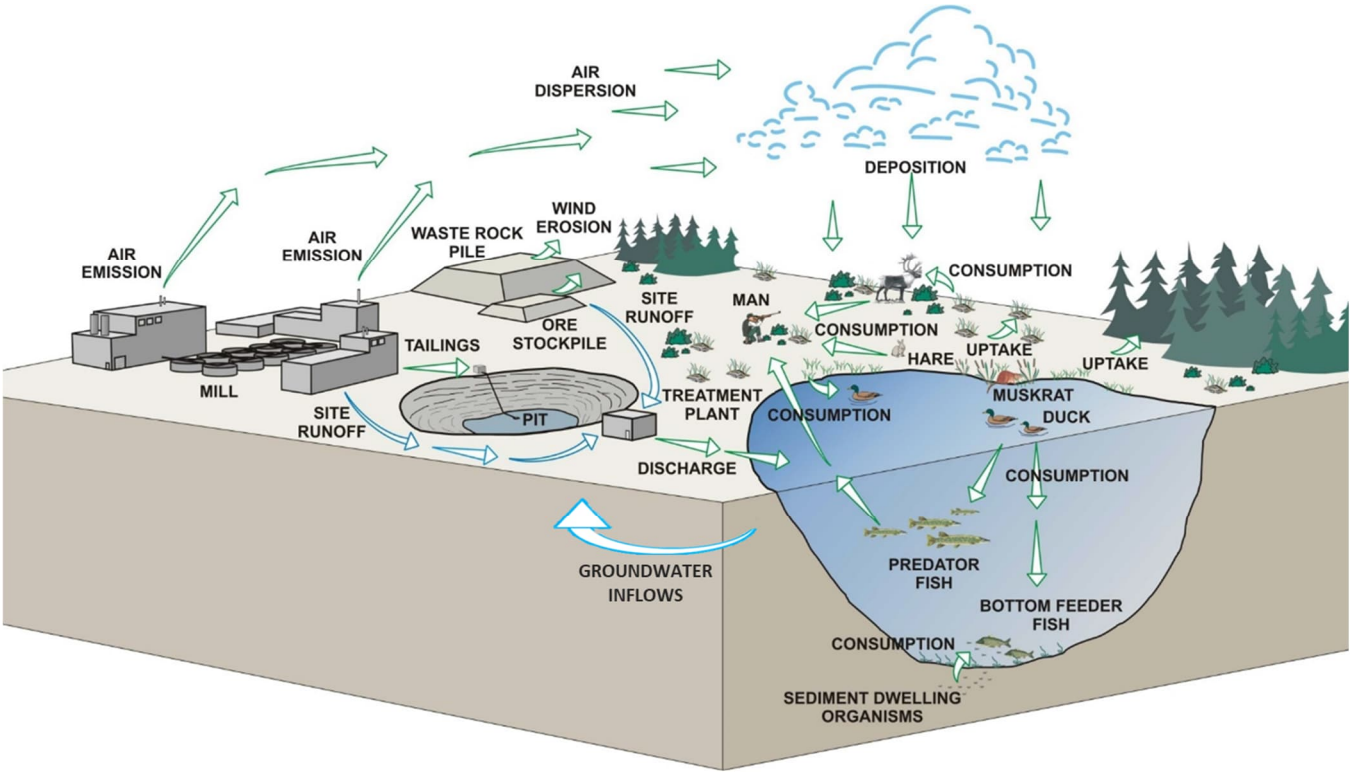


Figure 5-1: Conceptual Figure of Project-Environment Interactions during Operations

Taking into the consideration the Project optimizations presented in Section 3.0 and current understanding of the existing environment of the previously selected VECs presented in Section 4.0, this section outlines Project-VEC interactions that could result in potential effects from the proposed Project. A complete list of Project-VEC interactions were identified in the 2012 EIS. To focus the assessment to potentially new effects, this section will provide a preliminary screening to identify if there are any new adverse effects derived from new interactions between Champion's proposed Project optimizations to the previously selected VECs. New adverse effects could be identified by changes to the Proposed Project or changes to the existing environment since the pervious assessment.

The identification of new adverse effects would likely trigger the requirement for additional assessment and potentially supplemental mitigation measures and commitments to minimize potentially adverse effects from the Project to the environment. Alternatively, this section also determines whether the proposed Project optimizations by Champion will result in a reduction in predicted adverse effects compared to the proposed that was assessed by Alderon and released from the EA process in 2014.

The preliminary screening of new potentially adverse effects from the Project is presented in Table 5-1. Where no new potentially adverse effects are predicted, it is assumed that Champion will implement applicable and feasible mitigation measures or commitments that Alderon previously made, However, Champion is not committing to meeting all the mitigation measures and commitments that were developed by Alderon and presented in the 2012 EIS. Where required, Champion will develop updated mitigation measures and commitments to better reflect the current Project and effectively mitigate any potential adverse effects that were previously identified in the 2012 EIS or are now predicted as a result of the proposed Project optimizations in this Project Registration document.

Table 5-1: Preliminary Screening of New Adverse Effects from the Project

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
Atmospheric Environment	Air Quality and Greenhouse Gases	During all Project Phases, potential pathways exist through which the Project can interact with air quality and climate. This includes the emission of criteria air contaminant (CAC) and GHG emissions from stacks, mobile equipment and fugitive dust from access roads, mine operation, the TMF and Mine Rock Stockpile.	The following Project Optimizations that have an interaction with the atmospheric environment VEC have been proposed in this Project Registration: • Implementation of one main overland conveyor with fewer transfer points between the primary ore crusher station and the crushed ore stockpile (Section 3.3.3.3). • A dome will be built to surround the crushed ore stockpile (Section 3.3.3.6). • An IPCC system will be used to crush and convey mine rock to the Mine Rock Stockpile (Section 3.3.4.1). The use of IPCC will result in an overall reduction of the mine fleet by approximately 25% compared to the mine fleet that was proposed by Alderon.	The Project optimizations proposed by Champion that would have an interaction with the atmospheric environment VEC are not anticipated to result in new adverse effects that have not been previously identified and assessed. The proposed Project optimizations, specifically the use of a modernized IPCC system will result in a reduction to the mine haul truck fleet by 85% (from 50 to 8), which would reduce CAC, GHG, fugitive dust, noise and light emissions when compared to the Project proposed by Alderon. With Champion's proposed Project optimizations and the implementation of mitigation measures and commitments that will be outlined in an updated version of the environmental protection plan, no new adverse effects are anticipated for the Atmospheric Environment VEC, and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.
	Noise, Vibration and Light	The urban areas of the Town of Labrador City, the Town of Wabush, and Ville de Fermont are primarily residential areas, susceptible to noise, vibration, and light emissions from Project activities. During all Project Phases, potential pathways exist through which the Project can interact with local receptors through noise, vibration, and light emissions. This includes blasting and the use of heavy equipment, vehicular traffic on the Project access roads and use of heavy rail.		

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
Landforms, Soils, Snow, and Ice	Snow and ice	Potential pathways through which the Project can interact with snow and ice during all Project phases include modifications to snow distribution and drifting because of the open pit mine and mine facilities, changes to the timing of snowmelt as a result of dust deposition and effects to ice conditions on nearby lakes resulting from blasting activities.	As referenced above, several Project optimizations are proposed which would reduce the amount of fugitive dust generated from the Project, including improvements to the ore handling, storage and processing infrastructure to reduce transfer points, which will reduce dust generation, to operating a smaller fleet of mine haul trucks (from 50 previously proposed to 8). It is currently proposed that pre-production mining in the Construction Phase will generate mine rock that will be utilized to build key Project infrastructure, such as the TMF starter dam, Mine Rock Stockpile and the Pike Lake Dike. Previously, Alderon had committed to only mining the Wishart Formation during the Construction Phase due to its low sulfur content and also that no overburden in contact with the Menihek formation would be removed during the Construction Phase (Alderon 2014). Given then complex geology of the deposit, it is unlikely that this is possible to achieve, however, Champion will manage PAG extracted during the Construction Phase (likely through temporary stockpiling) and during the Operations Phase to ensure sufficient neutralization potential is available to neutralize acidity through blending of crushed rock placed the Mine Rock Stockpile.	Existing snow, ice soil and terrain conditions within the vicinity of the Project are similar to those characterized in the 2012 EIS and results from the ongoing geochemical characterization program are generally consistent with previous analyses completed in 2013. The overall Project footprint is similar to what was previously proposed by Alderon, as many of the major Project components that would result in an impact to landforms, soils, snow and ice (i.e., Rose pit, Overburden Stockpile, Mine Rock Stockpile) have not changed locations and / or are proposed to be similar or reduced in size compared to what was previously proposed by Alderon. Due to the environmental design features Champion has implemented into the proposed Project, anticipated effects to soils and snow due to dust deposition are anticipated to be reduced. With respect to ARD/ML risk, sufficient neutralization potential is available within the overall deposit to buffer acid potential generated, and acid rock drainage risks will be managed. With Champion's proposed Project optimizations and the implementation of mitigation measures and commitments that will be outlined in an updated version of the environmental protection plan, no new adverse effects are anticipated to the Landforms, Soils, Snow and Ice VEC, and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.
	Terrain and soils	Potential pathways through which the Project can interact with terrain and soils include stripping, vegetation clearing and other disturbance activities during the Construction Phase. These activities may result in erosion, admixing, rutting and compaction, which could impact soil abundance and productivity. Deposition of fugitive dust and CACs during the Construction, Operation and Closure Phases could also have an effect on soil chemistry and productivity. Soil reclamation and salvage activities will also be completed during the Closure Phase.		

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
	Geology and geochemistry	Mining activities can result in the exposure of potentially acid generating (PAG) material, which can result in acid rock drainage and metal leaching. Potentially acid generating (PAG) material is present in all geological units of the Kami deposit except for the Attikamagen Formation, although most of the PAG samples were concentrated in the Menihek Formation (WorleyParsons 2014; Stantec 2013), which is the shallowest of the rock formations encountered at the Project mining deposit (GMining 2023).		
Water Resources	Hydrogeology	Potential pathways through which the Project can interact with hydrogeology include dewatering activities and predevelopment mining during the Construction Phase, development of the pit during the Operation Phase and accelerated pit flooding during the Closure Phase, as these interactions can alter flow patterns as a result of the capture, removal or addition of groundwater from/to the area surrounding the mine. Due to the geology of the area and the poor quality of the bedrock, a large amount of groundwater discharge into the pit is expected.	One of the conditions associated with the Ministerial Release in 2014 was the requirement to gain further knowledge about the hydrogeological aspect of the Project, including the development of refined hydraulic conductivity estimates. Champion has developed and updated the conceptual hydrogeological model and developed calibrated hydraulic conductivity estimates (Section 4.3.1). Using these estimates, conservative groundwater inflow and Pit dewatering rates were estimated and carried forward to inform the Project design, and specifically the development of additional water management infrastructure (Section 3.2.6). This includes the Rose Pit Collection Pond, Pike Lake Dike, Mid Lake Dam, and collection ponds around the Overburden Stockpile and Mine Rock Stockpile.	Champion has updated the previous water resources baseline with new data (Appendix H) and has a better understanding of the local hydrological and hydrogeological environment through the development of an updated conceptual model (Appendix A). The conservative dewatering rates predicted have resulted in the need for additional water management infrastructure to be required for the Project. In conclusion, this greater understanding of the existing hydrological and hydrogeological environment has resulted in the proposed Project optimizations that were not assessed in the 2012 EIS. Therefore, potentially new adverse effects not previously predicted or assessed in the 2012 EIS exist due to the proposed Project optimizations.
	Surface Water	During all phases of the Project, potential pathways through which the Project can interact with surface water and influence the local surface water receiving environment. During the Construction Phase, the development of water crossing infrastructure (i.e., bridges and culverts), vegetation clearing and stripping and soil compaction can result in erosion and sediment loading. During the Operation Phase, contact water from groundwater inflows to the Pit, run-off from the Overburden Stockpile, Mine Rock Stockpile and other facilities can result in the discharge of elevated contaminants of concern (COCs) if not properly collected and treated prior to discharge into the receiving environment. Mining activities can result in the exposure of potentially acid generating (PAG) material, which can result in acid rock drainage and metal leaching, which, if unmitigated, can discharge to the receiving environment. Furthermore, Operation activities, including the discharge of treated contact water can influence local water levels if not managed effectively. During the Closure Phase, the accelerate Pit flooding could also affect the hydrology of the receiving environment.		

