Project Registration / Project Description for the Kami Iron Ore Project

Kami Iron Ore Mine and Rail Spur, Labrador

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Table of Contents

1.0 INTRODUCTION 1

1.1 Background 3
1.2 Project Overview 4
1.3 Description of the Proponent 6
1.4 Environmental Assessment Contact Information 6
1.5 Regulatory Context 6
1.5.1 Federal 6
1.5.2 Provincial 8
1.5.3 Municipal 9

2.0 PROJECT DESCRIPTION 11

2.1 Labrador Project Components 11
2.2 Land Holdings 14
2.3 Labrador Project Components Location and Proximity 14
2.3.1 Proximity to Other Projects 15
2.3.2 Proximity to First Nations Reserves, Traditional Territory and Lands and Resources Currently Used by Aboriginal Persons 15
2.4 Construction Activities 16
2.4.1 Roadways 17
2.4.2 Site Buildings 17
2.4.3 Primary Crusher Building, Crushed Ore Stockpile, Process Plant and Concentrator Services Building 18
2.4.4 Conveyors 20
2.4.5 Security Fencing 20
2.4.6 Water Supply 21
2.4.7 Power 21
2.4.8 Railway Infrastructure 21
2.5 Operation and Maintenance Activities 22
2.5.1 Open Pit 22
2.5.2 Processing 23

2.5.3 Conveyers 29
2.5.4 Fuel Unloading Station 29
2.5.5 Tailings Management Facility 29
2.5.6 Waste Rock Disposal Areas 32
2.5.7 Mining Equipment 33
2.5.8 Load-out 34
2.5.9 Rail Component 34
2.6 Occupations 34
2.6.1 Construction Employment 34
2.6.2 Operations Employment 36
2.7 Project Schedule 39
2.8 Emissions, Discharges and Waste Management 39
2.8.1 Mine Water 39
2.8.2 Site Drainage 39
2.8.3 Sewerage 40
2.8.4 Mine / Process Waste 40
2.8.5 Domestic Solid Waste 40
2.8.6 Hazardous Waste 41
2.8.7 Used Oil Storage 41
2.8.8 Dust / Air Quality 41
2.8.9 Noise 42
2.9 Hazardous Materials 42
2.10 Mine Closure 43
2.10.1 Progressive Rehabilitation 43
2.10.2 Mine Closure 44
2.10.3 Post-closure Monitoring 45
2.11 Accidental Events and Contingency Plans 45
2.12 Sustainability Features 46

3.0 PROJECT RATIONALE AND ALTERNATIVES ASSESSMENT 47

3.1 Project Purpose 47

3.2 Alternatives to the Labrador Project Component 47
3.3 Alternative Means within the Labrador Project Components 47
3.3.1 Tailings Management Options 47
3.3.2 Waste Rock Management 48
3.3.3 Transportation 48

4.0 ABORIGINAL AND PUBLIC CONSULTATION 50

5.0 EXISTING ENVIRONMENT 52

5.1 Physical and Biological Environment 52
5.1.1 Physical Environment 52
5.1.2 Atmospheric Environment 53
5.1.3 Terrestrial Environment 53
5.1.4 Aquatic Environment 54
5.1.5 Sensitive Areas 55
5.2 Socio-economic Environment 55
5.3 Environmental Effects 56
5.4 Waterbodies 63

6.0 APPROVALS, PERMITS AND AUTHORIZATIONS 66

7.0 FUNDING 68

8.0 DATE AND CEO SIGNATURE 69

9.0 PROJECT RELATED DOCUMENTS 70

10.0 REFERENCES 71

LIST OF APPENDICES

APPENDIX A Photos of Waterbodies

LIST OF FIGURES

Figure 1 Project Location Plan 2
Figure 2 Project Site Plan 5
Figure 3 Mine and Associated Infrastructure 12
Figure 4 Rail Transport Infrastructure 13
Figure 5 Locations of Processing Facilities 19
Figure 6 Process Flow Diagram Crushing and Crushed Ore Storage 25
Figure 7 Process Flow Diagram Grinding, Screening and Gravity Concentration 26
Figure 8 Process Flow Diagram Regrind and Magnetic Separation Plant 27
Figure 9 Process Flow Diagram General Process Water Balance 28
Figure 10 Project Schedule 39
Figure 11 Potentially Affected Waterbodies 65

LIST OF TABLES

Table 1 CEAA Law List Regulations Triggers and their Relevance to the Project 7
Table 2 Alderon Licences in Labrador 14
Table 3 Pit Design for Type 1 Slopes, All Wall Orientations, and Type 2 Slopes, Hanging Wall Orientation 22
Table 5 Estimated Construction Phase Employment 35
Table 6 Estimated Operations Phase Employment 36
Table 7 Potential Valued Environmental Components to be Assessed in the Kami Iron Ore Mine and Rail Spur (Labrador) Project Environmental Assessment 57
Table 8 Waterbodies Potentially Affected by the Labrador Project Components 63
Table 9 Potential Permits, Approvals, and Authorizations 66

1.0 INTRODUCTION

Alderon Iron Ore Corp. (Alderon) is proposing to develop an iron ore mine in western Labrador, and build associated infrastructure at the Port of Sept-Îles, Québec (the Project). The mine Property is located 6 km south from the Wabush Mines mining lease owned by Cliffs Natural Resources Inc. (Cliffs) and in the vicinity of the towns of Wabush, Labrador City and Fermont (Figure 1). The Kami Iron Ore Mine and Rail Spur is located entirely within Labrador, and includes construction, operation, and rehabilitation and closure of an open pit, waste rock disposal areas, processing infrastructure, a tailings management facility (TMF), ancillary infrastructure to support the mine and process plant, and a rail transportation component. The mine will produce up to 16 million metric tonnes of iron ore concentrate per year. Concentrate will be transported by existing rail to the Port of Sept-Îles, where Project-related components will be located on land within the jurisdiction of the Port Authority of Sept-Îles.

The Labrador Project components will require approvals from the Government of Newfoundland and Labrador and are subject to environmental assessment (EA) under the *Environmental Protection Act* (NLEPA) and associated *Environmental Assessment Regulations*.

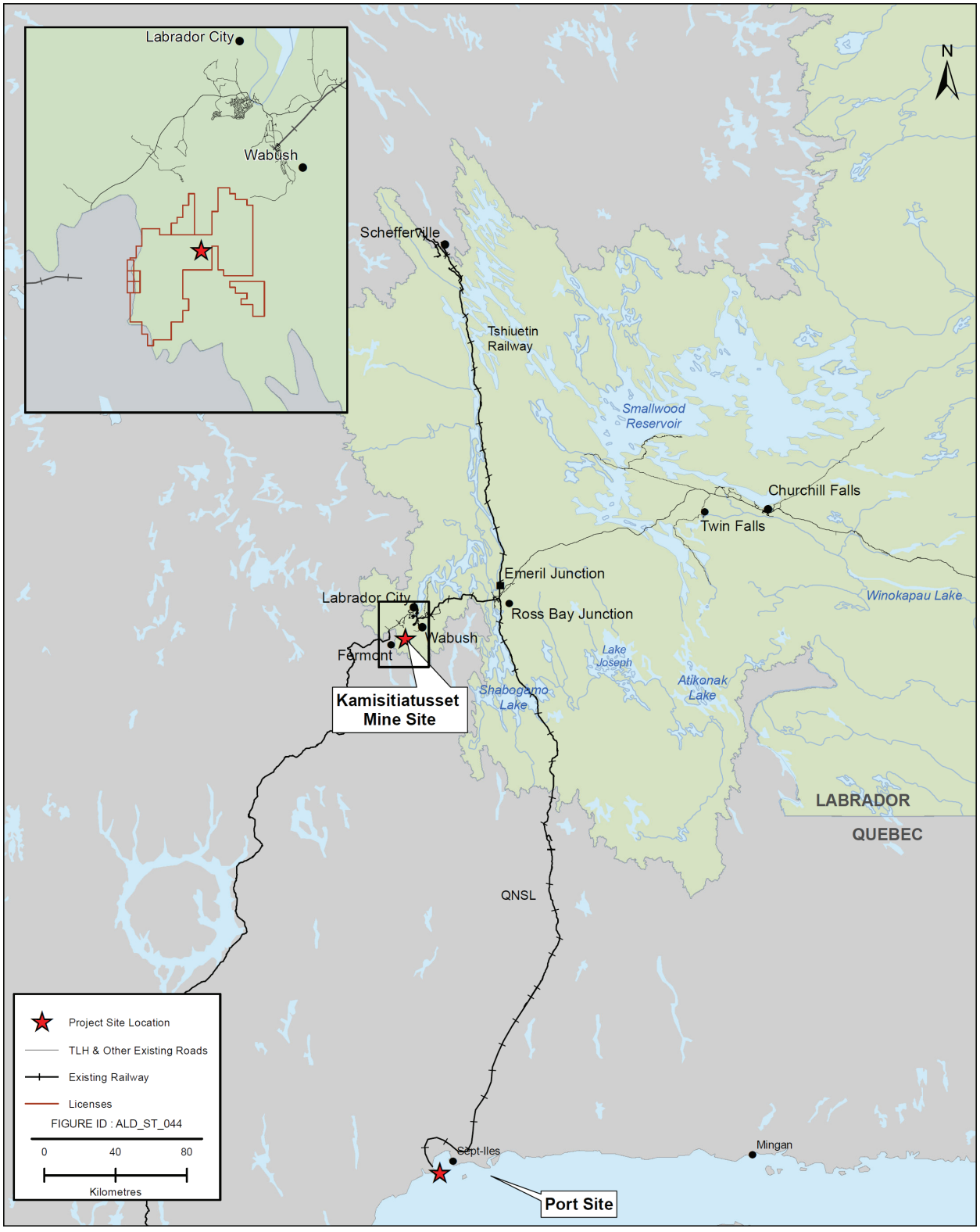
The Québec Project components will require environmental approvals from the Government of Québec. At the time of registration the proponent is waiting for a determination from the Ministère du Développement durable, de l'Environnement et des Parcs, Government of Québec as to whether an EA will be required pursuant to the *Environment Quality Act*.

Federal approvals will be required, which trigger the requirement for a federal EA under the *Canadian Environment Assessment Act* (CEAA), at the comprehensive study level. This document is a Project Description submitted to the Canadian Environmental Assessment Agency (CEA Agency) to initiate the EA process.

This Project Registration / Project Description for the Kami Iron Ore Mine and Rail Spur presents the components located within the Province of Newfoundland and Labrador: an open pit, waste rock disposal areas, tailings management, processing and support infrastructure, and a rail spur and loop.

The Project Description for the Kami Concentrate Storage and Load-Out Facility presents, in a separate document, the components located within the Province of Québec.

Figure 1 Project Location Plan



1.1 Background

The earliest geological reconnaissance in the southern extension of the Labrador Trough within the Grenville Province was by prospectors in 1914 in search of gold. Several parties visited the area between 1914 and 1933. J.E. Gill, in 1933, first recognized the metamorphosed iron formation in the vicinity of Wabush Lake. In 1937, the first geological map and report was published for the area. A few years later, the Labrador Mining and Exploration Co. Ltd. (LM&E) launched a program to evaluate the iron formation. Other significant work in the area is outlined below:

- 1949 - interest in the Carol Lake area by LM&E was renewed and geological mapping was carried out in the Long Lake - Wabush Lake area which uncovered material of economic significance
- 1951 - nearly all of the concession held by LM&E within the Labrador Trough was flown with an airborne magnetometer which showed the known deposits to be more extensive than originally believed
- 1953 - a program of geological mapping in the Mills Lake - Dispute Lake area was conducted by the Iron Ore Company of Canada (IOCC)
- 1957 - an area to the west of Long Lake was remapped and test drilled by IOCC to determine areas for beneficiating ore
- 1972 - an extensive helicopter magnetic and electromagnetic survey for LM&E covering the Labrador City area was carried out
- 1979 - a ground magnetometer survey was conducted on Block No. 24 (part of the Property) and two diamond drillholes were completed
- 1981/82 - an air photography and topographic mapping program was completed by IOCC to re-photograph the mining areas and the survey was extended to cover all the lease and licence blocks in the Labrador City area
- 2001 - IOCC staked a considerable portion of the iron formation in the Labrador City area, with the Kamistiatusset area being recommended as a high priority target. However, no follow-up work is recorded.

All recent exploration and drilling on the Property were completed either by Altius or Alderon. Alderon acquired a 100% interest in the Kami Property in December, 2010, from Altius which initiated exploration of the Property in 2006 and completed geological mapping, geophysical surveys and a diamond drilling program comprising 25 drillholes aggregating 6,129.5 m. In 2010, Alderon acquired further claims, performed an airborne gravity survey and initiated a drilling program in the Rose Deposit and Mills Lake areas aimed at acquiring sufficient data to allow for the estimation of Mineral Resources. This program comprised 82 drillholes aggregating 25,749 m. Pursuant to permits and conditions of release from the NLEPA, exploration activities are continuing in 2011 and 2012.

The Kami Property currently contains an initial National Instrument (NI) 43-101 indicated resource of 490 million tonnes at 30.0% iron and an additional inferred resource of 598 million tonnes at 30.3% iron.

During the spring and summer of 2011, flora, fauna and baseline water quality surveys have been initiated.

1.2 Project Overview

The proposed Kami mine site is located wholly within Labrador; no activities associated with the mine will take place in Québec. The Kami mine site is located approximately 6 km south from the Wabush Mines mining lease owned by Cliffs and in the vicinity of the towns of Wabush, Labrador City and Fermont (Figure 1). The Kami Property is located in western Labrador and eastern Québec, straddling the interprovincial border with the majority of the Property in Labrador. The Property in Labrador comprises three map-staked license (305 claims) covering 7,625 hectares. The Property in Québec consists of five map-staked licences covering a nominal area of 125 hectares.