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
Fish, Fish Habitat and Fisheries	Fish, Fish Habitat and Fisheries	Project activities during the Construction Phase that could result in potential adverse effects to surface water, including the dewatering of Rose Lake, the development of water crossing infrastructure (i.e., bridges and culverts) and predevelopment mining. The Project will result in the loss of fish bearing lakes, including Rose Lake, Elfie Lake and End Lake as they will be integrated in the water management infrastructure of the Project (Section 3.2.6). Additional infrastructure that may interact with fish, fish habitat and fisheries also includes the vehicle bridge at the Waldorf River (Section 3.2.3.5), the railway line (Section 3.2.7) and the access road (3.2.8)	Project Optimizations include additional in-water infrastructure to manage the conservatively estimated increase in groundwater inflows during the Operation Phase. Project Optimizations include additional in-water infrastructure to manage the anticipated increase in groundwater inflows and to manage contact water on site during the Operation Phase. Additional optimizations include the location of applicable Project infrastructure, such as the location of worker accommodations (Section 3.3.10) which are greater than 100 m from any body of water and wetland, and the design and inclusion of water management infrastructure to collect and treat run-off from the Overburden Stockpile and Mine Rock Stockpile, which was not previously proposed by Alderon (Section 3.2.6.6). Other proposed environmental design features include the development of site-runoff management infrastructure including diversion ditches to avoid runoff related impacts to the aquatic environment.	Additional water management infrastructure is proposed for the Project will result in the loss of additional fish bearing lakes. The optimized railway line and access road alignments may also result in the crossing of additional water crossings not previously assessed in the 2012. EIS. Therefore, potentially new adverse effects not previously predicted or assessed in the 2012 EIS exist due to the proposed Project optimizations.
Wetlands	Wetlands	During all phases of the Project, there are potential effect pathways for Project activities to interact with wetlands. Land clearing and site preparation during the Construction Phase could result in effects to wetland hydrology, and the Project will result in the loss wetlands through the development of Project components such as the Rose Pit, Overburden Stockpile, Mine Rock Stockpile and TMF. Potential effects on wetlands may result from the deposition of dust generated by activities such as blasting, vehicle traffic, and mine rock disposal. Additionally, potential effect pathways to wetlands exist through Project interactions with groundwater and surface water, as changes to local hydrogeology, hydrology, groundwater quality and surface water quality could impact wetlands.	As referenced above, several Project optimizations are proposed which would reduce the amount of fugitive dust generated from the Project, including improvements to the ore handling, storage and processing infrastructure to reduce transfer points and implement additional infrastructure to reduce dust generation, to operating a smaller fleet of mine haul trucks.	Champion has updated the previous wetlands baseline with new data (Appendix K), and the wetlands previously delineated within the 2012 EIS are similar to what was observed in 2023. Some Project optimizations, specifically water management infrastructure like the Pike Lake Dike, may result in some minor additional disturbance to wetlands present within the vicinity of the Project. The overall Project footprint is similar to what was previously proposed by Alderon, as many of the major Project components that interacted with the wetlands present within the Project Area (i.e., Rose pit, Overburden Stockpile, Mine Rock Stockpile) have not changed locations and / or are proposed to be similar or reduced in size compared to what was previously proposed by Alderon. Due to the environmental design features Champion has implemented into the proposed Project, anticipated effects to wetlands due to dust deposition are anticipated to be reduced. With Champion's proposed Project optimizations and the implementation of mitigation measures and commitments that will be outlined in an updated version of the environmental protection plan, no new adverse effects are anticipated for the Wetlands VEC, and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
Birds, Other Wildlife and Their Habitats and Protected Areas	Birds and their habitats Other Wildlife, Their Habitats and Protected Areas	During all phases of the Project, there are potential effect pathways for Project activities to interact with birds, other wildlife, their habitats and protected areas. Land clearing and site preparation during the Construction Phase activities have the potential to impact wildlife and bird habitat, and the Project will result in the loss of these features through the development of Project components such as the Rose Pit, Overburden Stockpile, Mine Rock Stockpile And TMF. Potential effects on wildlife and birds from fugitive dust may result from the deposition of dust generated by activities such as blasting, vehicle traffic, and mine rock disposal. Potential effects to the wildlife and birds may result from the inhalation of contaminants from project-related air emissions, ingestion of vegetation deposited with fugitive dust, and sensory disturbances from noise, vibration and light from blasting and the use of heavy machinery. Additionally, potential effects on wildlife and birds from contaminated water sources, such as treated effluent discharge, may result from exposure to and/or the ingestion of the treated effluent.	As referenced above, several Project optimizations are proposed which would reduce the amount of fugitive dust generated from the Project, including improvements to the ore handling, storage and processing infrastructure to reduce transfer points and implement additional infrastructure to reduce dust generation, to operating a smaller fleet of mine haul trucks.	Champion has updated the previous birds and wildlife baseline with new data (Appendix L). Documented wildlife and birds are similar to those previously documented for the Project. The overall Project footprint is similar to what was previously proposed by Alderon, as many of the major Project components that would result in an impact to Birds, Other Wildlife and their Habitats and Protected Areas VEC (i.e., Rose pit, Overburden Stockpile, Mine Rock Stockpile and TMF) have not changed locations and / or are proposed to be similar or reduced in size compared to what was previously proposed by Alderon. Anticipated effects to birds and wildlife due to CAC and dust deposition are anticipated to be reduced compared to the previous Project proposed by Alderon, due to the environmental design features Champion has implemented into the proposed Project. With Champion's proposed Project optimizations and the implementation of mitigation measures and commitments that will be outlined in an updated version of the environmental protection plan, no new adverse effects are anticipated for Birds, Other Wildlife and Their Habitats and Protected Areas VEC, and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.
Species at Risk and Species of Conservation Concern	• Species at risk or species of conservation concern Vegetation • Species at risk or species of conservation concern Birds • Species at risk or species of conservation concern Wildlife	During all phases of the Project, there is a potential for Project activities to have an effect on birds, other wildlife, their habitats and protected areas. Land clearing and site preparation during the Construction Phase activities have the potential to impact wildlife and bird habitat, and the Project will result in the loss of these features through the development of Project components such as the pit, Overburden Stockpile, Mine Rock Stockpile and TMF. Potential effects on wildlife and birds from fugitive dust may result from the deposition of dust generated by activities such as blasting, vehicle traffic, and mine rock disposal. Potential effects to the wildlife and birds may result from the inhalation of contaminants from project-related air emissions, ingestion of vegetation deposited with fugitive dust, and sensory disturbances from noise, vibration and light from blasting and the use of heavy machinery. Additionally, potential effects on wildlife and birds from contaminated water sources, such as treated effluent discharge, may result from exposure to and/or the ingestion of the treated effluent.	As referenced above, several Project optimizations are proposed which would reduce the amount of air, fugitive dust, noise and light generated from the Project, including improvements to the ore handling, storage and processing infrastructure to reduce transfer points and implement additional infrastructure to reduce dust generation, to operating a small fleet of mine haul trucks.	Champion has updated the previous vegetation, birds and wildlife baseline reports with new data (Appendix K and Appendix L). Through the 2023 baseline field campaign, additional species at risk and species of conservation concern were identified to be present within the Project area. Specifically, this includes five bat species (two species at risk, 3 species of conservation concern) and ten species of conservation concern plants. The species at risk bats were not identified within vicinity of the Project as part of the 2012 EIS. Therefore, potentially new adverse effects that were not previously predicted or assessed in the 2012 EIS exist due to the identification and presence of new species at risk and species of conservation concern within the vicinity of the Project.

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
Historic Heritage and Cultural Resources	Historic Heritage and Cultural Resources	There are three Project areas that intersect with areas of high archaeological potential, specifically, the Waldorf River outflow crossing, the Mine Rock Stockpile and associated water collection ponds. Several other areas with archaeological potential could potentially be impacted by the Project that were not previously assessed. Disturbance activities, such as site clearing and development of Project components, could also have an affect on cultural heritage resources, if they are present within the Project area.	The Overland Conveyor Bridge and Waldorf River Vehicle Bridge (Section 3.3.3.5) and additional collection ponds around the Mine Rock Stockpile are Project Optimizations that were not previously proposed by Alderon that intersect areas of archaeological potential.	No new historic heritage and cultural resource were identified through the desktop review completed in 2023 and 2024 (Appendix M and Appendix N). Champion will complete further investigations in these areas upon completion of the final design and prior to ground disturbance to determine if archaeological resources are present. With Champion's proposed Project optimizations and the implementation of mitigation measures and commitments that will be outlined in an updated version of the environmental protection plan, no new adverse effects are predicted to the Historic Heritage and Cultural Resources VEC from the Project.
Use of Land and Resources for Traditional Purposes by Indigenous Persons	Use of Land and Resources for Traditional Purposes by Indigenous Persons	The development of the Project would result in the potential restriction in access to areas or perceived effects of existing land use for traditional purposes by Indigenous Persons.	As presented above, Project optimizations that could interact with the Use of Land and Resources for Traditional Purposes by Indigenous Persons include additional water management infrastructure which could interact with use of waterbodies and watercourses within the vicinity of the Project. The optimized access road and railway alignments may also result in additional land access restrictions or provide additional access to land use areas.	Champion has been consulting on the Project with the identified Indigenous communities since the acquisition of the Project in 2021. To date, no additional traditional land and resource use information has been shared. In addition, the implementation of certain Project optimizations may result in effects to the Use of Land and Resources for Traditional Purposes by Indigenous Persons. Specifically, potentially new adverse effects identified for water resources, which could result in real or perceived effects to the use of watercourses within the Project area for traditional purposes by Indigenous Persons. Therefore, potentially new adverse effects that were not previously identified or assessed in the 2012 EIS could exist due to updated use of the site and surrounding areas for traditional purposes or due to the proposed Project optimizations.
Other Use of Land and Resources	Other Use of Land and Resources	The development of the Project would result in the potential restriction in access to areas or perceived effects of existing land use.	As presented above, Project optimizations that could interact with the Other Current Land and Resources include additional water management infrastructure which could interact with use of waterbodies and watercourses within the study area. The optimized access road and railway alignments may also result in additional land access restrictions or generate access to additional land use areas.	Champion has been consulting on the Project with local community land users since the acquisition of the Project in 2021. To date, some land and resource use information has been shared through consultation. In addition, the implementation of certain Project optimizations may result in effects to the existing land use, specifically potentially new adverse effects identified for water resources, which could result in real or perceived effects to the use of watercourses within the Project area for traditional purposes by Indigenous Persons. Therefore, potentially new adverse effects that were not previously identified or assessed in the 2012 EIS could exist due to updated use of the site and surrounding areas due to the proposed Project optimizations.

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
Health and Community Health	Physical Health	During all phases of the Project, there is a potential for Project activities to interact with and influence physical health of local receptors. This includes the emission of criteria air contaminants (CAC), GHG emissions and fugitive dust deposition from stacks, mobile equipment and fugitive dust from access roads, mine operation, the tailings TMF and Mine Rock Stockpile. Interactions to the physical health of local receptors through water resources are also anticipated during all Project phases, primarily due to the discharge of treated effluent from the mining operations.	The Project optimizations previously presented that have direct effects to the atmospheric environment VEC and water resources VEC would be applicable to physical health. This includes the proposed Optimizations that would reduce CAC, GHG and fugitive dust emissions but also the additional water management infrastructure presented in Section 3.2.6.	The Project optimizations proposed by Champion that would have an interaction with the physical health component of the health and human health VEC through the atmospheric environment VEC (i.e., air quality, greenhouse gases, noise, vibration and light) are not anticipated to result in new adverse effects that have not been previously predicted and assessed. The proposed Project optimizations, specifically the use of a modernized IPCC system will result in a 65% reduction to the mine haul truck fleet (from 50 to 8), which should reduce CAC, GHG, fugitive dust, noise and light emissions from the Project when compared to the Project that was previously proposed by Alderon. The Project optimizations proposed by Champion that would have an interaction with the physical health component of the health and human health VEC through water resources VEC could potentially result in new adverse effects that have not been previously identified and assessed. The Project optimizations proposed by Champion that would have an interaction with the community health component of the health and human health VEC, specifically the proposed optimization to build camps for a fly-in/fly-out workforce during both the Construction and Operation phases could potentially result in new adverse effects that have not been previously predicted and assessed. In addition, the existing socio-economic conditions, specifically the decreases in unemployment within the local municipalities further justifies the need for the camp and fly-in/fly-out workforce. Due to the reduced labour workforce and, in turn, the proposed camps during Operations would prevent Champion from meeting some of the commitments and mitigation measures made by Alderon through the 2012 EIS. Therefore, potentially new adverse effects that were not previously identified or assessed for the Health and Community Health VEC in the 2012 EIS exist due to the proposed Project optimizations and changes to the existing socio-economic environment.
	Community Health	During the Construction and Operations Phases of the Project, there is a potential for Project activities to interact with and influence community health. This could potentially include changes to community health parameters due to a fly-in/fly-out workforce, including changes to public safety, the numbers of accidents / injuries / fatalities, incidents of substance abuse, crime, crime rate per capita and types of crimes as well as residents' self-assessed quality of life and well-being.	Champion is proposing to construct a temporary and permanent camps to accommodate a fly-in/fly-out workforce during the Construction and Operation phases. Alderon previously only proposed a camp for the Construction phase, as their operational workforce would be primarily sourced locally or would be housed directly in the community. This Project optimization could result in additional interactions with the community health component of the health and community health VEC.	

VEC	Discipline(s)	Potential Effect Pathways and Interactions	Project Optimizations	New Adverse Effects Prediction
Community Services and Infrastructure	Community Services and Infrastructure	During the Construction and Operations Phases of the Project, there is a potential for Project activities to interact with and influence community services and infrastructure. This could potentially include changes to the demand of community services and infrastructure due to a fly-in/fly-out workforce.	Champion is proposing to construct a temporary and permanent camps to accommodate a fly-in/fly-out workforce during the Construction and Operation phases. Alderon previously only proposed a camp for the Construction phase, as their operational workforce would be primarily sourced locally or would be housed directly in the community. This Project optimization could result in additional interactions with the community health component of the community services and infrastructure VEC.	The Project optimizations proposed by Champion that would have an interaction with the community services and infrastructure VEC, specifically the proposed optimization to build a camp for a fly-in/fly-out workforce during the Construction and Operation phases could potentially result in new adverse effects that have not been previously identified and assessed. Furthermore, the proposed camp and fly-in/fly-out workforce would prevent Champion from meeting some of the commitments and mitigation measures made by Alderon through the 2012 EIS. In addition, the existing socio-economic conditions, specifically the changes to existing service levels of local infrastructure, power supply and other municipal services, have changed since the assessment that was completed by Alderon. Therefore, potentially new adverse effects that were not previously identified or assessed for the Community Services and Infrastructure VEC in the 2012 EIS exist due to the proposed Project optimizations and changes to the existing socio-economic environment.
Economy, Employment and Business	Economy, Employment and Business	During all phases of the Project, there is a potential for Project activities to interact with and influence the Economy, Employment and Business VEC. This could potentially include positive effects, like the generation of additional tax for the province, offering of employment and service contract opportunities.	Champion is proposing to construct a temporary and permanent camps to accommodate a fly-in/fly-out workforce during the Construction and Operation phases. Alderon previously only proposed a camp for the Construction phase, as their operational workforce would be primarily sourced locally or would be housed directly in the community. This Project optimization could result in interactions with the Economy, Employment and Business VEC.	The Project optimizations proposed by Champion that would have an interaction with the Economy, Employment and Business VEC, specifically the proposed optimization to build a camp for a fly-in/fly-out workforce during the Construction and Operation phases could potentially result in new effects that have not been previously identified and assessed. Furthermore, the proposed camp and fly-in/fly-out workforce would prevent Champion from meeting some of the commitments and mitigation measures made by Alderon through the 2012 EIS. In addition, the existing socio-economic conditions, specifically the changes to local unemployment levels and availability of service and supply contractors have changed since the assessment that was completed by Alderon. Therefore, potentially new adverse effects that were not previously identified or assessed for the Community Services and Infrastructure VEC in the 2012 EIS exist due to the proposed Project optimizations and changes to the existing socio-economic environment.

6.0 PROPOSED APPROACH TO THE EIS AND PERMITTING

Following the review of the Project Registration document, the Minister will advise the proponent of the decision on the undertaking. There are four options for Ministerial decisions:

1) The undertaking may be released.
2) An Environmental Preview Report (EPR) may be required.
3) An EIS may be required.
4) The undertaking may be rejected.

Should the Minister determine that an EPR or EIS is required for the Project proposed by Champion, the next step in the EA process is for the Minister to appoint an Assessment Committee, in accordance with section 5 of the EA Regulations under the NLEPA. Committees are comprised of technical experts from both provincial and federal government departments with an interest in a project and are chaired by a staff person from the Department's Environmental Assessment Division (Government of NL, 2024). The committee develops EPR or EIS Guidelines based on comments received during the review of the Project Registration document from committee members and through consultation with the proponent, government agencies, Indigenous groups and the public. The EPR guidelines would be focused on the main unanswered questions in the registration. EIS Guidelines focus on the main unanswered questions in determining the significance of environmental effects (Government of NL, 2024).

To proactively plan for the Project's potential permits and approvals, Champion has developed a preliminary approach for its environmental planning, including for an EIS if one is required. These proposed approaches were developed considering the EIS guidelines previously issued for the Project (CEAA and DEC 2012) and by reviewing recently developed EIS guidelines for similar projects (DECC 2022, DMAE 2020). A proposed EIS assessment scope, detailed requirements for select environmental components and a proposed EIS structure are presented in Section 6.1, 6.2 and 6.3. These may be used to inform EIS Guidelines for the Project, should an EIS be required.

In addition, Section 6.4 presents a proposed Adaptive Management Approach for the Project, and Section 6.5 presents the approach to permitting that Champion is proposing to advance in parallel with the EA process.

6.1 Proposed Scope and Factors to Be Considered

6.1.1 Assessment Scope

6.1.1.1 Scope of the Project

The EIS will examine the activities and physical works associated with the Construction, Operation and Closure Phases of the Project, which include, but are not limited to:

- Construction activities, including pre-development mining;

- Mining of the Rose Pit;
- Ore processing infrastructure, including the conveyors, ore stockpiles, the Process Plant and Ore Concentrate Load-Out.
- Waste management infrastructure, including the Overburden Stockpile, Mine Rock Stockpile and TMF.
- Water management infrastructure proposed to collect contact and non-contact water, including the Rose Pit collection pond, Mid Lake dam, Pike Lake dike, Overburden Stockpile collection ponds, Mine Rock Stockpile collection ponds and stormwater collection ponds.
- Supporting infrastructure, including the mine service area, freshwater pumping stations, the crushing plant, and telecommunication services.
- The proposed railway line connecting the Project to the QNS&L railway.
- Upgrades to the existing access roads and the new access road to the Project.
- The temporary and permanent worker accommodation camps and associated infrastructure.
- Effluent, emissions, and waste generated from the Project and their associated sources.