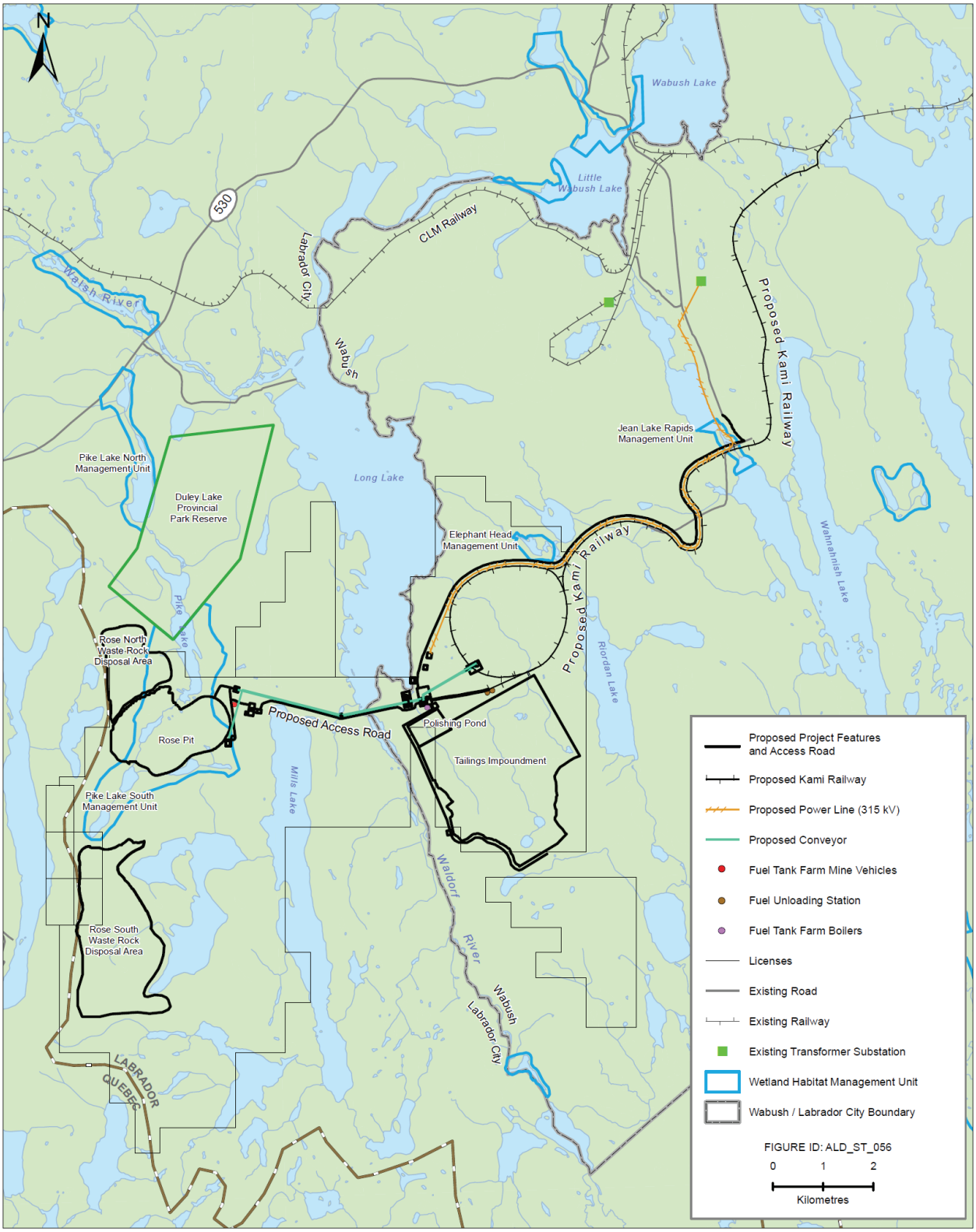
The Kami Iron Ore Project in Labrador includes construction, operation, and closure / decommissioning of the following primary components (Figure 2):

- open pit (Rose Pit, incorporating the former Rose Central and Rose North Pits);
- waste rock disposal areas (Rose North and Rose South);
- processing infrastructure includes crushing, grinding, spiral concentration, magnetic separation, and tailings thickening areas;
- tailings management facility (TMF);
- ancillary infrastructure to support the mine and process plant (gate and guardhouse, reclaim water pumphouse, truck wash bay and shop, electrical substation, explosives magazine storage, administration / office buildings, maintenance offices, warehouse area and employee facilities, conveyors, load-out silo, stockpiles, sewage and water treatment units, mobile equipment, and transmission lines); and
- a rail transportation component including spur line construction to connect the mine site to the Québec North Shore & Labrador (QNSL) Railway.

All components in Labrador will be permitted, constructed, operated and decommissioned in accordance with governing federal, Newfoundland and Labrador, and industry regulations and standards.

Up to 16 million metric tonnes of iron ore concentrate per year will be moved by rail from the mine to the Port of Sept-Îles facilities at Pointe-Noire, Québec. The QNSL Railway and Chemin de Fer Arnaud (CFA) Railway will be used to move the rail traffic from the proposed Kami Iron Ore Mine in Labrador to the Port of Sept-Îles, Québec to proposed concentrate storage and load out facilities.

Figure 2 Project Site Plan



Concentrate will be transferred from the concentrate storage and load-out facility to an ocean-going vessel by conveyor. All components in Québec will be permitted, constructed, operated and decommissioned in accordance with governing federal, Québec, and industry regulations and standards.

1.3 Description of the Proponent

Alderon is a public exploration stage company whose common shares trade on the TSX Venture Exchange (ADV:TSX.V) and OTCQX in the U.S. Alderon's head office is located in Vancouver with satellite offices in Montreal, Labrador City, and St. John's. Alderon was registered as an extra-provincial corporation in the Province of Newfoundland and Labrador on April 1, 2010.

1.4 Environmental Assessment Contact Information

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1.5 Regulatory Context

The following section outlines the anticipated regulatory framework for the environmental assessment of the Project.

1.5.1 Federal

Federal environmental assessment is regulated under CEAA. A federal environmental assessment is required pursuant to Section 5(1) of CEAA if a federal authority (department or agency):

a) carries out a project;

b) provides financial assistance to enable a project to be carried out;

c) sells leases or otherwise transfers control or administration of land to enable a project to be undertaken; or

d) permits, approves or takes any other action specified in the Law List Regulations to enable a project to be carried out.

The first and second triggers ((a) and (b)) above do not apply to the Project as proposed. The third trigger (c) does not apply in Labrador since federal lands are not required, but does apply in Québec as the rail loop and concentrate storage and load-out facility will be located on crown

lands. Triggers under the *Law List Regulations*, as shown in Table 1, will include authorizations that will be required pursuant to the *Fisheries Act* and the *Navigable Waters Protection Act* (NWPA). These triggers would be associated with the potential environmental effects on waterbodies within the footprint of, and adjacent to, the Project. Other potentially applicable Law List Triggers pertain to storage of explosives under the *Explosives Act* and approval pursuant to Section 98 of the *Canada Transportation Act*. Alderon is in the process of confirming land ownership along the proposed rail spur route in Labrador.

Table 1 CEAA Law List Regulations Triggers and their Relevance to the Project

Triggers	Nature of Authorization	Relevance to Project	Relevant Federal Authority
Fisheries Act			
32	Unauthorized destruction of fish (mortality) by means other than fishing	Applicable due to interference with water bodies	Fisheries and Oceans Canada
35(2)	Harmful alteration, disruption or destruction (HADD) of fish habitat	Applicable due to interference with fish habitat	Fisheries and Oceans Canada
Navigable Waters Protection Act			
5(2)	If the Minister considers that the work would substantially interfere with navigation	Applicable due to potential interference with the navigability of water bodies	Transport Canada
Explosives Act			
7(1)(a)	Issuance of a license for factories and magazines	Applicable due to storage of explosives on site	Natural Resources Canada
Canada Transportation Act			
98	Authorization to construct a railway	May be applicable depending on results of land ownership search	Canadian Transportation Agency

The CEAA *Comprehensive Study List Regulations* identify those projects and classes of projects for which a comprehensive study is required. The *Comprehensive Study Regulations*, Section 3, Part V, Mineral and Mineral Processing, Subsection 16(a), states “a metal mine, other than a gold mine, with an ore production capacity of 3,000 t/d or more”. A comprehensive study with respect to production capacity is therefore anticipated.

The federal decision-making and coordinating authority for a comprehensive study is the CEA Agency as per the amendments to CEAA (Bill-9) in July 2010. The Federal Authorities noted in Table 1 will confirm the applicability of their respective CEAA triggers in the *Law List Regulations*. These Federal Authorities retain responsibility for issuing their respective permits and authorizations pending approval of the comprehensive study.

Federal Departments also provide expert advice or specialized knowledge through the CEAA process as well as the provincial EA process. Departments providing expertise or knowledge to the environmental assessment process may include Fisheries and Oceans Canada (DFO), Transport Canada, Environment Canada, Health Canada, and Natural Resources Canada.

As an initiative to make federal environmental assessment more efficient and transparent, the Major Project Management Office (MPMO) was established in 2007 to support the Government

of Canada's new approach to the regulatory review of major resource projects. In particular, the MPMO's mandate is to provide overarching project coordination, management and accountability for major resource projects within the context of the existing federal regulatory review process. It is anticipated that the MPMO would participate in a comprehensive study process to assist with regulatory coordination and oversight.

Where both federal and provincial EAs are required, both levels of government have several procedures, formal and informal, to coordinate their respective process to reduce duplication and have one EA satisfy both processes (e.g., the Canada Wide Accord of Environmental Harmonization and the Sub-Agreement on Environmental Assessment). In Newfoundland and Labrador, the CEA Agency and the Department of Environment and Conservation (DOEC) Environmental Assessment Division typically work together closely to coordinate government work plans, review schedules, consultation and ministerial decisions.

1.5.2 Provincial

Newfoundland and Labrador

All mining projects in Newfoundland and Labrador are subject to environmental assessment under the *Environmental Protection Act* and *Environmental Assessment Regulation*; therefore, the Project will first enter the environmental assessment process via Project Registration with the provincial DOEC. The Environmental Assessment Division of the DOEC administers the process including:

- consulting at every stage with interested government departments and the public;
- evaluating submissions by proponents and reviewers;
- advising the Minister on potential environmental effects prior to decisions; and
- monitoring released projects to ensure compliance and effectiveness of mitigation.

An undertaking that is subject to the Act is required to be registered for examination by DOEC. The registration outlines the proposed project and describes how it will affect the bio-physical and socio-economic environment. Proponents must demonstrate in the registration document how the best practicable technology and methods will be used to minimize harmful effects.

At the conclusion of the review period, the Minister advises the proponent whether the undertaking will require an Environmental Preview Report (EPR), an Environmental Impact Statement (EIS), or if the undertaking has been released or rejected.

The Project will be registered with the Province, which will circulate the document (within seven days) to over 20 agencies and interested parties including relevant provincial and federal departments, as well as post it on the internet for public review. Federal agencies such as DFO, Environment Canada (including Canadian Wildlife Service (CWS)), Transport Canada, CEA Agency, and possibly others, receive the Project Registration. Even if a federal environmental assessment is not required, federal agencies may provide expert review through the provincial process. Registrations for projects in Labrador are also provided to Aboriginal groups in the Province for their review and comment.

Québec

Section 2(h) of the *Regulation respecting environmental impact assessment and review* prescribes that the provincial environmental assessment process is triggered for:

> *the establishment of a marshalling yard or railway station and the construction of more than 2 km of railway, except where such works are in an industrial park or on the site of a mining operation in existence on 30 December 1980*

Alderon has requested a determination on the requirement from the Ministère du Développement durable, de l'Environnement et des Parcs, Government of Québec regarding whether an EA will be required pursuant to the *Environment Quality Act*, however, an environmental assessment pursuant to Article 31.1 of the *Environmental Quality Act* is not anticipated for the following reasons:

- the concentrate and load-out facility infrastructure is wholly owned by Alderon and is located wholly within Port Authority lands;
- approximately 2.7 km of the rail loop component will be located on Port Authority lands and will be owned by the Port of Sept-Îles. It will be subjected to a federal environmental assessment;
- approximately 300 m of the rail loop component will be owned by Cliffs on lands outside of the Port Authority lands; and,
- the rail loop will be operated by the CFA.

1.5.3 Municipal

The Town of Labrador City is responsible for a variety of municipal services, including:

- maintenance, construction and operation of streets and sidewalks, including snow and ice removal;
- integrated solid waste management;
- potable water treatment and distribution;
- sanitary sewer collection and distribution;
- storm water management and control; and
- fly control and lawn sweeping.

Private developers are responsible for servicing future expansions to the municipal infrastructure such as roads, sidewalks and municipal piped systems for newly designated areas for future development (Town of Labrador City 2010).

The Labrador City Planning Area covers an area greater than 446 km^2 in western Labrador. Almost the entire landmass within the Town's planning area has either commercial mineral reserves or high potential to contain mineral resources that are economically feasible to develop. Because of these valuable mineral reserves, the Council's intent is to protect these areas from development that would hinder future developments of these mineral reserves. All

lands within Labrador City's Municipal Planning Area boundary not falling within other land-use designations are designated Mining Reserve – Rural. Within the designated Mining Reserve – Rural areas, aggregate extraction and related operations may be permitted (Town of Labrador City 2010).

The Wabush Municipal Planning Area covers approximately 428 km² and includes the developed areas of the Town, Scully Mine site and tailings disposal area, Wabush Airport, Wahnahnish Lake Public Water Supply Area, and a very large area of rural lands to the south of the Town. The Town provides full water and sewage service, a volunteer fire brigade, garbage collection, street lighting, snow clearing, neighbourhood playgrounds, and community recreation facilities. All the lands within the Wabush Planning Area other than those designated for urban and other specific purposes are designated as Rural. Within the designated Rural areas agriculture, forestry, open space recreation, and activities connected with the conservation of resources shall be permitted. Uses that are complimentary to these uses – mining and aggregate extraction, cemetery, and outdoor assembly – may also be permitted at Council's discretion (Town of Wabush, no date).

In order to balance industrial development and environmental conservation, the two towns, in cooperation with the provincial Wildlife Division, have defined Wetland Stewardship Zones within the Municipal Planning Areas to protect wetlands. The Habitat Conservation Plans were developed by the towns and Wildlife Division as a guide to govern activities which impact wetlands and waterfowl in order to minimize negative impact within designated Management Units. The Habitat Conservation Plans state that activities within the Management Units will be managed sustainably whereby permitted activities do not result in the loss of wetland habitat or waterfowl populations.

Work has been initiated with the Towns of Labrador City and Wabush to address the effects of the proposed Project on the Wetland Stewardship Zones.

2.0 PROJECT DESCRIPTION

2.1 Labrador Project Components

The Labrador Project components include construction, operation, and closure and rehabilitation of the following fundamental components (Figures 3 and 4):

- open pit (Rose Pit);
- waste rock disposal areas (Rose North and Rose South);
- processing infrastructure including a crushing and grinding circuit, spiral plant, magnetic separation, and tailings thickener;
- TMF;
- ancillary infrastructure to support the mine and process plant (gate and guardhouse, reclaim water pumphouse, truck wash bay and shop, electrical substation, explosives magazine storage, administration / office buildings, maintenance offices, warehouse area and employee facilities, conveyors, load-out silo, stockpiles, sewage and water treatment units, mobile equipment, and transmission lines); and
- a rail transportation component including spur line construction to connect the mine site to the QNSL Railway.

The Project will produce up to 16 million metric tonnes of iron ore concentrate from the mine per year and will ship concentrate to market via the Port of Sept-Îles facilities at Pointe-Noire, Québec. Ore processing will generally involve the following steps:

- ore will be mined from an open pit using conventional drill and blast techniques and transported via haul trucks;
- ore will be processed in two independent lines each having a capacity of eight million tonnes per year;
- ore will be hauled to one of two primary crushers nearby the Rose Pit and the crushed ore will be delivered to the crushed ore storage area and to the process plant via a series of conveyors;
- the process plant will include two lines of grinding, and screening, gravity and magnetic concentration;
- tailings from the two processing lines (process waste) will be pumped and deposited sub-aerially in the TMF located south of the process plant; and
- iron ore concentrate will be loaded onto rail cars for transportation to the Port of Sept-Îles where it will be transferred to ships for delivery to market.

Figure 3 Mine and Associated Infrastructure

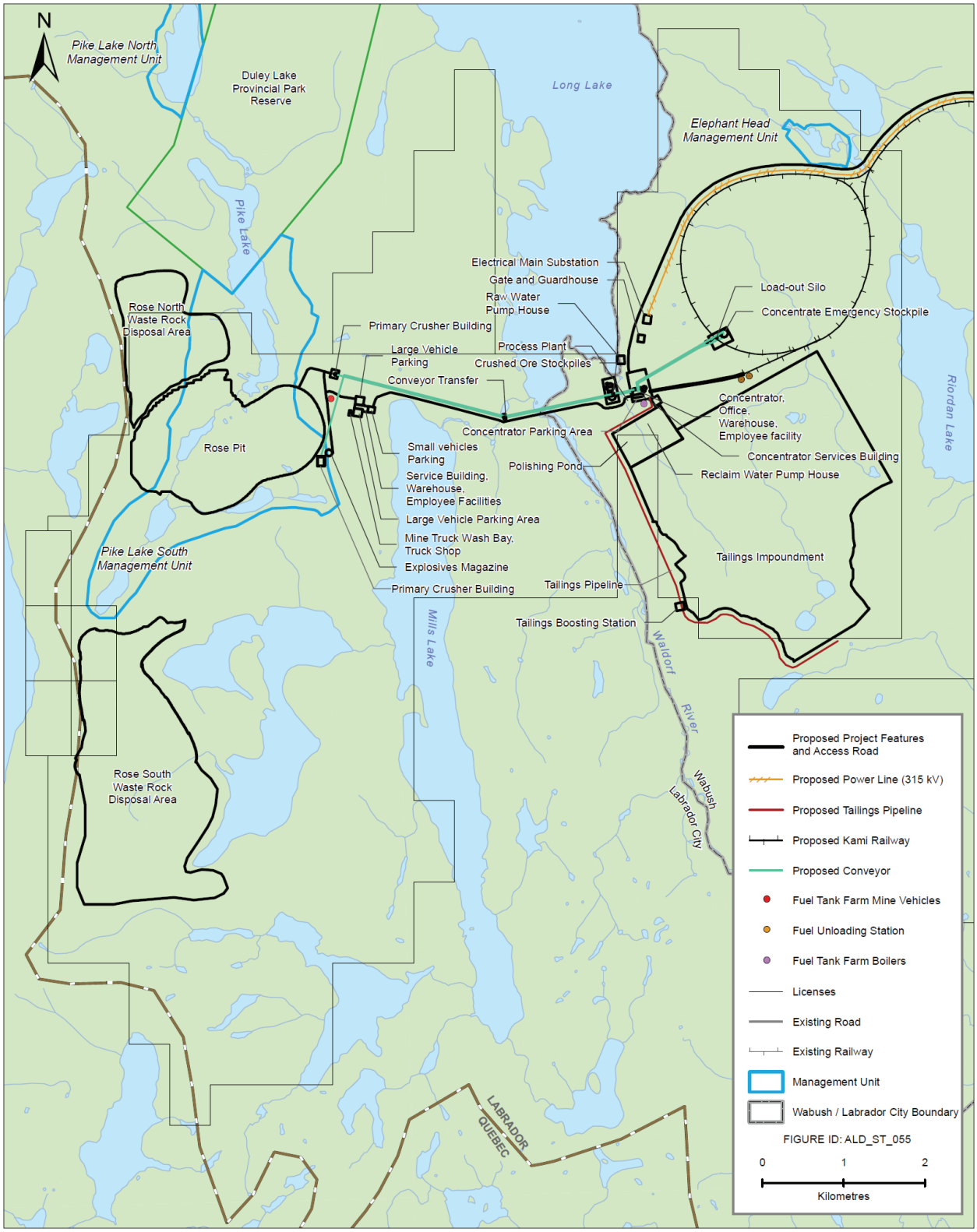
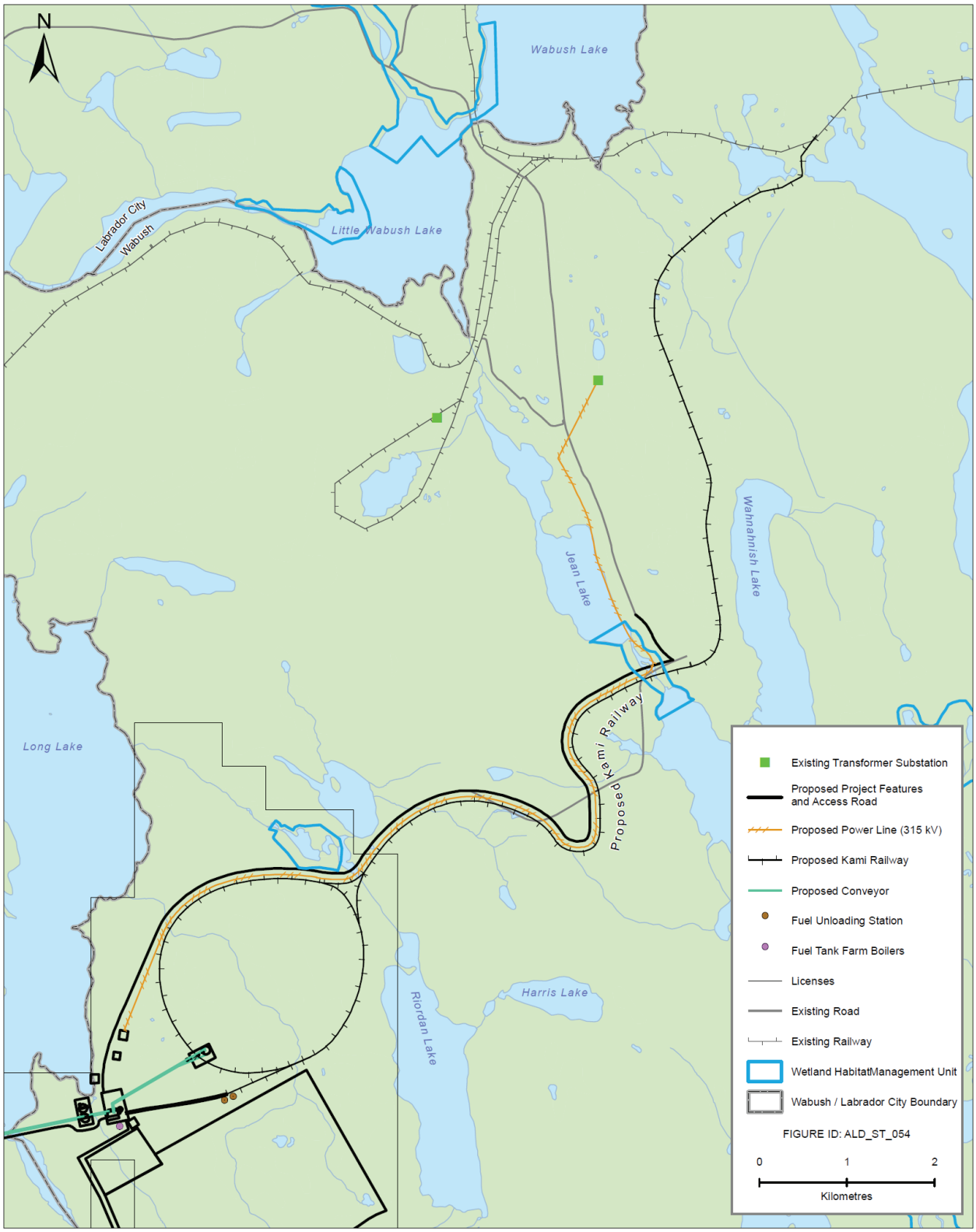


Figure 4 Rail Transport Infrastructure



All components will be permitted, constructed, operated and decommissioned in accordance with governing federal, Province of Newfoundland and Labrador, and industry regulations and standards.

In addition to the Labrador Project components, Alderon will operate a Port loading and storage facility in Sept-Îles, Québec, which will be permitted, constructed, operated and decommissioned in accordance with the governing federal, Province of Québec, and industry regulations and standards (Kami Concentrate Storage and Load-Out Facility, Québec).

2.2 Land Holdings

The property is mainly located in Labrador, however, a group of contiguous licenses are also held in Quebec in order to cover mineral rights along the provincial borders which cross the west side of the property. For the purposes of this study, all mining and processing operations will take place in the Province of Newfoundland and Labrador. The Property in Newfoundland and Labrador is registered to Alderon. The total area of the Property is nominally 7,750 ha; however, some of the claims in Labrador and Québec overlap slightly. The Property in Labrador comprises three map-staked licenses, namely 015980M, 017926M and 017948M totaling 305 claim units covering 7,625 hectares. License 015980M replaced licenses 014957M, 014962M, 014967M, 014968M and 015037M. Licenses 017926M and 017948M were added to the Property in 2010.

The Property in Québec consists of five map-staked licences covering a nominal area of 125 hectares. No Project activities are projected to occur within these areas.

Surface rights on the acquired lands are held by the provincial governments, but may be subject to First Nations Rights. Table 2 provides details of the current mineral land holdings in Labrador.

Table 2 Alderon Licences in Labrador

Licence	Claims	Area (ha)	NTS Areas	Issuance Date	Renewal Date	Report Date
015980M	191	4,775	23B1423B15	Dec 29, 2004	Dec 29, 2014	Feb 28, 2011
017926M	92	2,300	23B15	Aug 30, 2010	Aug 30, 2015	Oct 31, 2011
017948M	22	550	23B15	Sep 10, 2010	Sep 10, 2015	Nov 09, 2011
Total	**305**	**7,625**				

2.3 Labrador Project Components Location and Proximity

The Labrador Project site is approximately 10 km from the Towns of Wabush and Labrador City, Newfoundland and Labrador and east of the Town of Fermont in Québec. All mining and processing activity will take place wholly within Labrador.

2.3.1 Proximity to Other Projects

Other operating mines and their proximity to the Labrador Project site include:

- Cliffs' Wabush Mines mining lease comprising of one map-staked licence, 015980M, totaling 191 claim units covering 4,775 hectares, which is approximately 6 km northwest of the property.
- Cliffs' (formerly Consolidated Thompson) Bloom Lake Mine is located approximately 30 km west.
- IOCC's Carol Project is located approximately 30 km north.
- Arcelor Mittal Mont-Wright Mining Complex is located approximately 27 km west.
- Arcelor Mittal Fire Lake Mine is located approximately 60 km southwest.

2.3.2 Proximity to First Nations Reserves, Traditional Territory and Lands and Resources Currently Used by Aboriginal Persons

There are five Aboriginal groups with asserted land claims or traditional territory in proximity to the Labrador Project site. These are the Innu Nation of Labrador, NunatuKavut (formerly Labrador Metis Nation), Innu of Uashat mak Mani-Utenam, Innu of Matimekush-Lac John, and the Naskapi Nation of Kawawachikamach.

The Innu Nation of Labrador claim Aboriginal rights and title to lands in Labrador. The federal government accepted Innu Nation's land claim for negotiation in 1978 and signed a Framework Agreement with Innu Nation and the Government of Newfoundland and Labrador in 1996 (Labrador and Aboriginal Affairs 2010). In September 2008, Innu Nation and the Province signed the Tshash Petapen Agreement (New Dawn Agreement) which included the Land Claims Agreement-in-Principle. The Tshash Petapen Agreement was ratified by the Innu Nation membership in June 2011. The Project is located outside of Category I, II, and III lands and the economic development zones identified in the Tshash Petapen Agreement(Tshash Petapen Agreement 2008).

The closest Innu Nation community, Sheshatshiu, is located approximately 450 km east of the Labrador Project site. Contemporary land use of the Labrador Project area by members of Innu Nation will be identified through Alderon's ongoing Aboriginal Consultation Program.

NunatuKavut (formerly Labrador Metis Nation) is administered by the NunatuKavut Community Council (NCC). While the NCC has had an asserted land claim in Labrador since the 1980s, this claim has not been accepted for negotiation by the federal or provincial governments (NCC 2011a). The boundary of the asserted NunatuKavut traditional territory includes central, western, and southern Labrador. This territory includes the communities of Labrador City and Wabush (NCC 2011b), located approximately 10 km east of the Labrador Project site.

The Innu First Nation of Uashat mak Mani-Utenam is located on two separate reserves in and near Sept-Iles, Québec. Their traditional territory, which is shared with the Innu of Matimekush-Lac John, stretches from the Québec North Shore to north of Matimekush-Lac John,

encompassing much of western Labrador and eastern Québec. Although the Innu of Uashat mak Mani-Utenam engage in traditional activities (e.g., hunting, fishing) within this large traditional territory, activities are mainly practiced along the coast of the St. Lawrence River, at the mouth of rivers and along Route 138 (Uashaunnuat et al. 2010).

The Innu First Nation of Matimekush-Lac John is located on two reserves near Schefferville, Québec, approximately 200 km north of the Labrador Project site. Based on the Conseil Attikameks - Montagnais (CAM) land use and occupancy study, contemporary activities take place in all areas surrounding the two Reserves.

The Innu of Uashat mak Mani-Utenam and Matimekush-Lac John have an asserted land claim in the area, although they do not currently have a land claims agreement. In 2006, the Ashuanipi Corporation was created to represent the Innu of Uashat mak Mani-Utenam and the Innu of Matimekush-Lac John in their land claims negotiations. Although the negotiations have been ongoing since 2006, and the parties have agreed on a negotiation process, an Agreement-in-Principle has yet to be signed (Secrétariat aux affaires autochtones 2010). Family trap lines which overlap with the Labrador Project site are identified in the Saguenay Beaver Reserve documentation (CAM 1983).

The Naskapi Nation of Kawawachikamach (NNK) Reserve is located near Schefferville, Québec, approximately 240 km north of the Labrador Project site. The NNK have a settled land claim within the Province of Québec through the signing of the Northeastern Québec Agreement in 1978. This Agreement outlines NNK's traditional territory within Québec which occupies northern Québec, south to Fermont (NNK 2011). Contemporary land and resource use occurs throughout the lands set out in the Northeastern Québec Agreement although some travel routes and campsites have been identified along the Trans Labrador Highway (Henriksen 1978; CAM 1982).

2.4 Construction Activities

To prepare for the surface site works, Alderon will use its sustainable development framework to develop protocols to facilitate the execution of the proposed works in an environmentally responsible and safe manner.

General construction activities for the Labrador Project components will include:

- site preparation (e.g., includes clearing of vegetation and excavation);
- construction of infrastructure;
- installation of utilities; and
- commissioning.

The areas requiring site surface preparation will be the waste rock disposal areas, the process plant and concentrator site, railway and roads, crushed ore stockpile, and the TMF. Site grading is required to support the installation of the required site facilities. This work will include the installation of all necessary sedimentation and erosion control measures, including drainage

infrastructure. Ongoing monitoring will occur under Alderon's sustainable development framework.

The sections below outline construction activities surrounding the planned infrastructure for the Labrador Project components as presented on Figure 3. It should be noted that during the construction activities, workers will not be housed on site.

The Process Plant will consist of a two-line concentrator. Construction strategy provides for the start of construction on process line 1 first. As trades complete the work on line 1, workers will be transferred to work on line 2. Thus no demobilization of trades is planned. Line 1 will therefore be completed ahead of line 2.