The following activities and physical works associated with the Project will be assessed by separate proponents through separate approval processes and would not be included part of the assessment scope of this Project:

- Additional infrastructure or track upgrades to the existing CFA and QNS&L railway tracks, which will be assessed, built and managed by the SFPPN; and
- The Flora Lake substation and the transmission line, which will be assessed and built by Newfoundland & Labrador Hydro (NL Hydro).

6.1.2 Factors to be Considered in the Assessment

Based on review of the 2012 EIS Guidelines and other EIS guidelines issued for similar projects in NL, the EIS will consider the following factors:

- the purpose and need for the Project;
- alternatives to the Project and alternative means of carrying out the Project or components of the Project to assess their technical and economic feasibility and environmental effects of such alternative means;
- the environmental effects of the Project, including the environmental effects of accidents or malfunctions or accidents that may occur in connection with the Project and cumulative

environmental effects that are likely to result from the Project in combination with other Projects or activities that have been or will be carried out in relation to the identified VECs;

- measures that would mitigate adverse environmental effects of the Project;
- measures that would enhance or prolong beneficial environmental effects;
- residual environmental effects that are adverse or positive that are likely to be caused by the undertaking regardless of the proper application of control, mitigation, enhancement and remedial measures to be proposed in the EIS;
- whether or not the Project, in combination with other projects or activities that have been or will be carried out, is likely to cause significant adverse environmental effects after mitigation measures are implemented;
- comments from the public and Indigenous groups that are received in accordance with NLEPA and the EA Regulations by including, within the EIS, specific responses to concerns and, where appropriate, specific actions to address public comments;
- the integration of local and Indigenous knowledge;
- the capacity of renewable resources that are likely to be affected by the Project to meet the needs of the presents and those of the future; and
- the requirements for an EA monitoring, follow-up and adaptive management program for the Project.

6.1.3 Scope of the Factors to be Considered

6.1.3.1 Purpose of and Need for the Project, Alternatives to the Project, and Alternatives Means

6.1.3.1.1 Purpose of and Need for the Project

The EIS will state the purpose of the Project and clearly describe the need for the Project (i.e., the problem or opportunity the Project is intended to solve or satisfy). The statement of the Project's justification shall be presented in economic terms, shall provide a clear description of methods, assumptions and conclusions used in the analysis and shall include an evaluation of the following:

- Current and forecasted high purity iron ore concentrate demand;
- Market opportunities, forecasts and expected evolution;
- Risks to the Project, including market prices and schedule delays, interest rates and other risk factors relevant to the decision to proceed with the Project; and
- Protected financial benefits at the regional, provincial and national levels.

Section 2.2 of this Project Registration document provides an initial description of the purpose and need for the Project and Section 3.7 provides the capital cost and funding estimate, as presented in Champion's PFS (Champion 2024). Should an EIS be required, additional analysis providing the above requirements will be undertaken.

6.1.3.1.2 Alternatives to the Project

The EIS will include an analysis of alternatives to the Project; describing functionally different ways to meet the Project's need and purpose. The EIS shall:

- Identify the alternatives to the Project that were considered;
- Develop criteria to identify major environmental, economic and technical costs and benefits of the alternatives; and
- Identify the preferred alternatives to the Project based on the relative consideration of the environmental, economic and technical costs and benefits.

There is no technically or economically viable alternative to the Project, given that the purpose of the Project, as described in Section 2.2, is to extract ore from the iron ore deposits and process the iron ore into high purity (>67.5%) concentrate for commercial use. The only possible alternative to the Project would be to not proceed with the development of the Kami mine, which is not a viable option. Therefore, Champion concludes that the Project, as presented in this Project Registration document is the preferred alternative to the Project.

6.1.3.1.3 Alternatives Means for Carrying Out the Project

The EIS will identify and describe alternative means of carrying out the Project that are technically and economically feasible. This analysis shall describe:

- The alternative means being considered, where they are technically and economically feasible, and the rationale for rejecting alternatives where they are not;
- A description of the conditions or circumstances that could affect or alter the selection of alternatives,, such as market conditions, regulatory changes and other factors, either prior to construction or during the life of the Project;
- The environmental effects of the technically and economically feasible alternatives, in sufficient detail to allow comparison with the effects of the Project;
- The preferred means of carrying out the Project based on the relative consideration of environmental effects, including the criteria and rationale for their selection; and
- Any potential adverse impacts of the technically and economically feasible alternative means on potential or established Aboriginal and Treaty rights must also be identified.

Alternative means for carrying out the Project will be considered through further technical analysis in relation to their environmental and social costs and benefits, including alternatives means that are costlier to build and/or operate but their implementation would result in reduced adverse environmental effects or more durable social and economic benefits.

As presented in Section 3 of this Project Registration document, Champion is proposing several optimizations to Project components that were selected as the preferred alternative means in the previously released EIS. To this end, Champion proposes that the scope of the assessment of alternatives means be focused on proposed Project optimizations (i.e., changes and improvements to what was previously assessed). At a minimum, the assessment of alternative means of carrying out the Project would therefore include an analysis of the following alternative means:

- Product type (i.e., high purity iron ore concentrate);
- Mining method;
- Bridge crossings at the Waldorf River;
- Management of mine waste;
- Approach to managing groundwater inflows to Rose pit;
- The management of contact water on site, including the location and design of water management facilities as well as the combination and separation of contact water to maximize reuse;
- Effluent treatment;
- Sewage treatment and discharge;
- Potable water supply;
- Location of borrow source material for construction
- Transportation, including alternative rail and access road routes;
- Management of domestic waste;
- Closure planning
- Staffing the Project construction and operations workforce; and
- Location of workforce accommodations.

As mentioned in subsection 3.2.4.4, an alternatives assessment using a MAA was completed for the TMF, to confirm that the previous selection of the TMF location (as presented in the 2012 EIS) was appropriate to accommodate the updated Project. The results of the MAA identified the previously assessed location for the TMF as the preferred location utilizing a centreline embankment raise and conventional slurry

tailings delivery with the option of separating the tailings into coarse and fine tailings streams. To this end, further assessment of the TMF location and design is not required.

6.1.3.2 Valued Ecosystem Components

The assessment of environmental effects will focus on VECs. A VEC is a component or attribute that is important because of its ecological, legal, scientific, cultural, economic, or aesthetic values (DECC 2022, DMAE 2020). Identification of the VECs should consider several factors, including:

- presence, abundance and distribution within, or relevance to, the area associated with the Project;
- potential for interaction with the Project and sensitivity to effects, as described in Section 5 of this Project Registration document;
- species conservation status or concern (e.g., rarity, sensitivity and uniqueness);
- ecological and socio-economic value to Indigenous groups, local communities, government agencies and the public;
- traditional, cultural and heritage importance to Indigenous peoples; and
- previous consideration in assessment of similar projects, including the 2012 EIS for the Project.

Champion has reviewed the VECs that were selected for the 2012 EIS. To streamline the EIS and to focus the assessment on new adverse effects that could be introduced through the implementation of these Project optimizations, Champion has collected additional baseline data (as presented in Section 4) and considered the interactions from the Project optimizations to identify potentially new adverse effects from the Project to the previously selected VECs (Section 5). Based on this preliminary screening, a second screening was completed to identify which of the previously selected VECs should be the focus of further assessment through the EA process. Table 6-1 presents this screening by listing each VEC that was considered in the 2012 EIS. A determination with rationale is made for whether the VEC should be retained for further assessment through the EA process. Where a VEC is not selected for further assessment, Table 6-1 outlines how the VEC would still be considered .

The VECs that Champion would propose require assessment, if any EIS is required would be:

- Water resources, which is composed of:
  - Surface water (quality and quantity)
  - Groundwater (quality and quantity)
- Freshwater Fish, Fish Habitat and Fisheries
- Species at Risk and Species of Conservation Concern
- Use of Land and Resources for Traditional Purposes by Indigenous Persons

- Other Current Use of Lands and Resources
- Health and Community Health
- Community Services and Infrastructure
- Economy, Employment and Business

Champion also notes that the input of the public and Indigenous groups will be an important factor in establishing the final list VECs for the Project and this input will be sought as part of planned engagement activities and through review and finalization of the EIS Guidelines.

Table 6-1: Valued Ecosystem Components Screening for Consideration in the EIS

VEC Assessed in 2012 EIS	Recommended for Further Assessment (Yes /No)	Rationale	Approach for EIS
Atmospheric Environment	No	As presented in Table 5-1, considering the environmental design feature that are proposed as part of Champion's proposed Project optimizations, no new adverse effects were predicted and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.	Champion would develop an EPP (Environmental Protection Plan), which would include a CAC and greenhouse gas management plan and noise, vibration and light management plans. Champion would also develop an environmental monitoring plan (EMP), which would include air quality, greenhouse gas, noise and vibration monitoring plans. The mitigation measures and monitoring stations presented in the EPP and EMP would be informed by air quality dispersion modelling in accordance with the guidance document for dispersion modelling "Guideline for Plume Dispersion Modelling" (Government of NL 2012a) and noise and vibration modelling. The modelling results would also be used to inform the assessment of other selected VECs, including the human health risk assessment required for the assessment of physical health, a component of the Health and Community Health VEC. Should unanticipated effects to the atmospheric environment materialize, an adaptive management approach would be employed. For more details on the adaptive management approach, see Section 6.4.

VEC Assessed in 2012 EIS	Recommended for Further Assessment (Yes /No)	Rationale	Approach for EIS
Landforms, Soils, Snow and Ice	No	As presented in Table 5-1, with the implementation of mitigation measures and commitments outlined in the 2012 EIS and Champion's proposed Project optimizations, no new adverse effects were predicted and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.	The ML/ARD risk arising from key sources (e.g., the Pit wall, Mine Rock Stockpile) would be considered as part of Champion's overall contact water management and treatment strategy. Loading rates from the Mine Rock Stockpile, Overburden Stockpile, pit walls, and TMF from previous kinetic testing (Stantec, 2013), and risks of metal leaching and management (if required) will be addressed through the development of a water quality water balance mode to better understand release of constituents from these facilities. This model will be used to support the assessment of the water resources VEC to evaluate the potential impacts to surface water and groundwater. Champion will develop an EPP, which will include general mitigation measures to reduce the effects of the Project, including a sediment and erosion plan and plan to salvage soils for reclamation purposes. Should unanticipated effects to landforms, soils, snow and ice materialize, primarily through the risk to ML/ARD arising from key sources, an adaptive management approach will be employed. For more details on the adaptive management approach, see Section 6.4.

VEC Assessed in 2012 EIS	Recommended for Further Assessment (Yes /No)	Rationale	Approach for EIS
Water Resources	Yes	As presented in Table 5-1, potentially new adverse effects not previously identified or assessed in the 2012 EIS exist due to the proposed Project optimizations.	Champion would proceed with assessing Water Resources as a VEC in an EIS. It is assumed that detailed requirements for assessing the Water Resources VEC would be similar to the detailed requirements that were outlined in the EIS guidelines of the previous EIS.
Freshwater Fish, Fish Habitat and Fisheries	Yes	As presented in Table 5-1, potentially new adverse effects not previously identified or assessed in the 2012 EIS exist due to the proposed Project optimizations.	Champion would proceed with assessing Freshwater Fish, Fish Habitat and Fisheries as a VEC in an EIS. It is assumed that detailed requirements for assessing the water resources VEC would be similar to the detailed requirements that were outlined in the EIS guidelines of the previous EIS.
Wetlands	No	As presented in Table 5-1, with the implementation of mitigation measures and commitments outlined in the 2012 EIS and Champion's proposed Project optimizations, no new adverse effects are predicted and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.	Champion would develop an EPP, which would include a wetlands management plan. The mitigation measures and procedures presented in the EPP would be informed through direction from provincial regulators through consultation.

VEC Assessed in 2012 EIS	Recommended for Further Assessment (Yes /No)	Rationale	Approach for EIS
Birds, Other Wildlife and their Habitats, and Protected Areas	No	As presented in Table 5-1, with the implementation of mitigation measures and commitments outlined in the 2012 EIS and Champion's proposed Project optimizations, no new adverse effects are predicted and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.	Champion would develop an EPP, which would include a wildlife management plan, which includes avifauna. The mitigation measures and procedures presented in the EPP would be informed through direction from provincial regulators through consultation.
Species at Risk and Species of Conservation Concern	Yes	As presented in Table 5-1, potentially new adverse effects that were not previously identified or assessed in the 2012 EIS exist due to the identification and presence of new species at risk and species of conservation concern within the vicinity of the Project.	Champion would proceed with assessing species at risk and species of conservation concern as a VEC in the EIS. The VEC would be focused on the species at risk and species of conservation concern identified through the 2023 baseline field investigations (Section 4.7): <u>Species At Risk</u> • Little brown myotis • Northern myotis <u>Species of Conservation Concern</u> • Beautiful Sedge • Small Yellow Lady's-Slipper • Daisy Fleabane • Running Pine • Marsh Muhly • Jack Pine • Northern Valerian • Green False Hellebore

VEC Assessed in 2012 EIS	Recommended for Further Assessment (Yes /No)	Rationale	Approach for EIS
Historic and Cultural Resources	No	As presented in Table 5-1, with the implementation of mitigation measures and commitments outlined in the 2012 EIS and Champion's proposed Project optimizations, no new adverse effects were identified, and it is predicted that previously identified effects will be less adverse than what was assessed in the 2012 EIS.	Champion would develop an EPP, which would include a chance find procedure, should an unexpected discovery be made during the Construction Phase. Through Project permitting, Champion will complete further investigations in these areas upon completion of the final design and prior to ground disturbance to determine if archaeological resources are present.
Use of Land and Resources for Traditional Purposes by Indigenous Persons	Yes	As presented in Table 5-1, potentially new adverse effects that were not previously identified or assessed in the 2012 EIS could exist due to updated use of the site and surrounding areas for traditional purposes or due to the proposed Project optimizations.	Champion would proceed with assessing Use of Land and Resources for Traditional Purposes by Indigenous Persons as a VEC in an EIS. The assessment of effects will be informed through consultation with representatives from the identified Indigenous communities.
Other Use of Lands and Resources	Yes	As presented in Table 5-1, potentially new adverse effects that were not previously identified or assessed in the 2012 EIS could exist due to updated use of the site and surrounding areas or due to the proposed Project optimizations.	Champion would proceed with assessing Other Current Use of Lands and Resources as a VEC in an EIS. The assessment of effects will be informed through consultation with local land users.

VEC Assessed in 2012 EIS	Recommended for Further Assessment (Yes /No)	Rationale	Approach for EIS
Health and Community Health	Yes	As presented in Table 5-1 potentially new adverse effects that were not previously identified or assessed in the 2012 EIS exist due to the proposed Project optimizations.	Champion would proceed with assessing Health and Human Health as a VEC in an EIS.
Community Services and Infrastructure	Yes	As presented in Table 5-1 potentially new adverse effects that were not previously identified or assessed in the 2012 EIS exist due to the proposed Project optimizations.	Champion would proceed with assessing Community Services and Infrastructure as a VEC in an EIS.
Economy, Employment and Business	Yes	As presented in Table 5-1 potentially new adverse effects that were not previously identified or assessed in the 2012 EIS exist due to the proposed Project optimizations.	Champion would proceed with assessing Economy, Employment and Business as a VEC in an EIS.