2.4.1 Roadways

Roadway construction and/or modifications will be undertaken as listed below:

- The access road to the property will be through a new road replacing the existing road starting from 31 Street, Wabush, NL to the property line (length of approximately 6 km, width of 6.8 m). The access road will be available for traffic to site as well as local traffic accessing private property. For safety reasons, the road will avoid crossing the Kami railway.
- Route 503 (Grenfell Drive in Wabush, NL) will not need modifications.
- The on-site road to the concentrator area will be south of Elephant Head Management Unit (refer to Figure 3) and east of Long Lake from the property line to concentrator (approximately 5 km long and 7 m wide).
- Road access from the concentrator to the two crusher locations and to the mine services building crosses the narrowest point south of Long Lake (approximately 4 km long and 7 m wide).
- There will be a road from the fuel unloading station to the concentrator (approximately 1 km long and 7 m wide).
- A truck weigh scale will be installed at the gate and guardhouse.
- Parking for employee vehicles and other light service vehicles will be in proximity of the concentrator building as well as the mine services building, while parking for mine trucks and heavy equipment will be located in proximity of the mine garage.

2.4.2 Site Buildings

As presented on Figure 3, there are various buildings across the site, including: Gate and Guardhouse, Raw Water Pumphouse, Mine Truck Wash Bay / Truck Shop, Administration Offices, Maintenance Offices, Warehouse Area and Employee Facilities, Electrical Main Substation, Mine Service Building Warehouse and Employee Facilities, Explosives Magazine, and the Reclaim Water Pumphouse. Details on the construction activities associated with these buildings are presented below. The Primary Crushers, Process Plant, and Services buildings are detailed under a separate section.

In general, major building structures will be made of steel with pre-painted steel cladding. Concrete foundations will consist of spread footings however a more detailed geotechnical survey will determine if piling will be required. Secondary buildings will be of pre-engineered or prefabricated type when applicable. Temporary buildings and warehousing will be of "sprung" structure type.

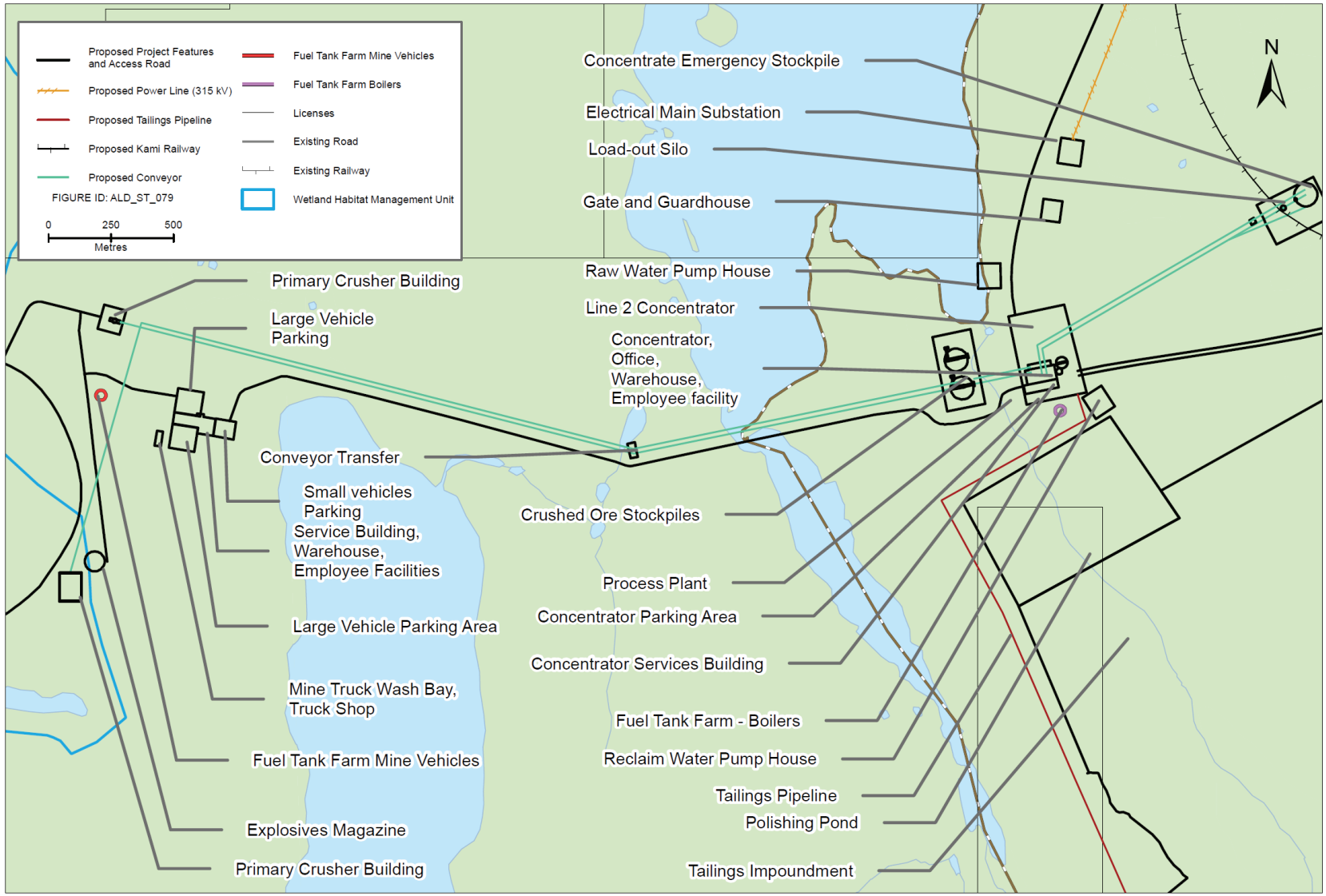
- The Gate and Guardhouse will be located at the site entrance.
- The Raw Water Pumphouse will be used to pump water to the Concentrator, an approximate distance of 460 m. The associated pipeline will run above ground. The Raw Water Pumphouse will be located near the Process Plant, south of Long Lake.
- The Mine Truck Wash Bay / Truck Shop is located east of the Rose Pit, and near the Mine Service Building Warehouse and Employee Facilities. This building will be used as a truck washing station and tire shop and an oil / water separator will be installed in the floor.
- The Administration and Maintenance Offices and the Warehouse Area and Employee Facilities will be located adjacent to the Concentrator Services Building.
- The Electrical Main Substation will be constructed to house the various electrical components and will be located at the site entrance, adjacent to the gate and guardhouse.
- The Mine Services Building Warehouse and Employee Facilities will be comprised of a six-bay mine truck shop (expandable to ten bays), a warehouse area, and a light vehicle maintenance area.
- The Reclaim Water Pumphouse will pump water from the TMF polishing pond to the Concentrator. The associated pipeline will run above ground.
- An appropriately permitted Explosive Storage Magazine will be located near the mine and installed and monitored by licensed explosive vendors / contractors. All transportation of explosives will be done in accordance with applicable regulations.

2.4.3 Primary Crusher Building, Crushed Ore Stockpile, Process Plant and Concentrator Services Building

The locations of the Primary Crusher Buildings, the Crushed Ore Stockpile, the Process Plant, and the Concentrator Services Building are presented on Figure 5, and details are presented below:

- The Primary Crusher Buildings are located in proximity of Rose Pit but in two separate locations in order to optimize haul truck travel distances. The above ground portion of each Primary Crusher consists of a steel framed construction building with concrete foundations measuring approximately 42 m long x 13 m wide x 18 m high (9,828 m^3) in size. The underground portion of each Primary Crusher is enclosed within a concrete structure, measuring approximately 20 m long x 13 m wide x 27 m high (7,020 m^3).

Figure 5 Locations of Processing Facilities



- The outside Crushed Ore Stockpile will be located west of the concentrator, as presented on Figure 3 and 5. Each of two overlapping stockpiles will have a total capacity in the order of 110,000 tonnes, and the footprint will be approximately 5,400 m^2 with an approximate height of 29 m. Each is fed by an independent conveyor.
- The Process Plant consists of a two-line concentrator, each within a separate building and ancillary process areas including, but not limited to, two thickeners, two tailings pumping lines (one per process line), one boiler house supplying steam to the two process lines, and one laboratory. The buildings are of steel framed construction with concrete foundations each measuring approximately 55 m long x 120 m wide x 29 m high (191,400 m3) in size. The process plant location was determined in considering a relatively short concentrate conveyor to minimize concentrate heat lost during winter and proximity to the tailings pond in order to minimize capital and operating costs for tailings disposition.
- The Concentrator Services Building, located adjacent to the Process Plant, houses a trailer type employee facility and a sprung structure in which there are the metallurgy and chemical lab. The adjacent boiler room and compressor room are pre-engineered buildings.

2.4.4 Conveyors

Crushed ore will be conveyed from the two crushers to a crushed ore storage area using a series of conveyors. Each crushing line will have a Crusher Conveyor and Transfer / Stacking Conveyors. Each Crusher Conveyor will be constructed approximately 1.5 m wide by 2,130 m long. Each crusher Conveyor will have a capacity of approximately 4,500 tonnes per hour (t/h). The Transfer / Stacking Conveyor will be constructed approximately 1.5 m wide by 1,336 m long, each with a capacity of approximately 4,500 t/h.

Crushed ore will be reclaimed from the stockpile area and conveyed (via the Reclaim / Mill Feed Conveyor) to each of the two Autogenous Grinding (AG) mills. Each Reclaim / Mill Feed Conveyor will be constructed approximately 1.5 m wide by 342 m long with a capacity of approximately 3,500 t/h.

Concentrate will be conveyed by two Conveyors (one for each process line) to one load-out (the load-out silo). Each conveyor measures approximately 1.0 m wide by 1,115 m long, with a capacity of approximately 1,500 t/h.

In addition to the main conveyors listed above and presented on Figure 5, there will be various other small conveyors located within the grinding and screening area, the spirals area, the magnetic concentrator area and the concentrate conveying and load-out area.

2.4.5 Security Fencing

Security fencing will be installed at locations, as required, to be determined during the feasibility stage.

2.4.6 Water Supply

There will be three requirements for water supply to the site:

- Shower / Toilet Water Supply – this water will be extracted from groundwater wells installed to facilities where required, such as near the Mine Truck Wash Bay / Truck Shop and the Concentrator Services Building.
- Potable Water Supply – water treatment units will be installed on site to treat groundwater from wells for the potable water supply. There will be potable water and hot water tanks for peak requirements.
- Process and Fire Suppression Water Supply (Surface) – It is planned that the mine and process plant water supply will be extracted from Long Lake and stored in water reservoirs at the plant prior to use. Water will also be reclaimed / recycled where possible from the TMF. Water will be kept pressurized at the pumping station for fire suppression.

Details on the Process Water Balance are presented in Section 2.5.2.

2.4.7 Power

The Kami mining and concentration operation will have a power demand in the order of 100 to 120 MW. The main substation on the Kami property will be located approximately 16 km from the Labrador West main substation, i.e., the Wabush Terminal Station (WTS), 230-46 kV.

Emergency power will be provided by four diesel powered gensets. Two 1,200 kW units will be required for the concentrator, one 800 kW for the crusher and one 800 kW for the mine garage and offices.

- Electrical power supply will include a direct tap-off at 230 (or 315) kV off the tie line between neighbouring networks and will involve the construction of a 230 kV line, 13.7 km long, on wooden poles, equipped with a 795 MCM, Aluminum Conductor Steel Reinforced
- Construction of a 230-34.5 kV main substation at the Kami site, equipped with one 230-34.5 kV, 54/72/90/100 MVA main transformers with +10%/-15% OLTC.

Initial power for construction will be provided by diesel generation.

2.4.8 Railway Infrastructure

The Rail Spur will consist of a single main track along with a loop at the loading facility. Setoff tracks for minor freight car repair, spare car storage and diesel fuel delivery will be required at the mine site. In all, 17 km of main track and loop, and 7 km of interchange are planned to fulfill the needs of the mine. The preferred option will leave the QNSL at Mile 34 Northernland Subdivision and run in a southerly direction east of the townsite of Wabush. Once south of the townsite, the line will run southwesterly to the Kami mine site. The preferred alignment does not

require interaction with the other local railways (Bloom Lake Railway, Wabush Lake Railway) which are owned by Cliffs.

2.5 Operation and Maintenance Activities

Ore will be recovered from the open pit using drill and blast methods and transported via haul trucks and a conveyor belt to the on-site process plant. Processing will be completed on site and the final concentrate hauled, via rail, to a port site for shipment to market. The plant site will consist of a crushing and grinding circuit, spiral plant, magnetic separator, and tailings thickener.

It should be noted that during the operation activities, workers will not be housed on site.

The following sections provide details on the on-going operational and maintenance activities across the site. There will be full time maintenance employees as indicated in Table 6 showing the staffing plan. These personnel will perform general on-going maintenance at the Concentrator and across the site.

2.5.1 Open Pit

Bench Geometry

Each open pit excavation will be created using drill and blast methods, using the following general bench geometry:

- Overburden slopes shall be unbenched
- Bench Heights in Rock are presented in Table 3
- Bench Face Angles in Rock are presented in Table 4

Table 3 Pit Design for Type 1 Slopes, All Wall Orientations, and Type 2 Slopes, Hanging Wall Orientation

BENCH GEOMETRY PARAMETER	
Maximum Bench Angle	75°
Maximum Inter-Ramp Angle	50°
Bench Height	14 m
Minimum Bench Width	8 m
Safety Bench Width	12 – 14 m

Table 4 Pit Design for Footwall Slopes in Type 2 Rocks (Bedded / Foliated Rock Formations)

BENCH GEOMETRY PARAMETER	DIP OF BEDDING / STRATA		
	75o	55o	40o
Max. Bench Angle	75°	55°	40°
Max. Inter-Ramp Angle	50°	43°	33°
Max. Bench Height	14 m	28 m	35 m
Minimum Bench Width	8 m	10 m	12 m
Safety Bench Width	12 – 14 m	12 – 14 m	14 – 16 m

The design for pit slopes in overburden material is as follows:

- Allowance for a water diversion bench at the overburden crest
- Unbenched slope of 3H:1V
- Rationale: 2H:1V is too steep for long term stability without knowing details regarding the overburden
- Allowance for a safety bench at the interface between overburden slopes and top of bedrock

Maintenance and operation activities at the open pit may be summarized as follows:

- Control of precipitation and groundwater – in-pit sumps and, potentially, pit-perimeter dewatering wells will be required to control water entering the pit. Collected water / effluent will be pumped out of the pit to an engineered settling pond for treatment of suspended solids and residual chemistry from blasting operations prior to release.
- Haulage road maintenance – winter snow clearing and traction control (gravel) will be required as well as summer dust suppression (water). Occasional grading and leveling of these roads will be required.
- Access road maintenance – winter snow clearing and traction control (sand) will be required as well as summer dust suppression (water). Occasional grading and leveling of the access roads will be required.
- Diversion ditching – surface runoff diversion ditching will require regular inspection and occasional maintenance. During maintenance, cleanout and grading, drainage water will be pumped to an effluent treatment system (settling pond) prior to release.
- Dust Suppression – in addition to dust associated with access roads, dust will be suppressed at the open pit and other exposed areas as required.

2.5.2 Processing

The annual concentrate production tonnage for the Kami Iron Ore Mine is estimated to be up to 16.0 Mt/y. To achieve the targeted concentrate production, a total of 42.4 Mt/y of crushed ore must be fed to the grinding circuit. This generates a quantity of tailings in the order of 13.2 Mt/y

which can be classified into coarse and fine fractions using +/- 100 µm as a classification parameter. For design purpose, a variation of +/-15% from nominal tonnages was considered.

The process flowsheets (PFS) for only one line are presented in Figures 6 through 8 and water balance, also for only one line, is presented in Figure 9. One line has a production capacity of 8.0 Mt/y.

General Process Description and Plant Design

The general process and plant design criteria for the concentrator are based on the following:

- The general location of the crushers, stockpile, concentrator, load-out, TMF, fresh water source and other infrastructure are shown on the general site plan presented in Figure 3.
- Ore is crushed using two gyratory crushers. Crushed ore is stored in conventional, opened stockpiles reclaimed by two lines of apron feeders onto each of two AG mill feed conveyors.
- The opened stockpiles will each have a 26,000-tonne live capacity which will be sufficient to sustain 9 hours of operation. The total capacity of each stockpile will be in the order of 110,000 t, sufficient to maintain an uninterrupted feed to the grinding circuit for up to 46 hours to permit major repairs to be undertaken on the crushers.
- Primary grinding is done with two dual-pinion AG mills (one per process line) with a variable speed, active front-end type electric drive.
- Mill discharge is screened using a two-stage screening circuit. Oversize from the primary screens and the secondary “banana” screens is recirculated to the AG mill.
- The flow sheet is based on a three-stage spiral gravity concentrating circuit followed by Low Intensity Magnetic Separation (LIMS) cobbing of the spiral circuit tailings. The LIMS concentrate is reground in a ball mill and further concentrated in a magnetic separation plant for magnetite recovery.
- Concentrate from the spiral circuit, dewatered using pan filters, and concentrate from the magnetic circuit, dewatered using disc filters, are combined and directed to a train.
- load-out silo.
- Dewatered tailings are directed to the tailings pumping system for final disposal to the tailings impoundment area.

Concentrator operations are based on a 365 days per year operation with an overall plant utilization of 90%. With reserves delineated at the time of Project registration, mine life is expected to be approximately 15 years. General maintenance will be on-going and inspections will be scheduled monthly, quarterly or annually, as required.

Figure 6 Process Flow Diagram Crushing and Crushed Ore Storage

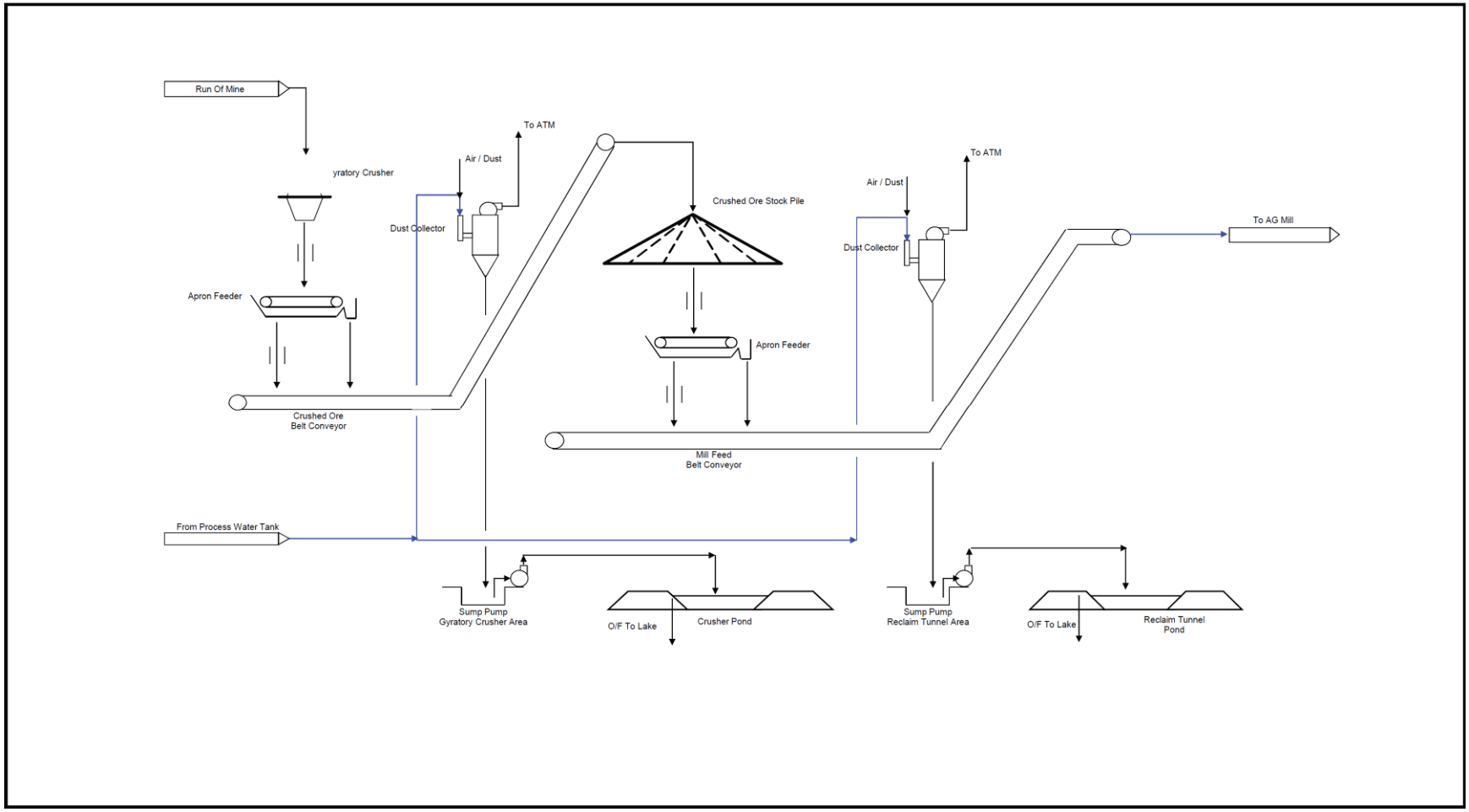


Figure 7 Process Flow Diagram Grinding, Screening and Gravity Concentration

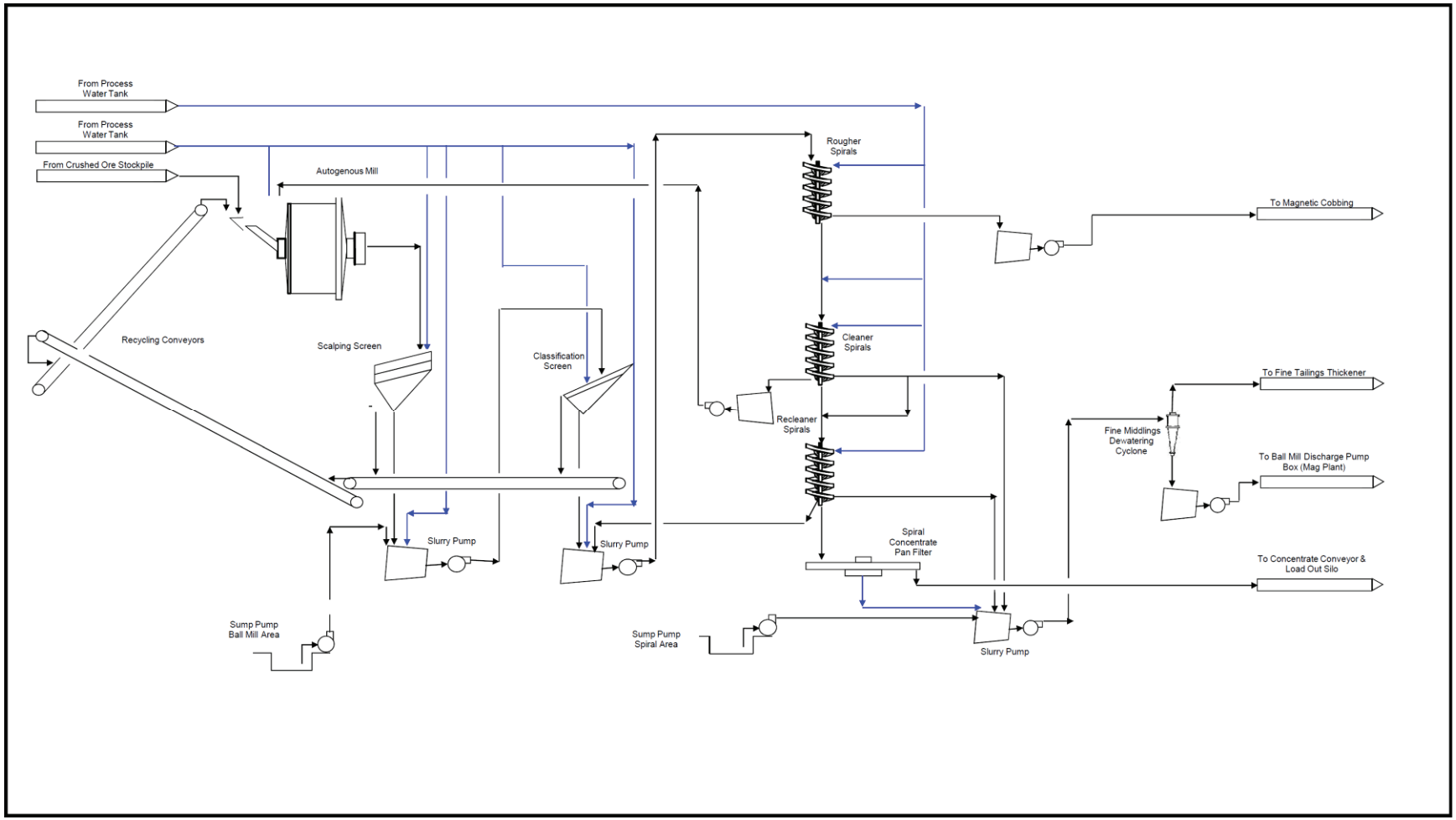


Figure 8 Process Flow Diagram Regrind and Magnetic Separation Plant

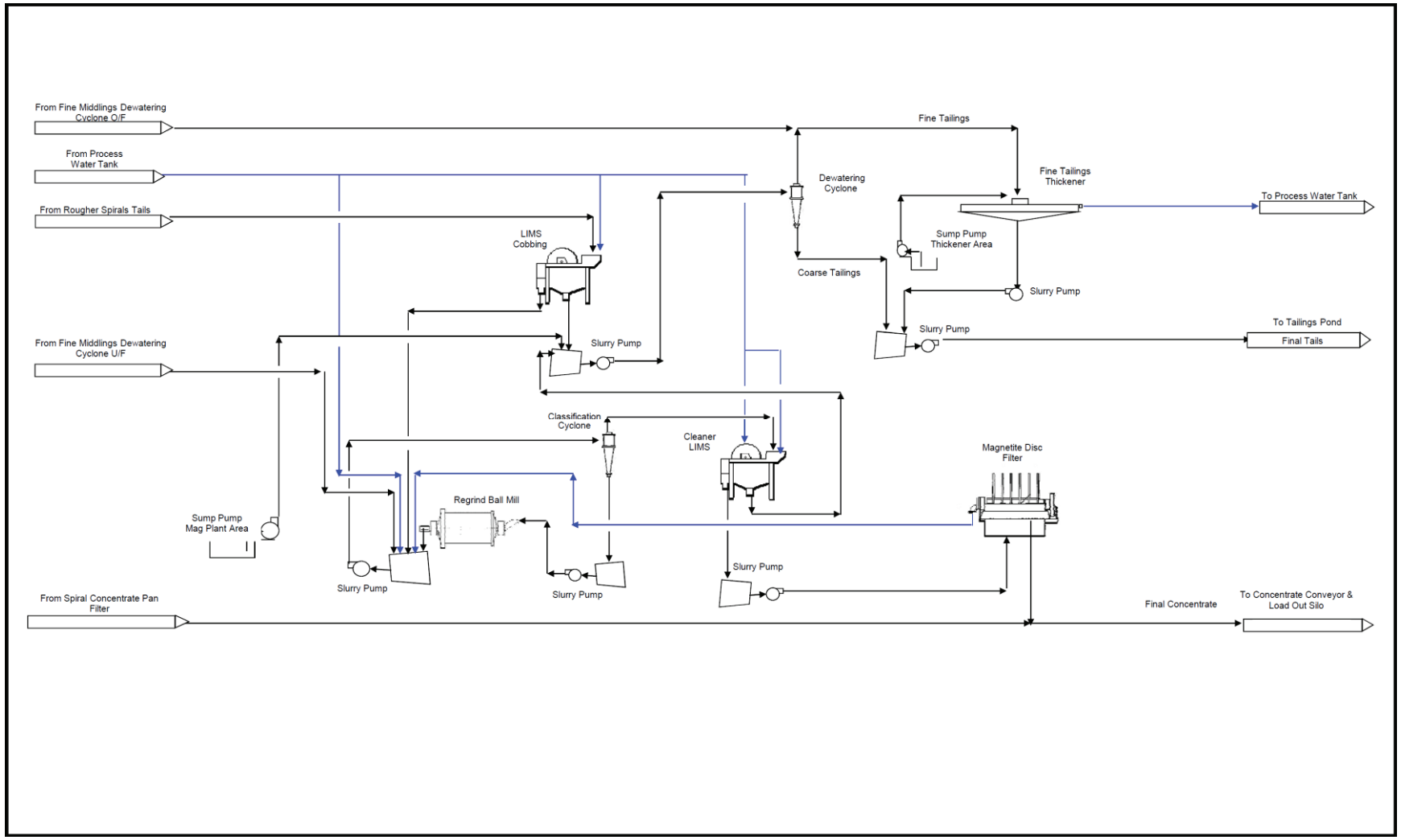
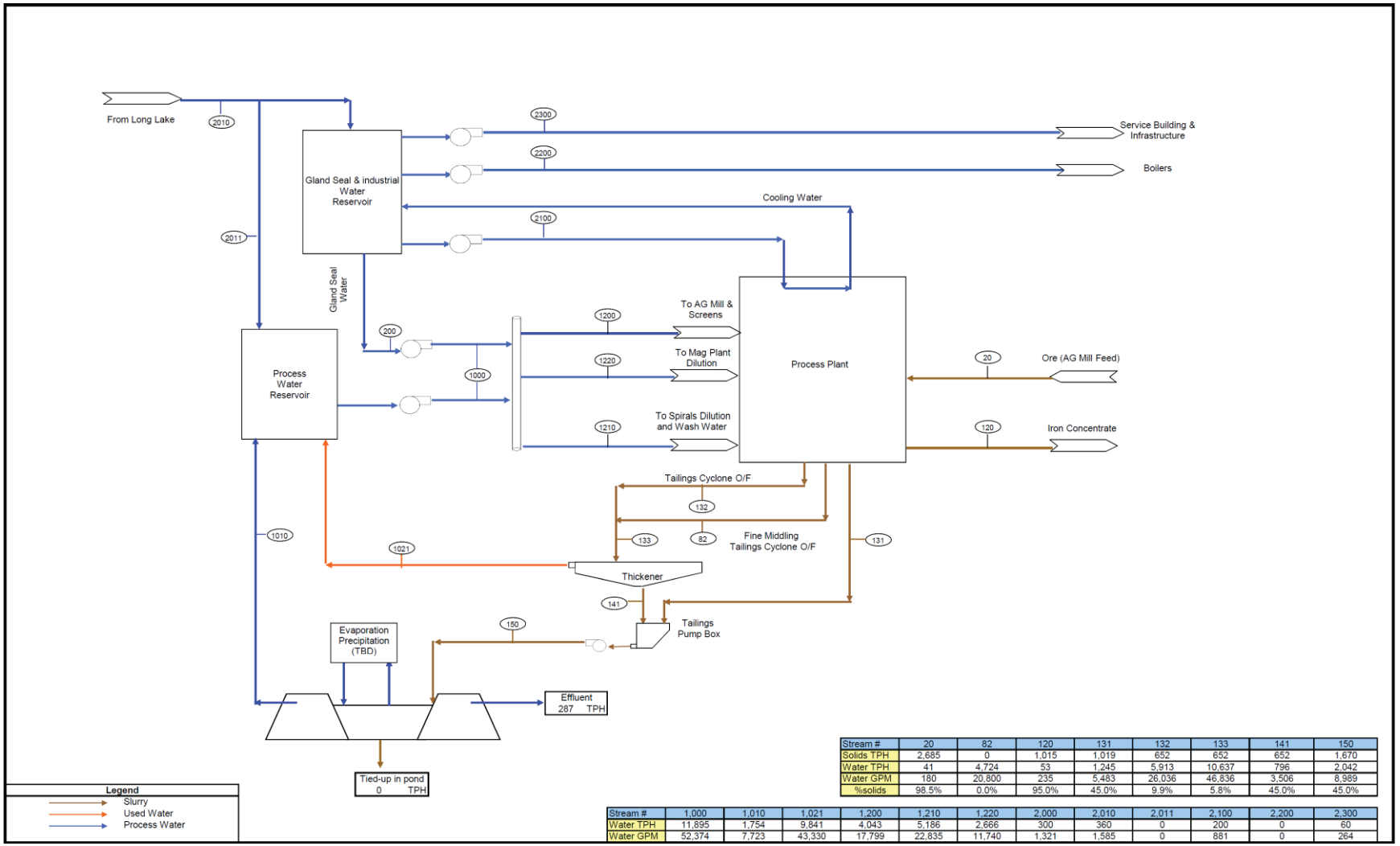