6.1.3.3 Assessment Boundaries

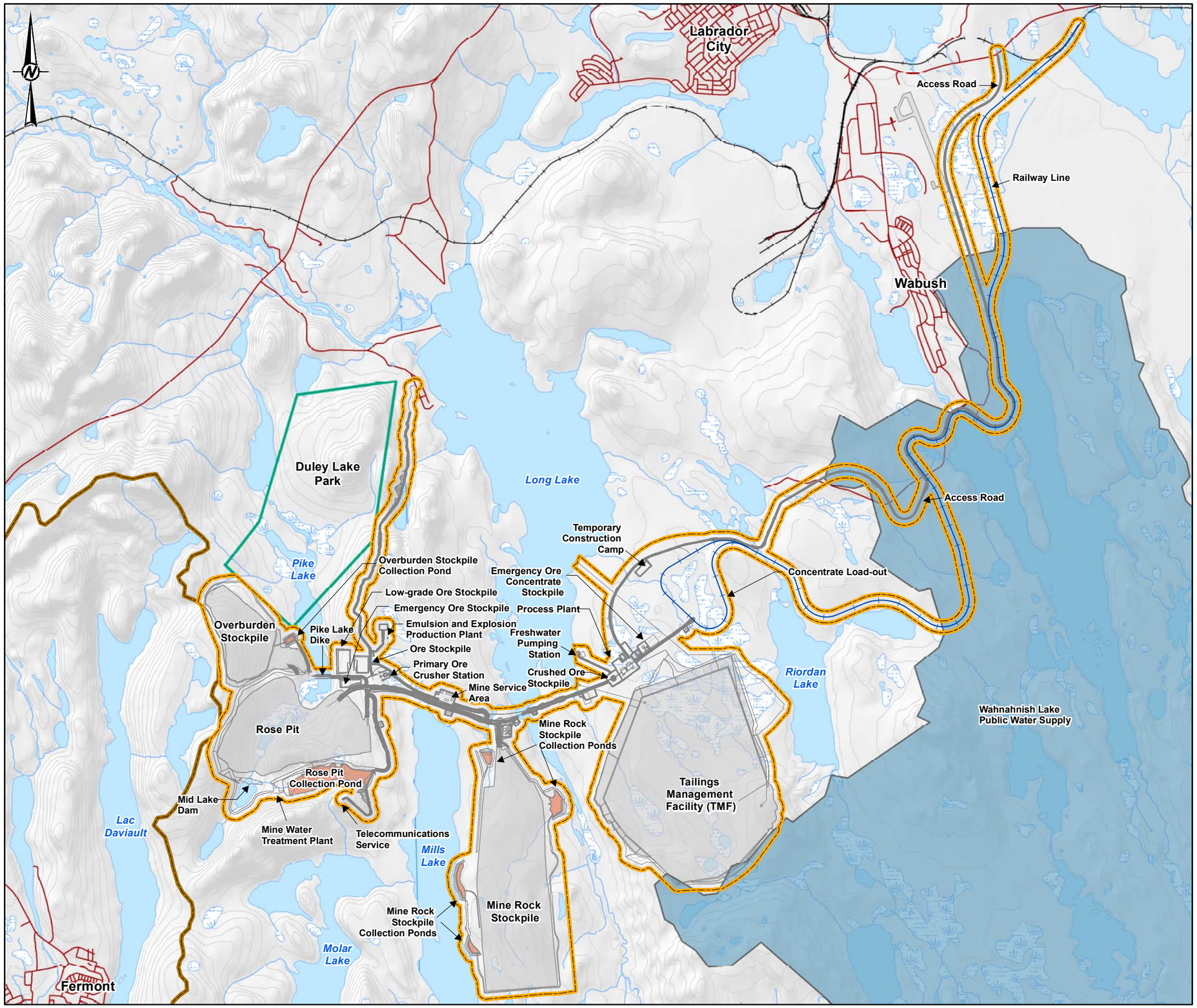
6.1.3.3.1 Spatial Boundaries

The EIS will describe the process for defining the study areas for each selected VEC. Spatial boundaries are selected to be appropriate for VECs, using the following criteria:

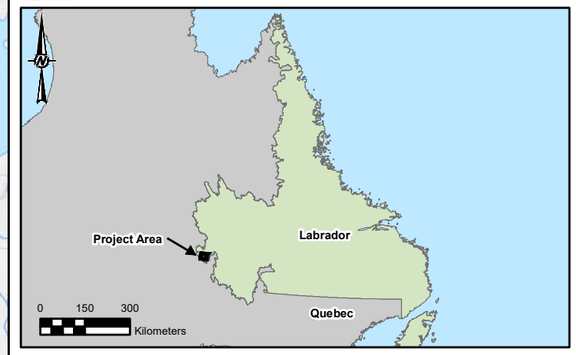
- physical extent of the Project;
- predicted extent of Project-related effects; and
- physical extent of key environmental systems (e.g., watershed boundary of potentially affected streams).

The spatial boundaries will be designed to quantify existing (i.e., baseline) conditions at a scale that is large enough to assess the maximum predicted geographic extent of direct and indirect effects from the Project on VECs. Cumulative effects from the Project in combination with previous, existing, and reasonably foreseeable developments will also be assessed at the regional spatial scale. Spatial boundaries will be illustrated in the EIS on maps of appropriate scale and will be based on the environmental component or VEC being assessed. The following spatial boundaries will be considered for each VEC and further defined in the EIS.

- Site Assessment Area (SAA): The SAA is generally defined as the Project footprint (i.e., where Project activities would be directly undertaken, including the Project's proposed facilities, buildings and infrastructure), with the addition of a boundary that is intended to capture the maximum area of Project disturbance. This boundary is typically 100 m from the limits of the proposed Project infrastructure. Some constraints were considered in the development of the SAA, including the NL / Quebec Border, Duley Provincial Park and the major waterbodies within the vicinity of the Project. Using the site assessment area ensures a precautionary approach, as the SAA assumes a larger area of disturbance and/or direct effects than the proposed Project footprint. Figure 6-1 presents the site assessment area for the Project.
- Local Study Area (LSA): The LSA is defined as the area existing outside the SAA, where measurable changes to VECs resulting from the proposed activities may be anticipated.
- Regional Study Area (RSA): The RSA is defined as the maximum geographic extent of direct and indirect effects from the Project, as well as the area within which the potential effects of the Project may interact with the effects of other projects.



KEY MAP



SCALE 1:20,000,000

LEGEND

PROJECT DATA

- Site Assessment Area
- Proposed Infrastructure
- Proposed Infrastructure
- Proposed Railway
- Proposed Sedimentation Pond

BASEMAP INFORMATION

- Duley Lake Park
- Existing Railway
- Existing Road
- River/Stream
- Contour
- Bog/Wetland
- Waterbody
- Labrador/Quebec Boundary
- Public Water Supply

0 650 1,300 2,600

1:66,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS:
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 19N

CLIENT

CHAMPION IRON MINES LTD.

PROJECT

KAMI IRON ORE MINE PROJECT (KAMI PROJECT)
WABUSH, NL

TITLE

SITE ASSESSMENT AREA

CONSULTANT

wsp

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PREPARED	####
REVIEWED	SPC
APPROVED	HJ

PROJECT NO.	CONTROL	REV.	FIGURE
TE23930010	0001	A	Figure 6-1

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6.1.3.3.2 Temporal Boundaries

This section will describe the process for defining the temporal boundaries for the assessment of environmental effects. The assessment will be designed to evaluate the short- and longer-term changes from the Project and the associated effects on the VECs. Temporal boundaries are usually defined by project phases, which, for the Project, would include the Construction, Operation and Closure Phases as presented in Section 3.2.

Similarly, the temporal boundaries identified for the assessment of effects from the Project and cumulative effects are specific to the VECs being assessed. Temporal boundaries include the duration of residual effects from previous and existing developments that overlap with residual effects of the Project and the period over which the residual effects from reasonably foreseeable developments will overlap with residual effects from the Project. The temporal boundaries will be defined for each VEC in the EIS, with rationale provided.

6.1.3.3.3 Administrative Boundaries

Relevant regulations, policy, and administrative / management mechanisms will be described for each VEC to establish the associated administrative boundaries.

6.1.3.4 Environmental Effects Assessment Approach

6.1.3.4.1 Project and Cumulative Effects

The EIS for the Project would evaluate the potential effects resulting from Project-environment interactions during the Construction, Operation and Closure Phases of the Project. This includes the assessment of effects from the Project on the selected VECs. Cumulative effects will also be assessed where the residual effects of the Project on the selected VECs could overlap with the effects of other existing, approved, and reasonably foreseeable developments. A suggested framework for completing the environmental effects assessment, considering both residual and cumulative effects, is provided below.

- Step 1 – Define the VEC-specific assessment methods. This step will identify the specific methods used to first identify and then undertake the assessment of potential impacts to the selected VECs. This will include identifying the approaches and indicators to be used to measure direct or indirect effects within defined temporal and spatial boundaries, and the approach to including consultation and Indigenous knowledge within the effects assessment.
- Step 2 – Characterize existing conditions. Existing baseline conditions for each selected VEC will be characterized to provide context and a basis for evaluating potential Project and cumulative effects.
- Step 3 – Evaluate Project effects and identify mitigation. An analysis will be completed to focus the assessment on interactions between the Project and selected VECs, to identify potential effects from the interactions, identify appropriate mitigation measures, and then to determine the potential for residual adverse and beneficial effects taking into consideration the application of proposed mitigation measures. Where potential adverse effects are adequately mitigated, and no

residual effect is predicted, no further evaluation will be required for that effect. Effect pathways that may lead to residual adverse effects after application of mitigation will be carried forward to steps 4 and 5 for further analysis. Potential positive or beneficial effects from the Project will also carried forward to steps 4 and 5.

- Step 4 – Analyze residual effects. This step will evaluate and describe the effects of the Project for each selected VEC within the component-specific temporal and spatial boundaries, including adverse effects and positive outcomes. The residual effects analysis will be presented as an integrated narrative that describes the effects of the Project over time and highlights predicted effects at the point when adverse effects of the Project are greatest. Cumulative effects from previous, existing and reasonably foreseeable developments are also analyzed, if applicable. Input from consultation and local and Indigenous knowledge will be incorporated into the residual and cumulative effects assessments.
- Step 5 – Classify residual effects and determine significance. The step will summarize the results of the residual effects analysis using significance criteria (i.e., direction, magnitude, geographic extent, duration, reversibility, frequency, and probability of occurrence). Significance for each selected VEC will be determined for adverse effects using the results of the residual effects analysis and classification. Significance is determined for the maximum adverse effects of the Project during any period of temporal assessment boundary. Significance will not be determined for positive or beneficial residual effects.
- Step 6 – Describe uncertainty and define prediction confidence. This step will identify key uncertainties and explain how these uncertainties will be addressed to achieve a precautionary assessment. The implications of these approaches for confidence in the residual effects analysis, residual effects classification, and determination of significance will be presented.
- Step 7 – Identify monitoring, follow-up and adaptive management. This step will outline the actions required to confirm effects predictions and effectiveness of mitigation, and address uncertainty. Where applicable, this may include the continued collection of Indigenous knowledge and incorporation into future effects assessments.

6.1.3.4.2 Accidents and Malfunctions

The EIS will present a description of potential credible accidents and malfunction scenarios associated with the Project, the conditions under which they could occur, and the potential impact of such scenarios on the selected VECs. The level of risk associated with the identified scenarios will be evaluated considering the application of mitigation measures and/or contingency plans developed where required to minimize the risk likelihood or severity associated with such scenarios. The assessment will focus on bounding conditions (e.g., reasonable worst case scenario) to attempt to maintain an appropriate level of conservatism in the assessment. Predicted effects to VECs will be evaluated for significance and conclusions of the assessment will be presented.

The 2012 EIS considered four accidental event scenarios, including:

- Train derailment;
- Forest fire
- Dyke break at the polishing pond; and
- Product spill at port[1].

The EIS will identify applicable accidental event scenarios for consideration in the assessment. A preliminary list of accidental event scenarios expected to be applicable to the scope of the Project are provided below:

- Spill of hazardous material along the access road;
- TMF dam breach;
- Water retention infrastructure breaches;
- Flooding of the Pit during Operations;

Train derailment is no longer applicable, as the Project will no longer be transporting diesel by train to site. Forest fires would be assessed through the effects of the environment assessment (Section 6.1.3.4.3).

6.1.3.4.3 Effects of the Environment

This section of the EIS will assess the effects of the environment on the Project consistent with direction provided in publicly available guidelines (DECC 2022, DMAE 2020). This section will include a description of the climatic conditions at the Project and in local and regional study areas and provide a description of seasonal variations and trends in climatic conditions. The use of climatic data will be described with an analysis of its degree of representativeness for Project conditions. The use of the data will be qualified with an understanding of local and regional variability and the geographic locations of onsite and offsite meteorological stations. This section will also focus on the effects of local environmental conditions and natural hazards, and how these could result in adverse effects on the Project, including but not necessarily limited to consideration of natural hazards such as:

- Forecasted changes to climatic conditions, including extreme weather events;
- Natural seismic events; and
- Forest fires.

This section of the EIS will identify changes or effects on the Project that may be caused by the above-mentioned hazards, the likelihood and severity of the changes or effects, and mitigation planned to avoid

[1] The port was assessed as part of the Project scope in the 2012 EIS but is not considered in the Project scope for the Project proposed in this Project Registration.

or limit the changes or effects. As necessary, the EIS will identify implications of these changes on the VECs.

6.2 Detailed Requirements for Select Environmental Components

The detailed requirements for the remaining selected VECs (Section 6.1.3.2) are expected to be similar to the detailed requirements that were developed as part of the 2012 EIS Guidelines (Alderon 2012), with slight modifications to account for regulation changes (e.g., MMER to MDMER) and specific Project components presented in this Project Registration document. The detailed requirements of the EIS Guidelines will be developed by the Assessment Committee and will be made available for review and comments through the public review period for the Draft EIS Guidelines.

6.3 Proposed EIS Structure and Content

Table 6-2 presents a proposed structure of the EIS, if the EIS is deemed required by the Minister. Based on previous guidelines, the EIS would be broken into three volumes, arranged by Summaries (Volume 1), Main Content of the EIS (Volume 2), and Detailed Technical Assessment (Volume 3).