Figure 9 Process Flow Diagram General Process Water Balance



Stream #	20	82	120	131	132	133	141	150
Solids TPH	2,685	0	1,015	1,019	652	652	652	1,670
Water TPH	41	4,724	53	1,245	5,913	10,637	796	2,042
Water GPM	180	20,800	235	5,483	26,036	46,836	3,506	8,989
%solids	98.5%	0.0%	95.0%	45.0%	9.9%	5.8%	45.0%	45.0%

Stream #	1,000	1,010	1,021	1,200	1,210	1,220	2,000	2,010	2,011	2,100	2,200	2,300
Water TPH	11,895	1,754	9,841	4,043	5,186	2,666	300	360	0	200	0	60
Water GPM	52,374	7,723	43,330	17,799	22,835	11,740	1,321	1,585	0	881	0	264

2.5.3 Conveyers

Crushed ore will be conveyed from the crushers to the stockpile using a series of conveyors; a crusher conveyor and transfer / stacking conveyors. For each process line, crushed ore will be reclaimed from the corresponding stockpile and conveyed (via the reclaim / mill feed conveyor) to the autogenous grinding (AG) mill feed chute. Concentrate will be conveyed from the concentrator to the load out silo or to the concentrate emergency stockpile. Details on widths and lengths of the conveyors are provided in Section 2.4.4.

In addition to the main conveyors listed above and presented on Figure 5, there will be various other smaller conveyors located within the grinding and screening area, the spirals area, the magnetic concentrator area and the concentrate conveying and load-out area.

2.5.4 Fuel Unloading Station

Fuel for the mine trucks and the boilers will be transported by rail from Sept-Îles. Once on-site it will be unloaded from an extension of the rail spur into four unloading and storage tanks depending on fuel type. The above-ground storage tanks (ASTs) for the mine truck diesel fuel will have a two week storage capacity consisting of four 700,000 liter reservoirs, two located at the unloading station and two at the mine. A fueling station will be provided in proximity of the fuel tanks at the mine.

ASTs for the boilers will have a nominal 10 day storage capacity consisting of four 500,000 liter reservoirs, two located at the unloading station and two at the concentrator in proximity of the boiler house.

Fuel will be transferred from the unloading / storage reservoirs by tanker truck (by contractor) to the boiler house tanks and/or to the mine fueling station.

All ASTs will be equipped with secondary containment and installed as per the *Gasoline and Associated Products* (GAP) *Regulations* (2003).

2.5.5 Tailings Management Facility

Tailings will be dry-stacked, and sub-aqueous deposition is not proposed or required. The total tailings production has been estimated to be 410 Mt. Based on preliminary calculations, this quantity corresponds to a total volumetric storage requirement on the order of 190 million m^3.

The TMF will have a design capacity for 140 million m^3. This equates to approximately 12 years of storage capacity. The remaining 50 million m^3 will be disposed of in an exhausted area of Rose Pit during the final 4 years of operation.

The tailings will be dewatered at the mill by way of dewatering cyclones used to separate the coarse fraction from the fine and to perform a primary dewatering step. The fine fraction reporting to the cyclone overflow is low in %-solids and is directed to one of two thickeners (one per process line) for further dewatering. The resultant tailings will have an estimated 45% solids

content by weight. The tailings solids reporting to the impoundment will have a gradation representative of silty sand with an estimated D50 of 150 to 200 µm.

The drained density of the tailings in the impoundment will depend on grain size, specific gravity and discharge / placement method. The specific gravity of the tailings solids has been estimated to be 3.00. A range of void ratios from 0.5 to 0.7 have been estimated based on published values and previous experience.

It is anticipated that the tailings supernatant will be inert, with negligent metal and chemical levels. The potential water quality issue of colloidal Total Suspended Solids (TSS) or “red water” is common to iron ore mines in western Labrador. Flocculant and coagulant will be used in the thickening of fine tailings prior to tailings discharge to the TMF.

General Layout

The proposed location of the TMF was chosen for the large available area south of the plant site that is necessary for the chosen sub-aerial deposition method, for the minimal environmental / wetland impact and for the favourable topography. The gently undulating topography of this site creates natural valleys which shall be exploited for much of the impoundment capacity.

The tailings containment structures will consist of rockfill starter dams / dykes with low permeability till cores. Progressive raising of the tailings area will be completed by advancing the containment wall upstream using the coarsest fraction of tailings solids. In this upstream raising method, material is moved from the tailings beach and used to construct progressive lifts over the deposited tailings. An advantage of this construction method is that the required volumes of borrow material are minimized and use / storage of tailings solids is maximized, and with proper deposition management (spigotting) material movement requirements are minimized.

It is recommended that tailings discharge be initiated in the southern region, at the highest elevation and the furthest distance south from the mill. This approach will ensure that tailings drainage will consistently be directed northeastwards, following the natural drainage path of the surrounding topography. Initiating deposition in this southeasterly area will also allow for progressive rehabilitation of the tailings deposit as the discharge point moves north and eastward.

The thickened tailings will be discharged via spigot and allowed to drain naturally via gravity. The resulting tailings beach shall have a low angle slope towards the north and east suitable for progressive revegetation as the impoundment fills and discharge progresses to the northward.

Particulate will be removed from the tailings water by conventional gravity sedimentation. A settling “pool” will be maintained within the impoundment area. The overflow from the TMF will discharge into a Polishing Pond via surface decant for the natural removal of any particulate carried over from the TMF. Water from the Polishing Pond will be recycled back to the plant process water tank.

Containment Dam / Diversion Dyke Design

The containment dams and diversion dykes will be earthfill structures composed of a low permeability till core supported by a free draining rockfill shell. The low permeability core will control seepage out of the dam and, where necessary, can maintain water levels in the TMF pond area should water quality deficiencies warrant temporary containment.

The till core will have side slopes of 2 horizontal to 1 vertical (2H:1V) and a crest width of 6 m. The rockfill shell will have an upstream slope of 3H:1V, a downstream slope of 2H:1V and a crest width of 10 m. The structures shall be built on competent foundations with any soft organics or deleterious soft alluvium removed from the dam footprint.

The borrow sources for the dam fill material are expected to consist of site sourced till for the core and waste rock generated from pit development or site quarry for the shell. Filter criteria will be applied to ensure protection of the core against seepage erosion. The filter zone requirements will depend on the grain size distribution of the core material.

Seepage Control

Seepage through the containment dams will be controlled by construction of low permeability till cores and by discharging the tailings from the dam crests to form a progressive upstream beach that encourages free water drainage away from the dams towards the TMF area. Any seepage through the dams shall be collected and directed to sump / collection ponds for redirection to the TMF area.

Seepage through the foundation of the containment dams is anticipated to be minimal based on the assumption of bedrock or native till founding strata. As previously noted, any seepage that occurs through the base of the dams will be collected in a sump / collection pond and will be pumped back to the TMF area.

A monitoring well system will be installed downstream of the containment dams to detect seepage quality. As necessary, the detected seepage can be redirected to the tailings impoundment via pumpback wells.

Maintenance and operation activities related to the TMF may be summarized as follows:

- Pipeline and pump station maintenance – from time to time the tailings delivery pipelines and pump stations must be shut down for cleaning and maintenance. As a scheduled activity, fresh water would be pumped through the system prior to system shut down to clear solids, the system would be drained to the Polishing Pond or a small designated settling pond for effluent treatment prior to release via an established effluent discharge point.
- Access road maintenance – winter snow clearing and traction control (sand) will be required as well as summer dust suppression (water). Occasional grading and leveling of the access roads will be required.

- Diversion ditching – surface runoff diversion ditching will require regular inspection and occasional maintenance. During maintenance, cleanout and grading, drainage water will be pumped to an effluent treatment system (TMF or settling pond) prior to release.
- TMF dust suppression – the TMF is designed and will be operated to minimize potential dust lift-off from the tailings deposit. Tailings will be progressively rehabilitated via overburden cover and seeding as quickly as possible to minimize potential dust liftoff.

2.5.6 Waste Rock Disposal Areas

Open pit mining based on the current pit shell optimization is expected to generate on the order of a total of 1,365 MT of waste rock over the life of the mine.

It is estimated that the waste rock volume will swell by 30% due to bulking during excavation and placement. It is understood that the resource estimates are in the early stages and that geological surveys, metallurgical tests, and pit optimizations are continuing, which may alter these estimates. Additionally, there may be revisions occurring in the operational phase due to a number of factors which are presently unknown, including future changes in cutoff grade due market fluctuations with or increases to the mineral resource due to the adoption of technologies able to reduce manganese content in the concentrates.

To permanently store the anticipated volume of barren or uneconomic mineralized rock produced by the development of the Kami deposit, conventional surface waste rock disposal areas are proposed near Rose Pit. Two side-hill fill types are proposed: the Rose North Waste Rock Disposal Area and the Rose South Waste Disposal Area (Figure 3).

The proposed side-hill type waste rock disposal areas are intended to be “designed for closure” using an ascending benched construction sequence that will integrate progressive rehabilitation activities during operations and maximize stability. Waste rock placement will begin at the toe of the disposal areas, and will proceed in a series of lifts up the side of the valley slope, as the development of the mine and mineral processing dictate.

Benches are designed to be 30 m high by 10 m wide with an inter-bench slope angle slightly less than the expected angle of natural repose of the material (36°), resulting in an overall ultimate side-slope of the waste rock disposal area, from toe to crest, of approximately 30°. To prevent stormwater runoff from cascading over the edge of the disposal area, the top surfaces should be sloped with gradients of about 0.5% to the rear of the disposal area.

The ascending construction sequence will allow waste rock disposal area development and progressive rehabilitation to be completed in sections, with clearing and grubbing carried out only on the next section when waste is to be placed, and the placement of overburden / organics and revegetation on the bench and slope of the preceding lift as a progressive rehabilitation measure.

2.5.7 Mining Equipment

Site Preparation and Maintenance

It is anticipated that stripping, stockpile maintenance, and general clean up (around conveyors and stockpiles) will utilize the following types of equipment, or equivalent:

- Shovel Komatsu (PC5500); and
- Wheel Loader (CAT994).

Excavation

It is anticipated that excavation will be conducted with the following types of mobile equipment:

- Shovel (Ore) (Bucyrus 395HR);
- Shovel (Waste) (Bucyrus 495HD); and
- Haulage Trucks.

Ore and waste will be hauled with Komatsu 930E type off-highway trucks, or equivalent, to the primary crusher.

Drilling and Blasting

Drilling will occur for both ore quality and quality control and for blasting purposes. It is anticipated that the drilling will use Blasthole Drill (Bucyrus 49HR) type equipment or equivalent.

Miscellaneous

Various other forms of equipment will be on site for activities such as: waste rock stockpile maintenance, striping as required for various stages of operation, dust control, and TMF maintenance. It is anticipated the equipment involved would include:

- Wheel Dozers (Caterpillar 844);
- Track Dozers (Caterpillar CAT D9 and D10);
- Motor Graders (Caterpillar 16M);
- Water Trucks - 20,000 gallons (Caterpillar CAT777F);
- Air Track Drills;
- RC Drills;
- Wheel Loaders (Caterpillar 988H);
- Service Trucks (250 hp);
- Forklifts;
- Pick-up trucks(3/4 ton and 1 ton);
- Water Truck Fill Station;
- Light Plant Vehicles;

- Dewatering Pumps;
- Mobile Pumps;
- Portable Generators; and
- Aggregate Plant.

2.5.8 Load-out

For each of the two process lines. the concentrate is discharged from the pan filters and the disc filters and collected on a common belt conveyor. Each conveyor empties onto the transfer conveyors which normally discharge into the single concentrate load-out silo (of 30,000 tonne capacity). The load-out silo can be by-passed if required and concentrate can be directed onto an outside emergency stockpile. Concentrate is reclaimed as required by loader which dumps into a hopper feeding a 609 mm (24") wide reclaim conveyor belt and returned onto the load-out conveyor feeding the silo. Concentrate from the load-out silo is loaded into railcars by two silo discharge feeders. Weight in the railcars is controlled by controlling the railcar advancement speed and feeder feed rate with a feedback signal from a rail weigh scale.

2.5.9 Rail Component

The iron ore shipments will need to be routed by rail. Trains will be loaded at the mine site and moved over a spur line to be constructed by Alderon to meet up with the QNSL Railway east of Labrador City. QNSL will be used to move the traffic from the mine rail spur junction to Sept-Îles Junction, just north of Sept-Îles, Québec. New railway infrastructure will need to be constructed by Alderon to connect the mine to the QNSL (referred to as the Rail Spur).

The iron ore concentrate will be suitable for shipment in the standard 35-foot open gondola cars typically used in Labrador iron ore rail service. Each train will consist of 240 gondola cars in accordance with standard QNSL train size for new clients. With a cycle time of 48 to 65 hours the rail operation will require six trainsets of 240 cars each. Including spare cars the total fleet requirement is 1,500 cars. Each car will be capable of handling 108 metric tonnes of concentrate. A 240-car train will therefore move 25,900 metric tonnes of concentrate and the requirement to move up to 16 million tonnes annually can be completed with 618 trainloads of product.

Maintenance activities that may interact with the environment will be undertaken as per the sustainable development framework.

2.6 Occupations

2.6.1 Construction Employment

There will be an estimated 3.37 million person-hours of employment over the construction period. Occupations during the construction phase, including NOC-2006 codes, are provided in Table 5. Certain positions, such as management, will be required throughout the construction phase, while others will only be required for short periods of time. Alderon is committed to

employment equity and provision of local benefits throughout the life of the Labrador Project components. As such, Alderon will produce a Women's Employment Plan, to be developed in consultation with the Women's Policy Office, and a Benefits Plan, to be developed in consultation with the provincial Department of Natural Resources. These will include both employment and contracting policies for the Project. Alderon will work with its contractors to ensure that the requirements of these Plans will be cascaded through its supply- and contract-chain.

Table 5 Estimated Construction Phase Employment

Discipline	Position	NOC Code	Person-Hours
Architecture	Architectural Manager	0212	200,000
	Architect	2151	
	Landscape Architect	2152	
	Architectural Technician	2251	
	Land Surveyors	2154	
Concrete	Concrete Finisher	7282	908,000
	Driller / Blaster	7372	
	Concrete Former Helper	7611	
	Heavy Equipment Operator	7421	
	Construction Labourer	7611	
	Foreman / woman	8221	
Civil	Civil Engineer	2131	344,000
	Bridge Engineer	2131	
	Construction Engineer	2131	
	Civil Engineering Technician	2231	
Electrical	Construction Electrician	7241	358,000
	Electrical Engineer	2133	
	Electrical Engineering Technician	2241	
	Foreman / woman Construction Electrician	7212	
	Mine Electrician	7242	
Mechanical	Mechanical Engineer	2132	804,000
	Mechanical Engineering Technician	2232	
Piping	Contractor, pipefitting	7213	388,000
	Pipefitter / Apprentice Pipefitter	7252	
	Foreman / woman, pipefitter	7213	
Structure	Structural Engineer	2131	276,000
	Construction Inspector	2264	

Table 5 Estimated Construction Phase Employment (continued)

Discipline	Position	NOC Code	Person-Hours
Telecom	Telecommunications Line / Cable Worker	7245	12,000
	IT Consultant / Systems Consultant	2171	
	Computer Engineer	2147	
	Ground Worker Telecommunications	7612	
	Computer Network Technician	2281	
Automation	Automated Substation Operator	7352	82,000
	Power Systems and Power Station Operator	7352	
	Instrument Technician	2243	
	Automation Technologist	2232	
		TOTAL	**3,372,000**

2.6.2 Operations Employment

Occupations during the operations phase, including NOC-2006 codes, are provided in Table 6.

Table 6 Estimated Operations Phase Employment

Discipline	Position	NOC Code	Number of Employees
Administration	General Manager	1221	1
	Secretary	1241	1
	HR Manager	0112	1
	HR Agents	1223	2
	Accounting	1431	2
	Payroll	1432	3
	H&S Coordinator	0112	2
	Health and Safety Agents	2263	4
	Purchasing	1225	3
	Warehouse Attendants	7452	2
	IT Technician	2171	2
	Training Coordinator	2263	2
	Environmental Engineer	2131	1
	Security Guard	6651	4
	First Aid	0311	2
Concentrator Salaried Employees	Concentrator Manager	0811	1
	General Foreman Operation	8221	1
	Production Clerk	1473	2
	Shift Foremen	8221	4
	Production Day Foreman / Planner	8221	1
	Chief Metallurgist	2142	1
	Plant Metallurgist	2115	2

Table 6 Estimated Operations Phase Employment (continued)

Discipline	Position	NOC Code	Number of Employees
Concentrator Salaried Employees (cont'd.)	Laboratory Supervisor / Chemist	2211	1
	General Foreman Maintenance	0721	1
	Maintenance Planner / Analyst	0721	2
	Mechanical Foreman	7216	1
	Electrical Foreman	7212	1
Concentrator Hourly Employees	Crusher Operator	9411	8
	Crusher / Conveying Area Attendant	9411	8
	Grinding / Screening Attendant	9411	8
	Spiral / Dewatering Attendant	9411	8
	Control Room Operator	9231	8
	Concentrator Shift General Labour	8614	16
	Concentrator Day / General Labour	8614	8
	Concentrator Samplers / Sample Prep	9415	8
	Laboratory Analysts / Technicians	2211	4
	Shift Mechanics	7311	8
	Shift Electrical / Automation	2232	8
	Day Mechanics / Pipefitters	7252	10
	Welders	7265	7
	Day Electricians	7242	8
	Automation Technicians	2232	4
	Maintenance Helpers	7612	8
Open Pit Hourly Employees	Shovel / Loader Operator	7421	16
	Haul Truck Operator	7411	124
	Drill Operator include RC	7372	18
	Wheel Dozer Operator	7421	7
	Track Dozer Operator	7421	20
	Grader Operator	7421	7
	Water Truck Operator / Snow Plow / Sanding	7411	4
	Other Auxilliary Equipment	7421	30
	Dewatering	9411	4
	General Labour	7612	4
	Janitor	6663	4
Mine Maintenance Hourly Employees	Field Gen Mechanics	7311	12
	Field Welder	7265	12
	Field Electrician	7242	12
	Shovel Mechanics	7312	12
	Shop Mechanic	7311	12
	Shop Electrician	7242	8
	Mechanic Helper	7612	8
	Welder-Machinist	7231	12
	Lube / Service Truck	7411	12

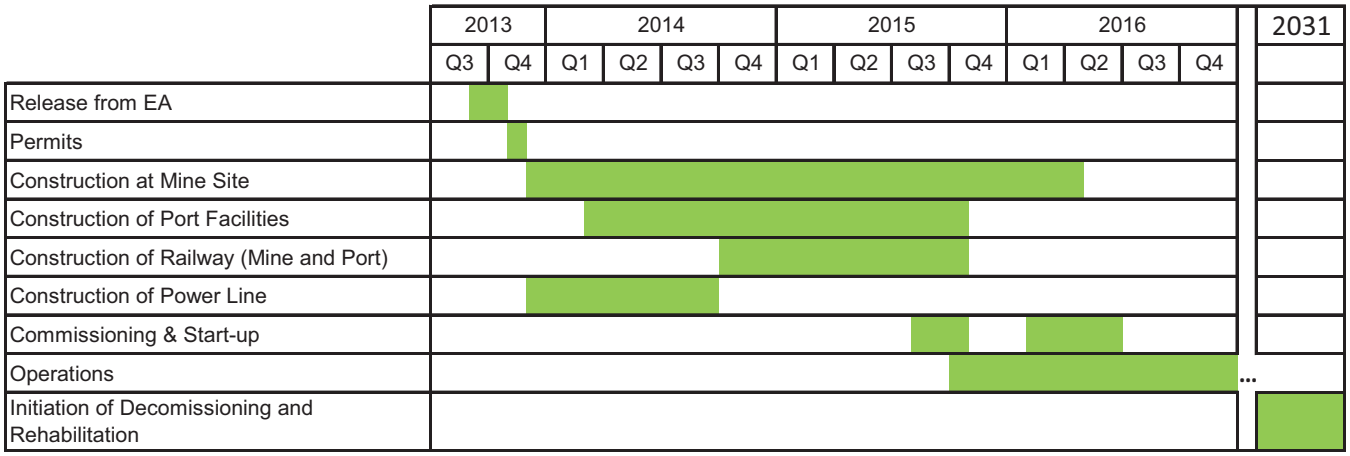
Table 6 Estimated Operations Phase Employment (continued)

Discipline	Position	NOC Code	Number of Employees
Mine Maintenance Hourly Employees (cont'd.)	Millwright	7311	12
	Electronics Technician	2241	8
	Janitor	6663	4
	Tool Crib Attendant	9511	4
Open Pit Salaried Employees	Mine Superintendent	0811	1
	General Mine Foreman	8221	2
	Mine Shift Foreman	8221	9
	Drill and Blast Foreman	8221	4
	Blaster	7372	4
	Dispatcher	1475	4
	Training Foreman	8221	2
	Production / Mine Clerk	1473	1
	Secretary	1241	1
Mine Maintenance Salaried Employees	Maintenance Superintendent	0721	1
	Maintenance General Foreman	0721	1
	Maintenance Planner	0721	2
	Mechanical / Industrial Engineer	2132	1
	Mine Maintenance Foreman	0721	5
	Mine Maintenance Trainer	0721	1
	Maintenance Clerk	6663	1
Mine Engineering Salaried Employees	Chief Engineer	2143	1
	Senior Mine Planning Engineer (Long Term)	2143	1
	Planning Engineer (Short Term)	2143	1
	Geotechnical Engineer	2144	1
	Blasting Engineer	2143	1
	Env. / Water Management Engineer	2131	1
	Mining Engineering Technician	2212	2
	Mine Surveyor	2154	4
	Assistant Surveyor	2254	2
	Technical Services Admin Assist	1221	1
Mine Geology Salaried Employees	Chief Geologist	2113	1
	Senior Geologist (Long Term)	2113	1
	Geologist	2113	2
	Grade Control Geologist	2113	2
	Geology Technician	2212	4
	Sampler	9415	8
	IBA Apprentice		1
	Technical Services Admin Assist	1221	1
		Total	**621**

2.7 Project Schedule

The Project schedule is presented in Figure 10.

Figure 10 Project Schedule



2.8 Emissions, Discharges and Waste Management

Appropriate and standard mitigations will be put in place to avoid any release of untreated discharge into the natural environment. There will be no release of emissions, discharges or waste outside the watershed.

2.8.1 Mine Water

During operations, the water management activities for the open pit are anticipated to include a combination of pit perimeter diversion channels, in-pit sumps and perimeter dewatering wells. Water collected from these activities will be pumped to nearby appropriately sized settling ponds for treatment. The necessity for these features and details on quantity (numbers and anticipated flows) will be determined during planned hydrology and hydrogeological studies to be conducted during the feasibility stage.

Testing, monitoring and treatment will be established in compliance with relevant legislation and a Mine Water Management Plan to be developed.

2.8.2 Site Drainage

Site drainage will be managed through the following activities:

- Stockpiled materials (overburden and waste rock) will be managed to limit the possibility of suspended solids being introduced into site drainage or adjacent waterbodies through the use of diversion ditching and local appropriately sized small settling ponds.

- There will be series of diversion ditches and small appropriately sized settling ponds located near site infrastructure areas to collect and manage (treat) site run-off. These areas will include:
    - the Mine Truck Wash Bay and Truck Shop and Mine Service Building Warehouse and Employee Facilities area; and
    - the Process Plant, Concentrator and Concentrator Services Building area.

2.8.3 Sewerage

There will be two engineered sewage and wastewater treatment facilities located on site; one at the garage, and one at the concentrator. All maintenance will be conducted in accordance with applicable regulations.

2.8.4 Mine / Process Waste

Sections 2.5.5 and 2.5.6 describe how mine waste, tailings and waste rock, will be handled. Tailings will be placed within the on-land TMF and waste rock will be placed in hill-side waste rock disposal areas.

Sulphidic minerals are generally not present in the geology of the Kami deposit and the surrounding host rock (waste rock). In addition, nearby mining operations such as IOCC and Wabush Mines have been mining and storing mine waste from the same geological formation for more than 40 years and there are no acid generation or metal leaching issues reported at these mine operations. Based on this, the risk of Acid Rock (Mine) Drainage (ARD) is extremely low. Alderon will conduct ARD and metal leaching (ML) test work during the permitting and development stages of the Project to ensure that waste materials to be stored on surface will produce only chemically stable drainage.

2.8.5 Domestic Solid Waste

Potential sources of nonhazardous or solid wastes generated by the Labrador Project components include domestic waste (e.g., office and lunchroom wastes) and construction wastes. These wastes will be segregated as recyclable and non-recyclable, with recyclable material collected and transported to a licensed recycling facility using authorized local services in compliance with the applicable Newfoundland and Labrador regulations. Efforts will be made to minimize the amount of waste generated by application of 4-R principals (reduce, reuse, recycle and recover) to the extent practical. Non-recyclable wastes will be transported offsite to a permitted landfill.

An integrated Waste Management Plan (WMP) will also be developed and implemented. The WMP's goal will be the minimizing of adverse effects on the environment. The WMP will be comprehensive, and include all operations. It will identify the types of waste materials; provide general direction in dealing with the handling, storage, transport, treatment and disposal of waste materials; and incorporate the basic waste management principles of reduce, reuse, recycle, recover and residual disposal.

2.8.6 Hazardous Waste

Hazardous waste that is expected to be generated from construction and operation sources are considered to be minimal and includes small quantities of waste oils and solvents. Hazardous waste will be stored onsite in a separate temporary hazardous waste storage area provided with full containment. Hazardous wastes will be removed from site by a licensed contractor and disposed at an approved facility. Other control measures for hazardous waste include updating and implementing an emergency spill prevention and response (contingency) plan to avoid impacts from release of potentially hazardous materials. All hazardous waste materials will be handled and stored in compliance with all applicable regulatory requirements and industry best practices.

2.8.7 Used Oil Storage

A used oil storage tank will be located at the mine garage facility. Used oil will be collected for recycling or reuse according to the *Used Oil Control Regulations*, and stored, transported, and disposed of according to federal and provincial waste disposal regulations.

2.8.8 Dust / Air Quality

The emissions of concern in mining operations for air quality are generally restricted to:

- particulate emissions from road dust, material handling, blasting (pits and/or quarries), processing (crushing, screening), wind erosion;
- exhaust emissions from vehicle engines; and
- gaseous emissions from blasting, including carbon monoxide.

Of these emissions, particulate matter is of greatest concern because of the relative amounts released. In the Labrador Project area, the separation distances between the areas of potential activity and the residential / recreational public areas are sufficiently large that particulate matter is likely to be the only measurable contaminant of concern.

Water trucks will be available on site for dust suppression on roadways, as required. Wet scrubbers will be positioned at conveyor transfer points and at the crusher. The wet fall and spring conditions as well as winter snow cover mean that dust lift-off from mine waste deposits is an issue for only the short summer season.

Dust will be managed at the waste rock disposal areas and TMF primarily through best-in-practice design, construction, and dumping / deposition practices as well as progressive rehabilitation techniques.

Waste rock disposal areas will be developed in smaller, manageable areas to minimize the waste exposure area thereby minimizing dust lift-off during dry periods and in areas of working equipment. Water and other approved dust suppression methods will be incorporated as required. Disposal areas will be developed in an ascending sequence with abandoned safety

benches prepared and seeded to promote natural revegetation thereby reducing the dust lift-off potential.