Table 6-2: Proposed Structure and Content of the EIS

Volume	Section	Content
1	Executive Summary	A summary of the EIS, including a table of concordance that describes where each aspect of the EIS guidelines is addressed.
	Plain Language Summary	A summary of the Project and key findings and conclusions of the EIS that allows readers without specialist knowledge of mining or environmental assessment to understand the Project and the assessment undertaken.
2	Introduction	Provides an overview of the Proponent, the Project, and the environmental assessment process. Information that will be presented in the introduction section of the EIS is included in Section 1 and 2 of this Project Registration document.
	Project Description	Describes the Project purpose, components, activities, and schedule. Information that will be presented in the Project Description is included in Section 2 and 3 of this Project Registration document.
	Scope of the Assessment	Presents the scope of the Project and scope of factors to be considered in the environmental assessment, including the final list of VECs and assessment boundaries. An assessment scope is proposed in Section 6.1.1 of this Project Registration document.
	Project Alternatives	Presents the alternatives to the Project and assessment of alternative means for carrying out the Project using environmental, socio-economic, technical, and economic feasibility criteria to select preferred alternative means. Alternatives to the Project and

Volume	Section	Content
		alternative means for assessment is proposed in Section 6.1.3.1 of this Project Registration document.
	Consultation	Summarizes consultation activities undertaken by Champion with the public and Indigenous groups for the Project. This section will include a summary of key issues and interests raised through consultation, responses and, if applicable, how input provided through consultation was considered in the assessment. A summary of consultation completed to date is presented in Section 7 of this Project Registration document.
	Existing Environment	Summarizes the existing environmental conditions within the spatial boundaries identified for the selected VECs. This section will be informed by the completion of baseline studies. Champion has completed and is progressing a comprehensive baseline program, which is summarized in Section 4 of this Project Registration document.
	Environmental Effects Assessment	Summarizes the results of the detailed environmental effects assessment (Volume 3), this section will present the methodology and assessment of Project effects, cumulative effects, accidents and malfunctions, and effects of the environment on the Project. Mitigation and enhancement measures will be summarized and clearly presented. A preliminary framework for the detailed environmental effects assessment approach is presented in Section 6.1.3.4 of this Project Registration document.
	Monitoring, Follow-up, and Adaptive Management	Includes a summary of proposed monitoring plans, the proposed EA follow-up program and the Adaptive Management Plan. The Adaptive Management Plan approach is presented in Section 6.4 of this Project Registration document.
	Benefits of the Project to Newfoundlanders and Labradoreans	Describes how benefits from the Project will be created and maximized, and how this Project will recontribute to sustainable development.
	Assessment Summary, Conclusions and Commitments	Summarizes the key findings, including the summary of significance of residual effects, mitigation and monitoring programs, consideration of engagement and consultation feedback and commitments made by Champion.
3	Water Resources	

Volume	Section	Content
	Freshwater Fish, Fish Habitat and Fisheries	Presents the detailed environmental effects assessment of each of the selected VECs. The effects assessment will consider potential effects to identified VECs from the implementation of the Project, cumulative effects, accidents, and malfunctions, as well as effects of the environment on the Project. The detailed environmental effects assessment would address the "Detailed Guidance on Selected Environmental Studies" provided in the EIS guidelines.
	Use of Land and Resources for Traditional Purposes by Indigenous Persons	
	Othe Use of Lands and Resources	
	Health and Community Health	
	Community Services and Infrastructure	
	Economy, Employment and Business	

6.4 Adaptive Management Approach

While alternative means to carry out the Project will continue to be assessed throughout the Project, there is inherent uncertainty in the ability to predict the impacts of design on the environment. In this case, Champion proposes to manage uncertainty through adaptive management when it is appropriate to do so. When carefully considered, adaptive management offers the opportunity to build upon and complement the design optimization concept already used in development of the Project. Using both optimization and adaptive management leads to a robust environmental management practice. The following section describes the adaptive management framework Champion is proposing for the Project.

The adaptive management approach allows for the continual review and analysis of uncertainties and risks for a project. Through an adaptive management approach, Champion will have the ability to continually improve the Project's environmental performance as described in the previously approved 2014 General Environmental Protection Plan (Worley Parsons 2014b). The adaptive management approach will be a similar approach to what is outlined in the previously approved Environmental Effects Monitoring Plan (Worley Parsons 2014c). The 2014 Environmental Effects Monitoring Plan focused on monitoring the effectiveness of mitigation strategies during the Construction Phase of the Project; the adaptive management approach reviews risks and uncertainties for all phases of the Project. For the Project, three categories of uncertainty and risk have been identified as suitable for an adaptive management approach. These categories are:

- Air Quality Management;

- Water Management; and,
- Waste Management.

Each category will go through the integrated adaptive management approach to determine appropriate management strategies. The integrated adaptive management approach is described in Figure 6-2 after Crawford (2005).

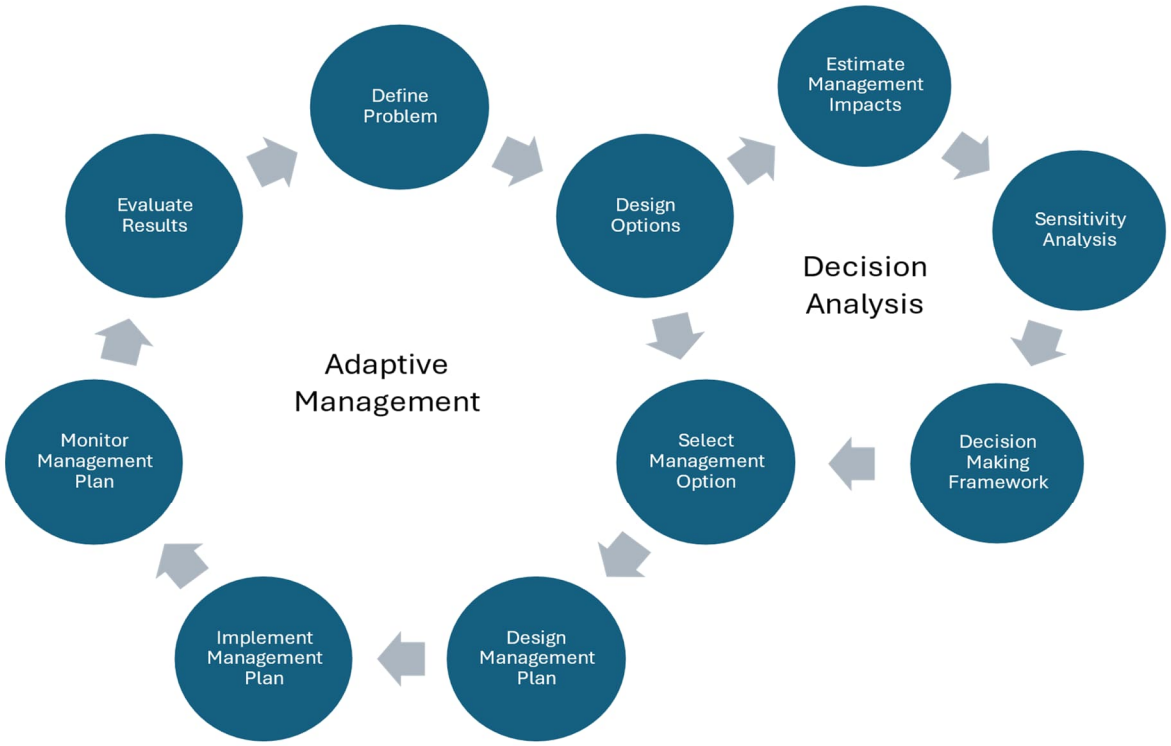


Figure 6-2: Integrated Adaptive Management Framework

The main components of the integrated adaptive management approach are:

1. Problem Definition
2. Design Options
3. Options Assessment
4. Design Management Plan
5. Implement Management Plan
6. Monitor Management Plan
7. Evaluate Results

6.4.1 Problem Definition

This step involves identifying and involving key stakeholders and rightsholders, refining the objectives of the Adaptive Management Plan (AMP), developing conceptual models of the problems, identifying risks, uncertainties, and key indicators relating to the problems and developing hypotheses for key uncertainties.

To identify the key indicators and uncertainties for each management problem, each uncertainty will be assessed to understand if it is a suitable candidate for adaptive management. For the Project, the following questions will be used to assist with the identification of key indicators and uncertainties:

- Is there a management decision to be made?
- Can the uncertainty be modelled?
- Can the uncertainty be monitored / measured?
- Are there several management options / mitigations available?

Through identification of key uncertainties, a conceptual model for the problem may be developed. This conceptual model will be used to compare future iterations of the AMP.

6.4.2 Design Options

Identify potential mitigations and/or management options and develop predictive models to communicate expected outcomes of different management strategies.

6.4.3 Options Assessment

Alternative management actions are defined, and the probable outcomes are considered using a decision-making framework (e.g., decision tree, multi-criteria decision analysis, value driver tree etc.).

6.4.4 Design Management Plan

Design management and monitoring plans that will adequately test predicted outcomes from the Options Design and constrain key uncertainties identified. The plan is designed on risks that can be monitored as measurable indicators. Measurable indicators are variables, quantities, or operational outputs that can provide objective information on the status of the problem. To monitor the measurable indicators each will have:

- Critical thresholds identifying the range of conditions where the project can safely operate;
- A timeline for when monitoring and measurement will begin and end; and
- A monitoring plan that will indicate locations, methodology, and frequency of measurements.

6.4.5 Implement Management Plan

Follow the plan, including interpretation and documentation of implementation as defined in the design of the management plan. Typically, this is a milestone in the AMP process.

6.4.6 Monitor Management Plan

Follow the plan including management, interpretation, and reporting of data as defined in the design of the management plan.

6.4.7 Evaluate Results

Compare monitoring to hypotheses or predictive model developed in the options design and report how key uncertainty has been reduced. Based on the results, the conceptual model for the problem may be redefined, starting the next cycle for adaptive management. Management gaps may be identified, and this point and additional investigations, studies, or monitoring programs may be recommended at this stage.

6.5 Permitting Approach

Section 2.3.3 presents the approval, permits and authorizations required from municipal, provincial, and federal regulators, prior to Project initiation. In addition to the permitting requirements and authorizations needed to initiate the Project's Construction Phase, Champion is also planning additional pre-construction technical work, which may also be subject to similar permitting requirements. For some permits and authorizations, additional requirements, such as additional baseline data, the implementation of mitigation measures and consultation with local stakeholders and rightsholders are required before the permit or authorization can be issued.

To reduce the regulatory review burden and minimize consultation fatigue, Champion is proposing to utilize documentation developed and consultation completed through the EA process to also support permitting requirements for pre-construction activities. For example, baseline reports developed for this Project Registration can also be utilized to meet baseline data requirements for pre-construction activities that are outside the scope of the EIS. This concept could also apply to consultation; any consultation activities with local stakeholders or rightsholders could support both EA and permitting processes to minimize consultation fatigue.

The following is a preliminary list of pre-construction activities are currently proposed to be completed in parallel to the EA process and are potentially subject to additional permitting requirements:

- Long-term groundwater pumping tests;
- Applications for exploration;
- Geotechnical field investigations for planned Project facilities;
- Tree cutting and vegetation maintenance for site access; and,
- Archaeological investigations.

In addition, Champion will seek to initiate the process for the MDMER Amendment and Schedule 2 Listing during the EA process. The following sections provide an overview of the regulatory process for listing water bodies frequented by fish in Schedule 2 of the MDMER.

6.5.1 Listing Water Bodies Frequented by Fish in Schedule 2 of the Metal and Diamond Mining Effluent Regulations

The Project will result in the deposit of deleterious substances and the loss of fish bearing lakes, including Rose Lake, Elfie Lake, and End Lake as they will be integrated in the water management infrastructure of the Project. The *Fisheries Act* prohibits the deposit of deleterious substances into waters frequented by fish, unless the deposit is authorized by regulations. The MDMER are regulations made pursuant to subsections 34(2), 36(5) and 38(9) of the *Fisheries Act* and apply to metal and diamond mines, milling facilities and to hydrometallurgical facilities that have a flow rate of at least 50 m^3/day from all mine effluent discharge points. The MDMER contain provisions to allow for the disposal of mine waste in waters frequented by fish under certain conditions. The use of waters frequented by fish for mine waste disposal can only be authorized through an amendment to the MDMER by listing the water body in

Schedule 2 as a tailings impoundment area (Government of Canada 2023). The following section presents the technical analysis and consultation phase of the permitting process for Listing Water Bodies Frequented by Fish in Schedule 2 of the *Metal and Diamond Mining Effluent Regulations*.

6.5.1.1 Multiple Accounts Analysis

The MDMER Schedule 2 listing process requires the preparation of an alternatives assessment in a structured manner for the applicable mine waste storage options (e.g., overburden, mine rock and tailings), utilizing a MAA approach (Government of Canada 2023). The MAA is a detailed and prescriptive analysis of alternatives for mine waste storage that considers environmental, technical, cost and socio-economic factors in accordance with a set of sub-accounts and indicators for each category and numerical scoring criteria. The system includes two stages of assessment: a screening assessment for feasibility, and a more detailed MAA of alternatives retained following screening. The MAA is, by requirement, weighted towards environmental considerations. The MAA is analyzed by ECCC's Mining and Processing Division of to ensure that the report's structure and content comply with the Guidelines for the Assessment of Alternatives for Mine Waste Disposal (Government of Canada 2016). In addition to the technical report, a plain language summary also needs to be developed to support consultation on the assessment. Once it has been determined that the report's structure and content meet the Guidelines for the Assessment of Alternatives for Mine Waste Disposal, the report and plain language summary are presented as part of the consultation phase (Section 6.5.1.3).

Champion has initiated discussions with ECCC regarding the Project and MAA report and anticipates developing and submitting the MAA report to ECCC during the EA process.

6.5.1.2 Fish Habitat Compensation Plan

The MDMER Schedule 2 listing also requires the development and implementation of a Fish Habitat Compensation Plan that meets all the requirements under Section 27.1 of the MDMER to offset the loss of fish habitat that would occur because of the use of a water body for mine waste disposal (Government of Canada 2023). In addition to the plan, a plain language summary of the Fish Habitat Compensation Plan also needs to be developed to support the consultation phase (Section 6.5.1.3). Once the Fish Habitat and Compensation Plan has been reviewed and deemed adequate by DFO in accordance with its policies, DFO must recommend it to ECCC before ECCC can proceed with public and Indigenous consultation on the plan.

Champion has initiated discussions with DFO regarding the Project and Fish Habitat Compensation Plan and anticipates developing and submitting the Fish Habitat Compensation Plan during the EA process.

6.5.1.3 Consultation Phase

Once the MAA and Fish Habitat Compensation Plan have been evaluated by ECCC, ECCC will organize consultations with Indigenous groups whose rights and territories may be impacted by the Project, as well as consultations with the public. The MAA, Fish Habitat Compensation Plan and their plain language summaries will be posted by ECCC to the Government of Canada website for consultation. The proponent, ECCC and DFO participate in the consultation sessions or meetings with Indigenous groups and the public. The proponent's role is to explain the process followed in the MAA, justify the selected

alternative and explain the proposed compensatory measures set out in the Fish Habitat Compensation Plan. Attending representatives from ECCC area responsible for explaining the regulatory process and attending representatives from DFO describe their role and responsibilities in relation to their review and assessment of the Fish Habitat Compensation Plan as well as the conditions and policies governing the assessment.

Once the consultations have been completed, there will be a comment period during which ECCC will accept comments and concerns from Indigenous groups and the public regarding the MAA the Fish Habitat Compensation Plan. It is possible that changes to the plan may be required as a result of the comments

7.0 CONSULTATION

Champion's dedication to developing strong relationships with Indigenous groups and local stakeholders is built on three pillars, namely:

1) Supporting human rights;
2) Engaging locally;
3) Contributing to local economic development through local hiring, sourcing, and community investments.

Champion views relationships of trust with Indigenous persons and local communities as keys to the success and sustainability of its operations. It is through community relationships that Champion can successfully create lasting benefits, minimize negative social and environmental effects in the areas where they operate, and advance their contributions towards sustainable development.

Consultation activities on the Project with Indigenous groups, the public, local community stakeholders and regulatory agencies have been ongoing since 2011. Alderon completed consultation activities from 2011 to 2014 as part of the previous EA process and to support post-EA approval planning. Champion has been consulting on the Project since the acquisition of the Project in 2021. This section summarizes the issue and interest topics previously raised through consultation on the Project and the consultation activities completed by Champion to date. This section also provides an outline of Champion's planned consultation activities with Indigenous groups, the public, local community stakeholders, and regulatory agencies as the Project progresses through the EA process. These planned consultation activities will be further refined once the EA process is initiated.

7.1 Summary of Issues and Interests Previously Raised Through the Previous EIS

Table 7-1 categorizes the topics of interest that were raised through the consultation that was completed by Alderon with Indigenous groups and stakeholders between 2011 and 2014 through the completion of the previous EA.

Table 7-1: Summary of Consultation Topic Categories and Topics of Interest

Topic Categories	Topics of Interest	
Atmospheric Environment	Air Quality Cumulative Effects on Atmospheric Environment	Dust Greenhouse Gas Emissions Noise
Community Services and Infrastructure	Availability of Housing for Workers Community Infrastructure Community Services	Increased Air Travel Increased Road Traffic Increased Railway Traffic Light

Topic Categories	Topics of Interest	
	Cumulative Effect on Community Services and Infrastructure Health Services	Recreational Infrastructure Temporary Construction Camp
Consultation / EA Process	Indigenous Consultation EA Jurisdiction EA Schedule EIS Guidelines Financial Capacity for Consultation on the Project	Public Participation Project Description / Registration Project Schedule Translation of Public Information
Use of Lands and Resources	Access to Property Cabins Dog Sled Trails Fishing Activities Hunting Activities Land use Activities	Property Value Recreational Activities Snowmobile Trails Trapping Travel Routes Wood Harvesting
Use of Land and Resources by Indigenous Persons for Traditional Purposes	Cumulative Effects on Use of Land and Resources by Indigenous persons for Traditional Purposes	Interaction with Existing Indigenous Rights or Title Traditional Land Use Activities by Indigenous persons
Economy, Employment and Business	Apprenticeship and Training Availability of Local Workers Business Access Cumulative Effect to Economy, Employment and Business Diversity in the Workplace	Financial Benefit for Municipality Indigenous Employment and Business Opportunities Local Business Local Economy
Freshwater Fish, Fish Habitat and Fisheries	Cumulative Effects on Fish and Fish Habitat	Fish Habitat Fish Population
Health and Community Health	Cumulative Effects on Health and Community Health Human Health	Quality of Life Safety Visual Aesthetics
Historic and Cultural Resources	Archaeological Sites	Burial Sites

Topic Categories	Topics of Interest	
Landforms, Soils, Snow and Ice	Acid Rock Drainage Cumulative Effects on Landforms, Soils, Snow and Ice	Reclamation and Rehabilitation Snow and Ice
Project Design and Location	Accidents and Malfunctions Alternative Source of Energy Availability of Power Economic Feasibility Location of Concentrate Storage Facility	Location of Access Road Location of Rail Location of Tailings Impoundment Location of Transmission Line Location of Waste Rock Piles Secondary Processing of Iron
Project Phases	Construction Engineering and Project Design Exploration	Monitoring and Follow-up Mining Operations Post Closure
Species At Risk, Birds, Other Wildlife and Their Habitat, and Protected Areas	Caribou Cumulative Effects on Wildlife and Species at Risk Parks and Protected Areas	Species at Risk Waterfowl Wildlife Habitat Wildlife Species
Water Resources	Cumulative Effects on Water Resources Waterbodies	Water Quality Water Management Water Supply
Wetlands	Effects on Wetland Stewardship Areas	Wetlands

Source: Alderon 2012.

Figure 7-1 presents how frequent the issue and interest topic categories were raised through this previous consultation (from most frequently raised to least frequently raised). The five most frequently raised interest and issue topics from Indigenous groups were:

- Indigenous employment and business opportunities;
- Indigenous consultation;
- Interaction with existing Indigenous rights or title;
- Traditional land use activities by Indigenous persons; and
- Potential effects to wildlife species.

The five most frequently raised issue and interest topics raised by stakeholders were:

- Public participation;
- Potential effects of dust;
- Availability of housing for workers;
- Potential effects on cabins; and
- Potential noise effects.

Through the previous EA process, these issue and interests informed the development of mitigation measures and commitments made by Alderon. It is anticipated that these issues and interests, as well as new issues and interests will be raised during consultation activities on the Project. Champion will consider these past issues and interests and any new issues and interests raised through future consultation with Indigenous groups and stakeholders when developing mitigation measures to reduce adverse effects and maximize positive benefits from the Project.

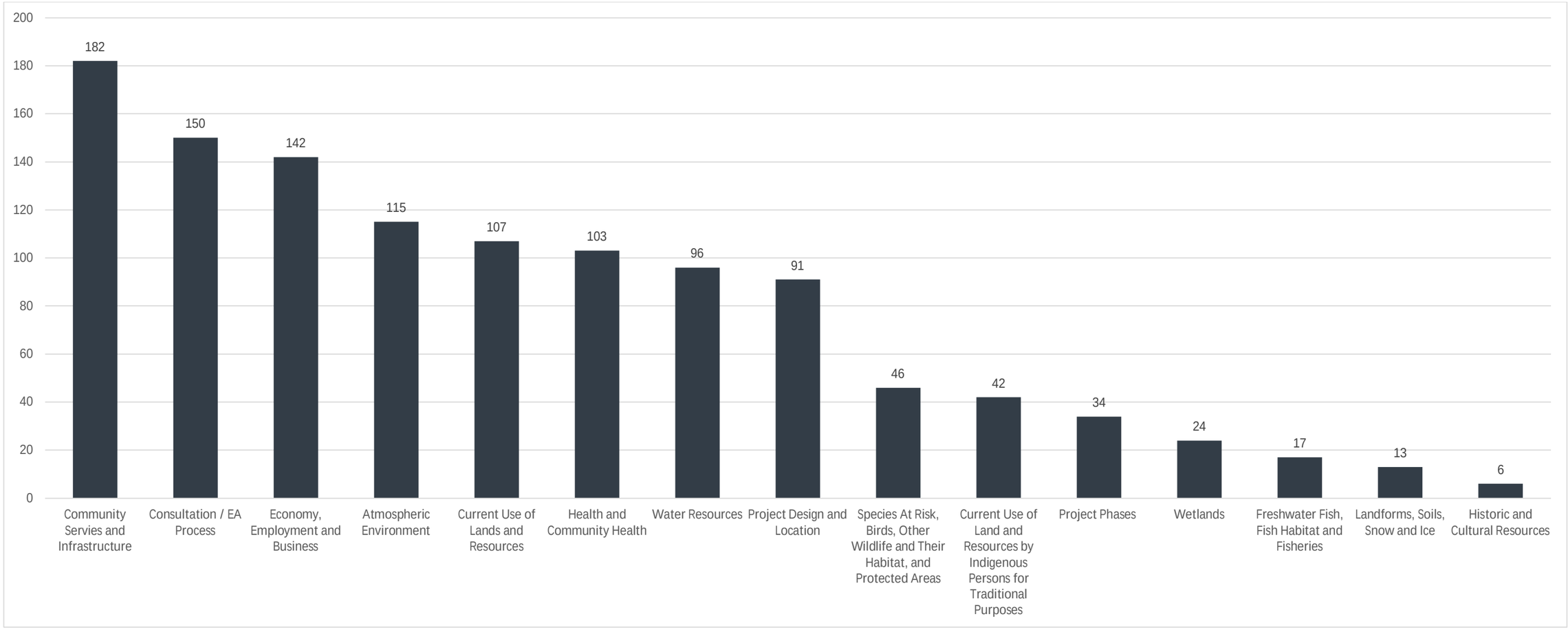


Figure 7-1: Frequency of Issue and Interest Topic Categories Raised through Consultation on 2012 EIS

Through the review of the 2012 EIS, a total of 421 information requests (IRs) were received from regulatory agencies, 62 IRs from Indigenous groups and 14 IRs were received from the public. These IRs included various requests for information and concerns related to the content presented in the 2012 EIS (Alderon, 2013a,b). Alderon responded to these IRs through a series of amendments to the 2012 EIS. Champion has reviewed Alderon's responses to these IRs, including changes that were made to the Project's design or commitments Alderon made in response to the IRs and has integrated this feedback into the early planning and design for the Project. Figure 7-2 provides a distribution of the main topics and themes of the IRs that were received through the review of the 2012 EIS (listed from highest percentage to lowest percentage).

Alderon responded to these IRs through a series of amendments to the 2012 EIS. Champion has reviewed Alderon's responses to these IRs, including changes that were made to the Project's design or commitments Alderon made in response to the IRs and has integrated this feedback into the early planning and design for the Project.

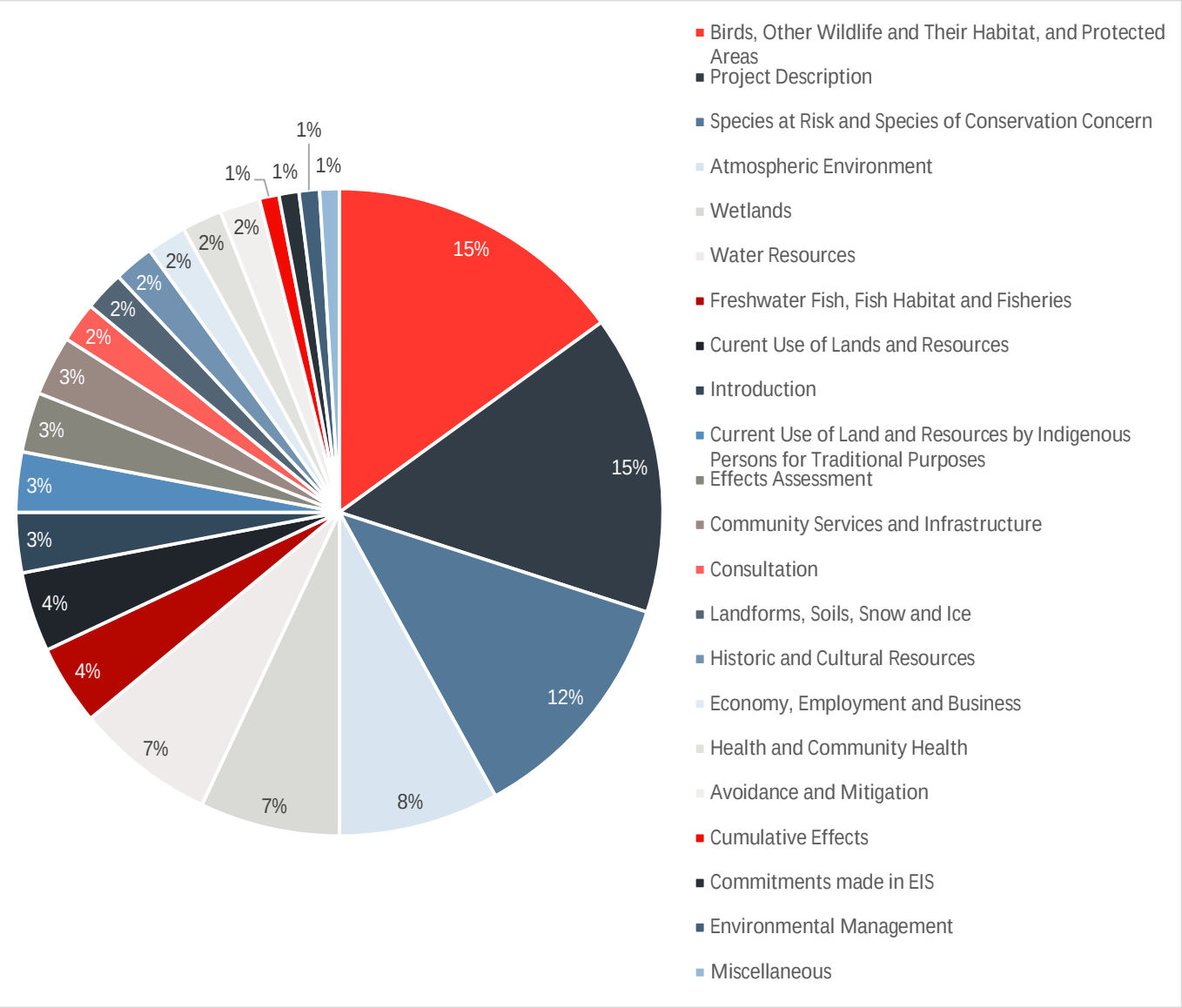


Figure 7-2: Summary of Topics and Themes of 2012 EIS Information Requests

In summary, Champion will build upon the previously completed consultation with Indigenous groups, stakeholders and regulatory agencies by considering these and any new issues and interests raised through planned consultation activities. Champion is committed to collaborating with Indigenous groups, stakeholders and regulatory agencies to reflect these issues and interests into the Project design and to develop mitigation measures to minimize adverse effects and maximize benefits from the Project.

Consultation strategies with Indigenous groups, stakeholders and regulatory agencies will be informed by the specific needs of each group (e.g., method and frequency of communication, topics for discussion). These strategies will also be informed by the consultation expectations and guidance of the

Department. Champion's approach to consultation with Indigenous groups, stakeholders and regulatory agencies is summarized in the following sections and is based on the Project's Communication and Consultation Strategy (Appendix P).

7.2 Indigenous Consultation

7.2.1 Approach to Indigenous Consultation

Champion recognizes the unique relationship that Indigenous persons have with the natural environment in which they live. Champion is committed to developing and maintaining lasting relationships with Indigenous peoples to ensure fruitful collaborations conducive to the establishment of a climate of understanding, trust, transparency, and mutual respect. Champion is therefore committed to:

- Respecting the rights, interests, aspirations, culture, and natural resource-based livelihoods of host communities and Indigenous groups in the design and development of its projects and operations;
- Seeking to reflect the diversity of host communities and Indigenous groups in Champion's human capital;
- Applying mitigation measures to address adverse effects of Champion's activities on host communities and Indigenous groups and offer them positive and lasting benefits;
- Seeking to obtain the voluntary, prior, and informed consent of Indigenous groups with recognized rights when significant effects are likely to occur, either due to the relocation of property or the disturbance of land, territories, or cultural heritage that is important to them; and
- Incorporating the results of discussions and consultation processes with host communities and Indigenous groups in agreements with them.

Champion's approach to Indigenous consultation is not intended to replace the Crown's duty to consult obligations with respect to the Project, though it is recognized that consultation conducted by Champion may be used to inform or satisfy procedural aspects of the provincial consultation process. Champion is committed to working with provincial regulators and will provide regular updates on planned consultation activities as they are undertaken. Champion is also willing to provide opportunity or facilitate provincial government participation during planned consultation activities.

7.2.2 Identification of Indigenous Groups

The province of NL has a duty to consult, and where appropriate, accommodate Indigenous groups when it considers conduct that might adversely impact potential or established Indigenous or treaty rights. During the previous EA, five Indigenous groups were identified by the former CEA Agency as being potential rightsholders (i.e., having potential Indigenous and/or treaty rights that could be adversely affected by the Project). These include:

- Innu Nation;

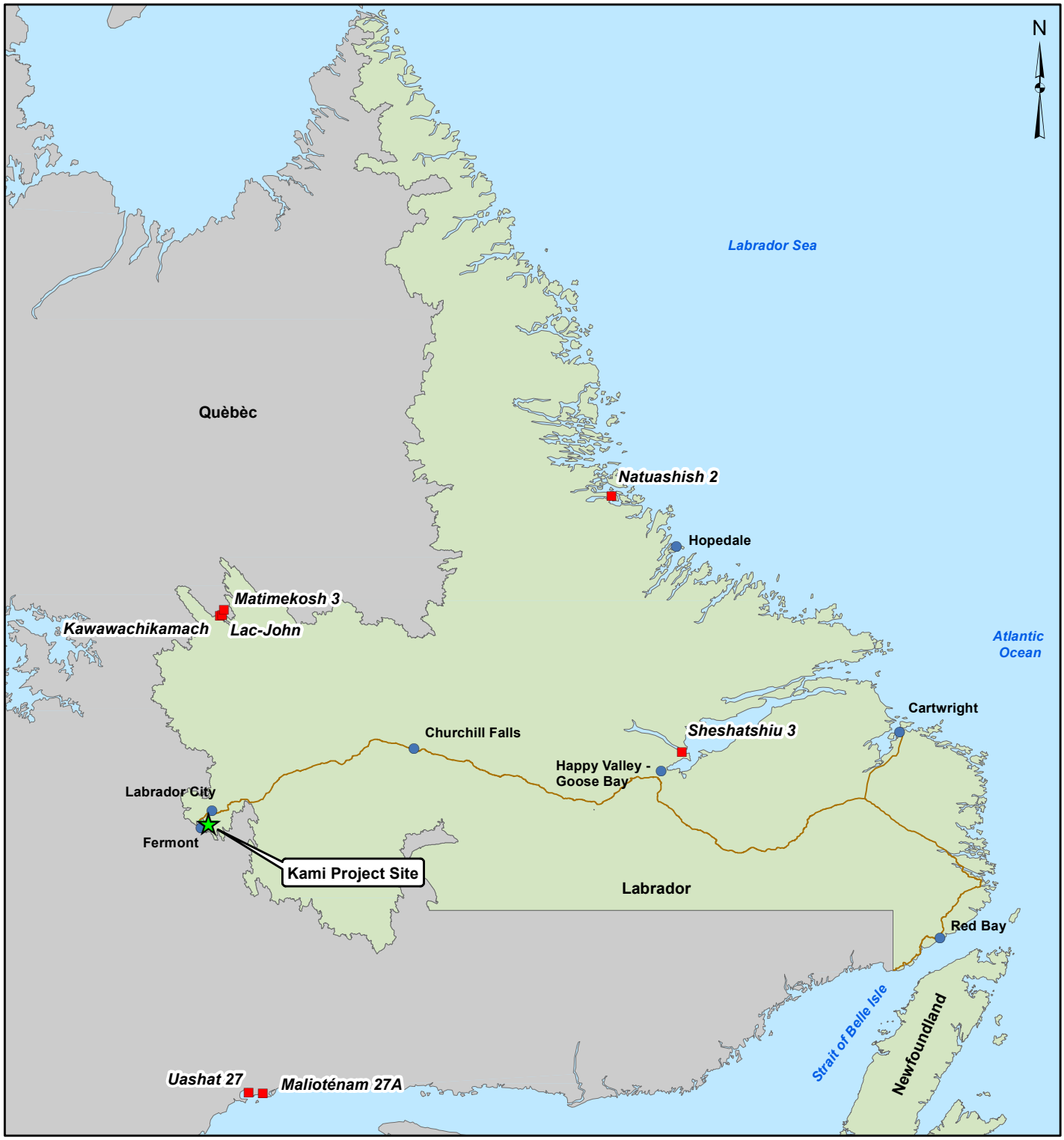
- ITUM;
- NIMLJ;
- NNK; and
- NCC.

Champion has confirmed with the NL Office of Indigenous Affairs and Reconciliation that the Indigenous groups previously identified for engagement in 2011 for the previous EA remain the same. As Champion has advanced planning of the Project, Champion has reviewed publicly available information, including information directly provided to Champion by Indigenous governments and organizations, to gain a general understanding of the nature of known Indigenous interests in the Project area and the priority Indigenous groups to be engaged for the Project. This has included consideration of:

- Traditional territories;
- Traditional and current land uses;
- Settlement or on-going land claims, and/or litigation;
- Review of the 2012 EIS and amendments;
- Proximity of the Project to Indigenous communities;
- Existing relationships with the Project and Champion; and
- Potential Project effects to health and safety, the environment, and potential or established Indigenous and/or treaty rights and related interests.

Forming and continually fostering relationships built on mutual trust and understanding is foundational to consultation and is central to Champion's efforts to contribute to long-term sustainable development outcomes for the communities where they operate. Champion has proven to cultivate strong, mutually beneficial partnerships with the Indigenous groups in which Champion's projects are situated within their traditional territories. For example, Champion's Bloom Lake Project is located on the territory of the communities of ITUM and NIMLJ. Champion's consultation with ITUM and NIMLJ regarding the Bloom Lake Project led to the formalization of an Impact Benefit Agreement in 2017 which each community current benefits from.

Figure 7-3 shows the location of the Project in relation to the reserve lands of the Innu Nation, ITUM, NIMLJ, and NNK. Innu Nation's reserve lands are located in Natuashish and Sheshatshiu, ITUM's reserve lands are located in Uashat and Maliotenam, NIMLJ's reserve lands are located in Matimekosh and Lac-John and NNK's reserve lands are located in Kawawachikamach. The NCC do not have defined reserve lands and are therefore not represented on Figure 7-3.



LEGEND

- Kami Project Site
- Indigenous Reserves
- Select Communities
- TransLabrador Highway

1:6,425,000 0 30 60 120 Kilometers

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION PROVIDED BY THE CLIENT
2. COORDINATE SYSTEM: WORLD GALL STEREOGRAPHIC

CLIENT
CHAMPION IRON MINES

PROJECT
KAMI IRON ORE PROJECT
WABUSH, NL

TITLE
SOCIO-ECONOMIC LOCAL STUDY AREA INDIGENOUS RESERVES

CONSULTANT

wsp

YYYY-MM-DD	2024-03-22
DESIGNED	----
PREPARED	JA
REVIEWED	----
APPROVED	IL

PROJECT NO.	CONTROL	REV.	FIGURE
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7.2.3 Summary of Indigenous Consultation Activities

Consultation activities between Champion and Indigenous groups to date have been focused on introducing the Project and holding initial meetings to discuss concerns and expectations for consultation. Key consultation activities include the following:

2022 (Following the acquisition of the Kami property)

- As Champion, ITUM and NIMLJ had already established a close relationship due to the existing benefit agreement related to the Bloom Lake Project, Champion conducted several meetings to discuss the Project following the purchase of Kami property with leadership representatives.
- Champion held several meetings during a tradeshow in Ottawa with different groups of interests, including representatives from Innu Nation, Newfoundland & Labrador governmental agencies, and the Town of Labrador City to introduce the company and discuss the Project.
- Champion held a meeting in Québec City with representatives from the Innu Nation to provide an overview of the Project and discuss the Innu Nation's concerns and expectations for consultation.

Fall 2023

- Champion sent introduction letters via email to Innu Nation, ITUM, NIMLJ, NNK and NCC, providing an overview of the Project, noting that Champion is undertaking a Feasibility Study and re-entering the provincial EA process, and offering to meet, in person or virtually, based on the Nations' preferences, to further discuss the Project.
- Introduction meetings were held with representatives from ITUM and Innu Nation to discuss the Project, discuss the timeline and expectations for consultation.

Winter 2024

- Introduction meetings were held with representatives from NIMLJ, NNK and NCC to discuss the Project, discuss the timeline and expectations for consultation.
- Following the Pre-Feasibility Study, meetings were performed in early winter with representatives from ITUM, Innu Nation, NIMLJ and NCC.

Champion has documented its consultation activities to date and will actively maintain a database for future consultation activities. Table 7-2 documents the Project-specific consultation activities undertaken to date between Champion and the identified Indigenous groups. Note that several informal meetings have also been held with all identified Indigenous groups since the acquisition of the Kami property as Champion is focused on keeping an open communication channel with every identified stakeholder and rightsholder.

Table 7-2: Indigenous Consultation Activities to Date

Correspondence Type	Date	Summary	Indigenous Group
Meeting	2022-02-10	Introduction meeting of Champion to Innu Nation representatives following the purchase of Kami property to discuss expectations around the Project.	Innu Nation
Meeting	2022-11-22	Introduction meeting to Innu Nation leadership group. Discussion was focused on the Indigenous relations, the Project PFS, the upcoming field work campaign and the proposed water management of the proposed Project.	Innu Nation
Meeting	2023-02-11	Champion presented the geotechnical drilling program to a representative of Innu Nation and discussed water management at the proposed Project.	Innu Nation
Email and Letter	2023-10-16	Champion provided a letter introducing the Project and offered a future meeting with Innu Nation representatives to define the expected consultation process for the Project.	Innu Nation
Email and Letter	2023-10-16	Champion provided a letter introducing the Project and offered a future meeting with NNK representatives to define the expected consultation process for the Project.	NNK
Email and Letter	2023-10-16	Champion provided a letter introducing the Project and offered a future meeting with ITUM representatives to define the expected consultation process for the Project.	ITUM
Email and Letter	2023-10-16	Champion provided a letter introducing the Project and offered a future meeting with NIIMLJ representatives to define the expected consultation process for the Project.	NIMLJ
Meeting	2023-11-02	Champion met with the Innu Nation to discuss Innu Nation's needs, concerns, and expectations for consultation. Champion provided an update of the PFS.	Innu Nation

Correspondence Type	Date	Summary	Indigenous Group
Email and Letter	2023-12-22	Champion provided a letter introducing the Project and offered a future meeting with NCC representatives to define the expected consultation process for the Project.	NCC
Virtual Meeting	2024-01-22	Champion met with representatives from NIMLJ to discuss NIMLJ needs, concerns, and expectations for consultation. Champion provided an update of the PFS.	NIMLJ
Virtual Meeting	2024-01-24	Champion met with a representative from NNK to provide an initial overview of the Project and discuss future steps towards a formal kickoff meeting with NNK leadership.	NNK
Meeting	2024-02-07	Champion and ITUM met to discuss technical aspects of the Project, including the upcoming winter geotechnical campaign. ITUM appointed representatives to coordinate consultation with Champion. ITUM was interested in including families impacted by the project and was interested in a future pubic consultation meeting with the general ITUM population.	ITUM
Meeting	2024-02-09	Champion met with members of NNK leadership to present project, including the upcoming winter geotechnical campaign. Champion and NNK also discussed consultation expectations, needs and concerns. NNK appointed representatives to coordinate consultation with Champion.	NNK
Virtual meeting	2024-02-14	Champion met with NCC to discuss Project, including the upcoming winter geotechnical campaign. NCC summarized the previous consultation and inputs they provided on the Project. NCC representatives noted that the land studies provided to Alderon in 2012/2013 were still current for the Project.	NCC

Correspondence Type	Date	Summary	Indigenous Group
Meeting	2024-02-15	Champion met with Chief McKenzie to provide an initial overview of the Project, including the upcoming winter geotechnical campaign and discuss future consultation. Champion and Chief McKenzie also noted that NIMLJ needs to coordinate with ITUM to determine future consultation expectations.	NIMLJ
Meeting	2024-02-23	Champion met with a representative from ITUM to discuss the winter drilling geotechnical campaign.	ITUM
Meeting	2024-02-26	Champion met with a representative from NCC to discuss the winter drilling geotechnical campaign.	NCC
Meeting	2024-02-27	Innu Nation appointed representatives to coordinate consultation with Champion and discuss the winter drilling geotechnical campaign.	Innu Nation

7.2.4 Future Indigenous Consultation Activities

As the Project progresses through the provincial EA process, Champion plans to continue to engage with the five Indigenous groups identified. Topics of discussion will be identified collaboratively with representatives of the Indigenous groups, considering guidance from the Department of Environment and Climate Change as the Project progresses through the EA process. Proposed topics for future consultation meetings and events could include, but are not limited to:

- Identification of issues and Interests related to the Project;
- Follow-up discussions related to identified issues and interests;
- Input and consideration of Project design and alternatives;
- Input and consideration of planned field programs and baseline studies; and
- Review and consideration of adverse environmental effects and mitigation.

7.3 Stakeholder Consultation

7.3.1 Stakeholder Identification

The term “stakeholder” refers to a broad range of interested and affected individuals and groups including local government organizations, communities, businesses, non-governmental organizations (NGOs), public interest groups and clubs. In the context of this Project, a stakeholder may be any person or group of people who have an interest to protect, who have a stake in the issue, or who have knowledge to contribute. This includes a person or group who would be directly affected by the Project and a person or group with more general or varying degrees of concern, interest, and desire to engage with issues related to the Project.

Stakeholders for this Project have been identified based on previous experience and information acquired from Champion, as well as from a review of available secondary information. Champion identified interested stakeholders using the following criteria:

- Proximity of persons or groups that reside, have property, or have an interest within or near the proposed Project area, or could be potentially affected due to proximity from the proposed Project area;
- Past or current interest of persons or groups in the Project, or similar projects or developments in the vicinity of the Project; and
- Persons or groups not located in close proximity to the Project area, but who could be potentially affected from the outcomes of the Project.

As documented in the 2012 EIS, previous consultation with the following stakeholders took place:

- Local stakeholders included residents of the communities of Labrador City, Wabush and Fermont; and
- Other potentially impacted or interested stakeholders beyond these boundaries, including provincial and federal government agencies and departments, NGOs, economic development organizations, and outdoor recreations users and outfitters.

Table 7-4 summarizes the identified stakeholders for the Project. Additional stakeholders may be identified through future stakeholder consultation activities.

Table 7-3: Identified Stakeholders

Category	Stakeholder
Municipal Governments	Town of Wabush
	Town of Labrador City
	Ville de Fermont
Local Economic Development	Centre local de développement (CLD) de Caniaspicau

Category	Stakeholder
	Conseil de développement économique d'Uashat mak Mani-Utenam
	Labrador West Chamber of Commerce
	Labrador West Employment Corporation
	Labrador West Tourism Corporation
	Newfoundland and Labrador Organization of Women Entrepreneurs
	Town of Labrador City Economic Development Department
	Women in Resource Development Corporation
Local Environment Interest Groups	Conseil régional de l'environnement de la Côte-Nord
	Le Mouvement citoyen de Fermont
	Organisme de Bassin Versant
Local Education, Social Services, and Health Services	College of the North Atlantic
	Centre de santé et service sociaux de L'Hematite
	Labrador Grenfell Health
	Labrador Institute of Memorial University, Labrador Campus
	Labrador West Status of Women
	Newfoundland and Labrador English School District
	Conseil Scolaire Francophone
	Newfoundland and Labrador Housing Corporation
	Provincial Advisory Council on the Status of Women
	Royal Newfoundland Constabulary
Outfitters and Recreation	Cabin Owners
	Duley Lake Family Park
	Newfoundland and Labrador Outfitters Association
	White Wolf Snowmobile Club

7.3.2 Summary of Public and Local Community Stakeholder Consultation Activities

Since acquisition of the Project by Champion in 2021, consultation activities with the public and local community stakeholders have been focused on introducing the Project, holding initial meetings to discuss stakeholder concerns and expectations, and discussing ongoing fieldwork activities. Key consultations with the public and local community stakeholders include the following:

2022 (Following the acquisition of the Kami Property)

- Champion held several meetings during a tradeshow in Ottawa with different groups of interests, including representatives from Innu Nation, NL governmental agencies, and the Town of Labrador City to introduce the company and discuss the Project.

Summer 2023

- Letters were sent to cabin owners via email regarding an upcoming hydrogeological drilling program, aimed to better understand groundwater flow at the Project site. Champion later met with individual cabin owners regarding the groundwater field program in September and October 2023.

Fall 2023

- Champion held meetings with the Town of Labrador City, the Town of Wabush, Ville de Fermont, Duley Lake cabin owners and the WWSC to provide an overview of the Project and discuss consultation expectations for the Project. From these meetings, Champion was able to highlight the site plan improvements, environmental programs and field investigations. The anticipated timing of the Project Registration was also provided to all stakeholders.
- Champion met again with all groups, as part of ongoing consultation activities.

Winter 2024

- Several meetings and informal exchanges occurred with Cabin owners, WWSC and the towns of Labrador city and Wabush regarding the winter field campaign and what it meant to the Project.
- Champion held meetings with the Town of Labrador City, the Town of Wabush, the town of Fermont, Duley Lake cabin owners and the WWSC to provide an update of the Project.

Champion has documented its consultation activities to date and will actively maintain a database for future consultation activities. Table 7-4 documents the Project-specific consultation activities undertaken to date between Champion and the public and local community stakeholders.

Table 7-4: Summary of Stakeholder Consultation Activities

Correspondence Type	Date	Summary	Stakeholders
Meeting	2022-02-10	Introduction meeting of some Champion staff members to following the purchase of Kami property during a tradeshow in Ottawa.	Mayor Belinda Adams (Labrador City)
Virtual Meeting	2023-04-26	Champion met with the mayor of Labrador City to discuss the Project and present challenges regarding the staffing of the Project and water management.	Mayor Belinda Adams (Labrador City)

Correspondence Type	Date	Summary	Stakeholders
Virtual Meeting	2023-04-26	Champion met with the mayor of the Town of Wabush to discuss the Project and present challenges regarding the staffing of the Project and water management.	Mayor Ron Barron (Town of Wabush)
Letter	2023-08-22	Champion provided a letter to landowners regarding the drilling program starting in September and ending mid-October 2023.	Cabin owners
Meeting	2023-10-03	Champion and the WWSC met to discuss the Project and consultation expectations and to discuss Champions proposed drilling activities and interaction with snowmobile club activities.	White Wolf Snowmobile Club
Meeting	2023-10-03	Champion met with the Mayor and Town Manager of the Town of Wabush to provide an update on the Project. Champion highlighted the site plan improvements, environmental programme and field investigations and the anticipated timing of the Project Registration. A concern raised by Town of Wabush regarded signage and cabin zoning as there were some complaints from cabin owners. Other issues raised by the Mayor and Town Manager were about electricity availability, rail, and access and housing.	Mayor Ron Barron (Town of Wabush), Charlie Perry (Town Manager, Town of Wabush)
Meeting	2023-12-05	Discussions about work planning for winter field program and provide visibility for future field work.	White Wolf Snowmobile Club
Meeting	2023-12-05	Discussions about work planning for winter field program and provide visibility for future field work.	Duley Lake Cabin Owners
Meeting	2023-12-06	Discussions about work planning for winter field program and provide visibility for future field work.	Mayor Ron Barron (Town of Wabush) Charlie Perry (Town Manager, Town of Wabush)

Correspondence Type	Date	Summary	Stakeholders
Meeting	2023-12-06	Discussions about work planning for winter field program and provide visibility for future field work.	Labrador City Representative
Meeting	2024-02-12	Champion has released news from Pre-Feasibility Study. Highlights of the project were presented. Champion presented to the council the key components of the Project that will have to be met to see the Project to go forward. Champion proposed to establish a working group. The objectives of the working group would be to discuss concerns and effects related to the Project and to develop proper mitigation measures related to those effects (e.g., staffing, snowmobile trail, land use).	Mayor Martin St-Laurent (Ville de Fermont) and Ville de Fermont Town Council
Meeting	2024-02-13	Champion has released news from Pre-Feasibility Study. Highlights of the project were presented. Champion presented to the club the key components of the Project that will have to be met to see the Project to go forward. Champion proposed to establish a working group. The objectives of the working group would be to discuss concerns and effects related to the Project and to develop proper mitigation measures related to those effects (e.g., staffing, snowmobile trail, land use).	Whitewolf Snowmobile Club representatives

Correspondence Type	Date	Summary	Stakeholders
Meeting	2024-02-13	Champion has released news from Pre-Feasibility Study. Highlights of the project were presented. Champion presented to the council the key components of the Project that will have to be met to see the Project to go forward. Champion proposed to establish a working group. The objectives of the working group would be to discuss concerns and effects related to the Project and to develop proper mitigation measures related to those effects (e.g., staffing, snowmobile trail, land use).	Labrador City Council
Meeting	2024-02-13	Champion has released news from Pre-Feasibility Study. Highlights of the project were presented. Champion presented to the council the key components of the Project that will have to be met to see the Project to go forward. Champion proposed to establish a working group.	Mayor Ron Barron and Wabush Town Council
Meeting	2024-02-27	Champion met with the Duley Lake residents to provide some information on current field work and to provide more visibility on upcoming field work which would take place until June 2025 when the Feasibility study will be filed. Champion proposed to establish a working group.	Duley Lake Cabin Owners
Meeting	2024-02-27	Champion gave an overview of the Project and discuss on social acceptability in Labrador West. Champion proposed to establish a working group.	Member of the House of Assembly (MHA) Jordan Brown

7.3.3 Future Public and Local Community Stakeholder Consultation Activities

As the Project progresses through the provincial EA process, Champion plans to continue to engage with the public and key local community stakeholders. Topics of discussion will be identified collaboratively with key local community stakeholders, considering guidance from the Department of Environment and Climate Change as the Project progresses through the EA process. Proposed topics for future consultation meetings and events could include, but are not limited to:

- Identify issues and interests related to the Project;
- Follow-up discussions related to identified issues and interests;
- Input and consideration of Project design and alternatives;
- Input and consideration of Project baseline studies; and
- Review and consideration of Project environmental effects and mitigation.

As discussed with the local community stakeholders during the pre-consultation phase, Champion is seeking to establish a working group, which could be composed of one representative Fermont, Wabush and Labrador City, the current Member of the House of Assembly (MHA) for Labrador West and representatives from the Duley Lake Cabin Owner Association, and the Whitewolf Snowmobile Club and other interested local stakeholders. The objectives of the working group would be to discuss concerns and effects related to the Project and to develop proper mitigation measures related to those effects (e.g., staffing, snowmobile trail, land use).

7.4 Regulatory Consultation

7.4.1 Identification of Regulatory Agencies to Consult

Since acquisition of the Project by Champion in 2021, Champion has consulted with a number of federal and provincial government departments and agencies. Some of the key regulatory agencies Champion has consulted include:

Newfoundland and Labrador

- Department of Environment and Climate Change, specifically:
  - Environmental Assessment Division;
  - Pollution and Prevention Division; and
  - Water Resources Management Division.
- Department of Industry, Energy and Technology, Mineral Lands Division, specifically:
  - Mining and Mineral Development Branch
- Office of Indigenous Affairs and Reconciliation

Federal Agencies

- ECCC;
- DFO; and
- IAAC.

7.4.2 Summary of Regulatory Consultation Activities

Consultation activities with regulatory agencies to date have offered an opportunity for Champion to present and solicit input on the updated Project design, gain an understanding of regulatory expectations for the EA and permitting processes, and to support identification of additional regulatory agency departments and contacts for future consultation.

Champion has documented its consultation activities to date and will actively maintain a database for future consultation activities. Key consultations with federal and provincial regulatory agencies are summarized below.

Newfoundland and Labrador

In June 2023, Champion met with the Department of Environment and Climate Change's Environmental Assessment Division to discuss the Project. Champion presented the updated Project, planned baseline field programs, and Champion's approach to identifying and mitigating potentially new adverse effects from the updated Project. The Environmental Assessment Division outlined the provincial EA process, specifically noting that the NLEPA indicates that there is a three-year term (with extension up to six years) within which an EA release from the Minister remains in force. After the expiration of this period, if the project (undertaking) has not commenced, the release is considered to be void. No such extension was requested or granted for the Project, and as such, the provincial EA process will need to be restarted for the Project, starting with the submission of a Project Registration document. The Environmental Assessment Division also recommended Champion consult with other provincial departments and divisions, notably the Pollution and Prevention Division and Water Resources Management Division.

In September 2023, Champion held a series of meetings with the Newfoundland Pollution and Prevention Division and Water Resources Management Division. Topics of discussion for these workshops included updates on hydrogeological modelling and proposed field programs, approach to baseline surface water and hydrology, site contact water management and proposed water management infrastructure, air quality baseline and emission modelling and mine rehabilitation and closure.

Federal Agencies

In June 2023, Champion met with the IAAC to discuss the Project. Champion presented the updated Project, planned baseline field programs, and Champion's approach to identifying and mitigating potentially new adverse effects from the updated Project. IAAC noted that impact assessment requirements were binary; either a new impact assessment is required under the *Impact Assessment Act* or no additional steps are required. IAAC added that there was no timeframe-imposed on the previous

federal decision statement, but IAAC would require more information and a greater understanding of the proposed changes to the Project since the federal approval in 2014 to determine next steps. IAAC recommended that Champion also consult with ECCC, DFO, and Health Canada.

In August 2023, Champion met with ECCC to discuss the Project, the *Metal and Diamond Mining Effluent Regulations* and applicable permitting requirements under the *Fisheries Act.* Champion presented the updated Project, focusing on the additional studies undertaken that have informed Project design changes, specifically additional water management infrastructure needed to improve site water management. ECCC noted that it would require an information package that would include, but not be limited to, the mine plan, impacted waterbodies and a summary of fish and fish habitat at the Project site to inform permitting requirements. ECCC also recommended that Champion consult with DFO.

In September 2023, Champion met with DFO to discuss the Project. Champion presented the updated Project and possible implications of the Project to fish and fish habitat. Champion and DFO discussed the approach to permitting under the *Fisheries Act,* including the need for a fish and fish habitat offsetting plan. Champion and DFO also discussed potential offsetting projects and opportunities within the province.

7.4.3 Future Regulatory Consultation Activities

As the Project progresses through the provincial EA process, Champion plans to continue to engage with regulatory agencies. Topics of discussion will be identified collaboratively with regulatory agencies. Proposed topics for future meetings could include, but are not limited to:

- Review of the Project Registration document and related technical documents;
- Continued discussions and updates on Project studies and activities;
- Input and consideration of Project design and alternatives; and
- EA and permitting requirements.

8.0 PROJECT-RELATED DOCUMENTS

Table 8-1 presents technical supporting documents that have been prepared by Champion and their technical consultants in support of the Project and this Project Registration document. Champion has included these documents as appendices to this document to showcase the studies that have already been completed to advance Project planning, and to inform the review of the Project Registration document by the Department, interested government departments and agencies, Indigenous groups, stakeholders, and the public. In addition to the documents presented in Table 8-1, the following publicly available documents are referenced throughout this Project Registration document and can help further inform the understanding of the Project:

- The Government of NL Department of Environment and Climate Change webpage for the Kami Iron Ore Project (https://www.gov.nl.ca/ecc/projects/project-1611/), which includes downloadable copies of the previous Project Registration document, EIS Guidelines, the 2012 EIS, EIS amendments, public notices and the Minister's release letter.
- The Impact Assessment Agency of Canada's webpage for the Kami Iron Ore Project (https://iaac-aeic.gc.ca/050/evaluations/exploration?projDocs=64575), which includes similar documentation to the provincial government webpage, but also includes federally issued notices, the Comprehensive Study Report and the Decision Statement.

Table 8-1: Project Related Document Bibliography

Appendix	Document	Author	Description
A	Kami Mine Conceptual Hydrogeological Modelling Report	AtkinsRéalis	To address conditions of the 2014 Ministerial Release and Decision Statement for the 2012 EIS, Atkins-Réalis was retained by Champion to review Project data, complete additional site investigations and develop an updated conceptual hydrogeological model. This study was also be used to characterize local hydrogeologic conditions within the vicinity of the Project, which is summarized in Section 4.3.1.
B	Kami Mine Hydrogeological and Water Balance Study – Rose Pit Water Management Infrastructure Design	SNC-Lavellin (now AtkinsRéalis)	This technical report presents the water management infrastructure design for the key Project optimizations, including the Rose Pit collection Pond, Mid Lake Dam and Pike Lake Dike. These are described in Section 3.2.6 of this Project Registration document.
C	Kami Geochemical Characterization Report – Phase I Static Testing	Okane Consultants	To address conditions of the 2014 Ministerial Release and Decision Statement for the 2012 EIS, Okane Consultants (Okane) were retained by Champion to characterize ML/ARD risk of units identified as future mine rock during the Operation Phase. The results of the report and ongoing investigations will inform the management of ML/ARD risk and the strategy for managing contact water during Operations to minimize adverse effects. The outcomes of this study are summarized in
D	Kami Multiple Account Analysis – Tailings Management Facility	WSP Canada Inc.	WSP Canada Inc. (WSP) was retained by Champion to complete an alternatives assessment for the development of the TMF for the Project. The objective of the alternatives assessment was to identify the preferred alternative for the TMF, which is presented in Section 3.3.5 of this Project Registration document.

Appendix	Document	Author	Description
E	Conceptual Rehabilitation and Closure Plan Summary	Okane Consultants	The objective of this document is to provide an overview of the closure management for the major infrastructure at the Project, a discussion of the risks associated with the conceptual rehabilitation and closure plan in the Post-Closure Period, and potential mitigations that may be implemented to mitigate those risks. This document supported the summary of the rehabilitation and closure plan approach presented in Section 3.4.
F	Ambient Air Quality Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete baseline ambient air quality modelling for the Project. The objective of the study was to inform the characterization of baseline air quality conditions within the vicinity of the Project. The ambient air quality baseline monitoring study is summarized in Section 4.1.2 of this Project Registration document.
G	Terrain and Soils Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete baseline ambient air quality modelling for the Project. The objective of the study was to inform the characterization of baseline terrain and soil conditions within the vicinity of the Project. The terrain and soils baseline study is summarized in Section 4.2.2. of this Project Registration document.
H	Surface Water Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete a baseline surface water study for the Project. The objective of the study was to inform the characterization of baseline hydrological and surface water quality conditions within the vicinity of the Project. The surface water baseline study is summarized in Section 4.3.2 of this Project Registration document.
I	Fish and Fish Habitat Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete a baseline fish and fish habitat study for the Project. The objective of the study was to inform the characterization of baseline fish and fish habitat conditions within the vicinity of the Project. The fish and fish habitat baseline study is summarized in Section 4.4 of this Project Registration document.

Appendix	Document	Author	Description
J	Avifauna Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete a baseline avifauna (bird) study for the Project. The objective of the study was to understand the avifauna presence and habitat conditions, specifically migratory birds and species at risk or of conservation concern within the vicinity of the Project. The avifauna baseline study is summarized in Section 4.6 and 4.7.2 of this Project Registration document.
K	Vegetation and Wetlands Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete a baseline vegetation and wetlands study for the Project. The objective of the study was to inform the characterization of baseline vegetation and wetland conditions within the vicinity of the Project. The vegetation and wetlands baseline study is summarized in Section 4.7.1 of this Project Registration document.
L	Wildlife Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete a baseline wildlife study for the Project. The objective of the study was to understand the presence of wildlife and habitat conditions, including species at risk or of conservation concern, within the vicinity of the Project. The wildlife baseline study is summarized in Section 4.6 and 4.7.3 of this Project Registration document.
M	Cultural Heritage Screening for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete a cultural heritage screening the Project. The objective of the study was to understand the presence of cultural heritage resources within the vicinity of the Project. The Cultural Heritage Screening is summarized in Section 4.8 of this Project Registration document.
N	Historic and Heritage Resources Baseline Report	WSP Canada Inc.	WSP was retained by Champion to complete Historic and Heritage Resources Baseline Report for the Project, focused on areas of archaeological potential. the Project. The objective of the study was to understand the presence of archaeological resources within the vicinity of the Project. The Historic and Heritage Resources desktop study is summarized in Section 4.8 of this Project Registration document.

Appendix	Document	Author	Description
O	Socio-economic Baseline Report for the Kami Iron Ore Mine Project	WSP Canada Inc.	WSP was retained by Champion to complete a socio-economic baseline study the Project. The objective of the study was to update the previously completed baseline assessment with data from the 2021 Census. The socio-economic baseline study is summarized in Section 4.11 of this Project Registration document.
P	Communication and Engagement Strategy for the Kami Iron Ore Mine Project	WSP Canada Inc.	Champion's communication and engagement strategy is intended to guide communication and engagement activities with Indigenous Groups and the public throughout the EA process. Key aspects of the communication and engagement strategy are presented in Section 7 of this Project Registration document.

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