The TMF will be designed and operated to minimize active subaerial deposit areas, maximize the supernant pond area and to create areas where tailings can be covered and seeded to stabilize the tailings surface and minimize dust lift-off.

Air quality data will be collected in the vicinity of the Labrador Project area in inhabited areas to establish baseline conditions and to assess and measure the effects on air quality. The Towns of Labrador City and Wabush are approximately 10 km from the Labrador Project site and there are cabins in close proximity to proposed Labrador Project infrastructure.

2.8.9 Noise

During the construction of the surface facilities, it is anticipated that there will be periodic increases in ambient noise levels at the site. Site works, for example, will include blasting, excavation and grading, the installation of utilities, roadways, embankments, and the construction of site buildings and infrastructure. Such activities typically involve the use of heavy construction equipment including loaders, excavators, trucks, cranes, and rollers. Trucks will also be used to deliver equipment and building materials to the site and to haul away waste materials. Smaller equipment, including pneumatic equipment, generators, gas operated equipment, and hand tools will be extensively during construction. This equipment can generate both temporary steady, and episodic noise that may be audible both within and outside the Labrador Project Site.

During operation, activities such as blasting, crushing, screening, haul trucks and load-out will create noise. However, the Labrador Project site is within a largely forested area. Noise from the mine operations is not anticipated to be a significant issue with area residents. Noise levels will be collected in the vicinity of the Labrador Project area in inhabited areas to establish baseline conditions and to assess and measure the contribution of the Project on noise levels.

2.9 Hazardous Materials

Hazardous materials will be in use at the Labrador Project facilities in small quantities. All Labrador Project staff will be appropriately trained in handling, storage and disposal of hazardous material. Chemical storage and handling will be done in accordance with the manufacturer's recommendations and federal and provincial regulations, where applicable. Hazardous materials anticipated to be in use throughout the life of the Project include:

- Fuels and oils;
- Solvents and grease; and
- Batteries.

To minimize, contain and control any potential releases of hazardous material, a site-specific emergency spill prevention and response (contingency) plan will be in place.

Details on hazardous waste management are provided in Section 2.8.6.

2.10 Mine Closure

A Rehabilitation and Closure Plan will be prepared and submitted in accordance with provincial requirement under the Newfoundland and Labrador *Mining Act*, Chapter M-15.1, Sections (8), (9) and (10). Under the Mining Act, the "Rehabilitation and Closure Plan" is defined as a plan which describes the process of rehabilitation of a project at any stage of the project up to and including closure.

The Rehabilitation and Closure Plan is directly linked to mine development and operation over the life of a mine and therefore must be considered a "live" document. It is common practice in the industry to review and revise the Rehabilitation and Closure Plan throughout the development and operational stages of a project. The process of reviewing and updating the Plan commonly occurs on a five year cycle after the start of operations; however the review cycle is typically established on a site by site basis.

The final review of the Rehabilitation and Closure Plan generally occurs once the mine closure schedule is known (typically 12 months or more before end of mining). This final review forms a "Closure Plan" which defines in detail the actions necessary to achieve the Rehabilitation and Closure objectives and requirements.

2.10.1 Progressive Rehabilitation

Development / Construction

All aspects of mine development including mine design, infrastructure location and design, and operations planning should be conducted with full consideration of available progressive rehabilitation opportunities and closure rehabilitation requirements. An environmental monitoring program will be conducted as part of the mine development and this data will be utilized to evaluate the progressive rehabilitation program on an ongoing basis.

Mine Operations

Once the mine advances from the development stage to the operational stage, progressive rehabilitation activities can commence. Progressive rehabilitation opportunities for the site during the operational stage may include:

- Rehabilitation of construction-related buildings and laydown areas;
- Complete revegetation studies and trials;
- Grade and revegetate the tailings;
- Stabilization and revegetation of waste rock disposal areas;
- Development and implementation of an integrated WMP;

- Backfill the open pit or sections as it is exhausted of ore where possible; and
- Install barricades and signage around the open pit, where applicable.

2.10.2 Mine Closure

Typically, the final review and update of the Rehabilitation and Closure Plan is conducted approximately one year prior to the cessation of operations. The final review of the Plan will provide the detailed closure rehabilitation design and procedures to fully reclaim the mine site.

Closure rehabilitation will generally include:

- Removal of hazardous chemicals, reagents and materials;
- Equipment will be disconnected, drained and cleaned, disassembled and sold for reuse or to a licensed scrap dealer;
- Any equipment deemed potentially hazardous will be removed from the site and disposed of in accordance with appropriate regulations;
- Dismantling and removal / disposal of all buildings and surface infrastructure including the rail line;
- Material and equipment with salvage value will be removed and sold for its value;
- Demolishing all concrete foundations to 0.3 m below surface grade, at a minimum, and bury in place if possible or dispose of in an appropriate landfill;
- Removal of fuel storage and dispensing facilities;
- Assessing soil and groundwater conditions in areas that warrant assessment (e.g., fuel dispensing facility, chemical storage buildings, ore storage areas) and implementing remedial measures where necessary;
- The tailings pile will be left in place. The surface area not rehabilitated progressively should be graded and vegetated. The polishing pond and associated decant structure will be removed and the area re-graded and stabilized against erosion;
- Decommissioning of dewatering wells / groundwater monitoring wells;
- Installation of barricades and signage around the open pit in areas not completed during the operations stage, as necessary;
- In general, site drainage patterns will be re-established, as near as practical, to natural, pre-development conditions;
- Grading and/or scarification of disturbed areas to promote natural re-vegetation, or the placement and grading of overburden for re-vegetation in areas where natural re-vegetation is not sufficiently rapid to control erosion and sedimentation; and
- Attending to any special rehabilitation requirements associated with the site such as removal of culverts and power lines, and infilling of any drainage or diversion ditches which are no longer required.

2.10.3 Post-closure Monitoring

A post-closure monitoring program will continue from the operational monitoring program incorporating appropriate changes to the program. The post-closure monitoring program will continue for an anticipated period of five years after final closure activities are completed or earlier should Alderon and the appropriate regulatory bodies be satisfied that all physical and chemical characteristics are stable. When the site is considered physically and chemically stable, the land will be relinquished to the Crown.

2.11 Accidental Events and Contingency Plans

Contingency Plans based on a detailed risk assessment process will be developed to respond to and deal with incidents that may arise during the construction, operation, and/or rehabilitation and closure of the Labrador Project site. Incidents identified as possibly occurring include accidents, spills, property damage or dangerous situations. The objective of the plans are:

- To identify site-specific hazards to enable all site workers and emergency responders to be fully informed and to respond appropriately and safely to any emergency at the site. An emergency arises from any incident on the site that has the potential to result in a fatality, injury, property damage or adverse environmental impact. This includes, but is not limited to:
    - Personal injury or fatality;
    - Vehicle and equipment accident;
    - Breakage of or damage to utility services;
    - Spills or leaks of hazardous substances;
    - Explosion or fire;
    - Criminal activity; or
    - Disruption by weather events (e.g., lightning, ice, wind, rain).
- To inform emergency services of the information necessary to respond to any emergency on the site in a safe and effective manner; and
- To provide the public with an awareness of the potential emergency situations and the expected responses.

Plans to be developed may include, among others, a WMP, an Environmental Contingency Plan (for hydrocarbon spills / incidents), Operational Plans, and an Emergency Response Plan (for effluent releases).

These emergency situations will be further described in the plans. The plans will be reviewed and updated to ensure that they continue to meet regulatory requirements.

2.12 Sustainability Features

Alderon is committed to develop the Project within a sustainable development framework as described in its corporate environmental policy:

> *Alderon engages in the exploration discovery, development, production and distribution of iron ore and its associated products.*
>
> *Alderon believes that our opportunities to contribute to and thrive in the economies in which we operate must be earned through a demonstrated commitment to sustainable development.*
>
> *Accordingly Alderon's actions must demonstrate a responsible approach to social, economic and environmental performance that is aligned with the evolving priorities of our communities of interest. Our actions must reflect a broad spectrum of values that we share with our employees and communities of interest and they must underscore our ongoing efforts to protect our employees, communities, customers and the natural environment.*

In addition, Alderon has committed to the following guiding principles for development of the Project:

- Minimize water crossings, and impact to rivers and lakes;
- Minimum footprint for all infrastructure;
- Minimize water consumption;
- Provision of a safe and healthy work place;
- Implement progressive reclamation; and
- Provide opportunities for training and employment of area residents.

3.0 PROJECT RATIONALE AND ALTERNATIVES ASSESSMENT

3.1 Project Purpose

The purpose of the Project is to develop the Kami Property's iron ore deposits, near Labrador City, Wabush, and IOCC's operations in western Labrador, to produce iron ore concentrate primarily suitable for export sales to the international steel markets. There exist strong market fundamentals with an unprecedented demand for iron ore and steel. Continued worldwide demand for steel will keep driving iron ore prices upward and Alderon is well positioned to meet the continued demand.

3.2 Alternatives to the Labrador Project Component

The alternative to the Labrador Project component is a no-go scenario.

3.3 Alternative Means within the Labrador Project Components

The following details the alternative means considered for the production of iron ore.

3.3.1 Tailings Management Options

A review of advantages, disadvantages and 'show-stopper' issues associated with tailings management options was completed and is documented below. The experience of similar northern mining operations was also considered through a review of available documents on general waste management approaches being used at other mine sites in the region. The feasibility of each option was evaluated based on technical / operational aspects, economic implications, impacts to physical environment, and on terrestrial and aquatic life.

The following tailings management approaches were assessed for use at the Project:

- Tailings disposal in open pit;
- Tailings disposal in natural water bodies;
- Conventional tailings storage in an engineered impoundment;
- Deposition of thickened tailings in an engineered impoundment;
- Dry stacking of dewatered tailings; and
- Co-disposal of tailings and waste rock.

Sub-aerial deposition of thickened tailings in an engineered impoundment was deemed the most suitable tailings management approach from an overall technical, environmental and economic perspective. This method is the current industry standard, utilizes proven technology and limits the impact of the tailings on surrounding natural water bodies. Based on current waste tailings storage requirements, the TMF area does not have the capacity to store all tailings to be produced. The secondary tailings management concept will utilize an exhausted

area of the open pit to deposit tailings and manage effluent. This tailings management strategy will not be required until approximately year 12 of operations.

3.3.2 Waste Rock Management

A review of potential waste rock disposal alternatives was conducted to assess the overall viability of all options to aid in the conceptual planning stage. The overall feasibility of options was evaluated based on technical / operational aspects, economic implications, impacts to physical environment, and on terrestrial and aquatic life.

The following alternative waste rock management approaches were considered:

- Co-disposal of tailings and waste rock;
- Disposal in natural water bodies;
- Utilizing waste rock as construction aggregate; and
- Backfilling of the open pit with waste rock during active pit operations and/or at closure.

Based on the preliminary assessment, it was determined that storage of waste rock in designated disposal areas adjacent to the open pit is the most appropriate option from an overall technical, environmental and economic perspective. Further consideration of storage in exhausted areas of the open pit will be given as mine planning progresses.

The co-disposal of tailings and waste rock, and disposal of waste rock in natural water bodies are considered to be flawed in the respect that the regulatory and economic risk of developing these two mine development plans is excessive.

3.3.3 Transportation

Rail will be used to transport product from the mine site to port for shipment to market. Other transportation options for the product between mine and port and reasons for their exclusion follow are:

- Slurry pipeline
    - The pipeline option was rejected due to the lack of stable, adequate, constant power to operate the pumping systems necessary to keep the line operational. Concerns that ground conditions are inappropriate for pipeline construction and operation have also been raised. Concerns that the ground is not conducive to maintaining an appropriate temperature to prevent liquid freeze up have also been expressed. The high initial capital cost of pipeline construction makes it a less attractive financial option over the life of the Kami project, when compared to rail transportation.
- Road transport
    - Roadway infrastructure between the mine site and Québec North Shore is inadequate and economically unrealistic for the volume of product to be shipped annually. No direct road exists between the mine area and the port at Pointe-

Noire. A circuitous road route exists from Labrador City to Pointe-Noire via Baie Comeau, Québec. However, at least 50% of the 580 km between Labrador City and Baie Comeau is a narrow gravel road and the rest of the route is made up of paved road with one lane in each direction. The quantity of trucks necessary to move the product presents an excessive operating cost that makes the road option financially unattractive.

3.3.4 Power

The preferred power supply option for the mine site is through an interconnection to the Labrador electrical power grid through the Wabush Terminal Station. The alternative considered was to access power from Hydro Québec.

4.0 ABORIGINAL AND PUBLIC CONSULTATION

Since the acquisition of the Property, Alderon has been engaging with various stakeholders, including regulatory agencies, Aboriginal groups, municipalities and the public. Alderon will ensure continuous consultation with stakeholders by providing Project information and updates on a regular basis. Alderon will also conduct an issue scoping process to identify potential environmental issues associated with the Project. These issues will be considered and addressed in the EIS. Alderon will continue engaging with stakeholders throughout the EA process and during the life of the Project. A summary of consultation activities conducted to date is provided below.

Alderon has been engaged with the town councils of Labrador City and Wabush. During a meeting held on September 7, 2011, Alderon representatives delivered a Project description presentation and engaged in discussion with town council members of Labrador City and Wabush. Some of the issues identified by council members include: potential effects of Project on cabin owners, continuous provision of Project information and management of dust in tailings area. Alderon has been proactive in taking these issues into consideration. For example, in response to concerns with regards to the potential effects on cabins, Alderon scheduled a meeting with cabin owners to discuss the Project and its potential effects on cabins in the area. As a result of the request to obtain regular updates on the Project, Alderon committed to provide monthly Project updates. Alderon also committed to engaging in discussion with town councils and community members throughout the process in order to determine the best practices for managing dust levels. Alderon will continue to engage with the Towns of Labrador City and Wabush, and will also engage with the Town of Fermont in Québec. An initial meeting between Alderon and the town council of Fermont was conducted on October 5, 2011.

Alderon has been engaging five Aboriginal groups with asserted land claims or traditional territories in proximity to the Kami Property: Innu Nation, NunatuKavut Community Council, Uashat mak Mani-Utenam, Matimekush-Lac John and Naskapi Nation of Kawawachikamach.

Alderon began its Aboriginal engagement with the Innu Nation by negotiating a Memorandum of Understanding (MOU) which was signed on August 11, 2010. The MOU between the Innu Nation of Labrador and Alderon provides a framework for Alderon and the Innu Nation to work together to establish a long term, mutually beneficial, cooperative and productive relationship. It also provides the parties with a process for which the Innu Nation can identify and provide Innu Nation businesses and members an opportunity to participate in the exploration activities. A meeting was held in Montreal with Innu Nation representatives on May 23, 2011 where Alderon outlined their exploration program. On September 27, 2011 Alderon met with representatives of the Innu Nation to advance discussions surrounding the conditions outlined in the MOU.

Consultation efforts with the Québec communities of Uashat mak Mani-Utenam, Matimekush-Lac John, and Naskapi Nation of Kawawachikamach began on January 12, 2011, with each community receiving a letter introducing the company, providing an overview of its exploration plans including a map, and providing contact information for any questions or concerns they

may have related to Alderon's exploration efforts. These letters were translated into French for the communities of Uashat mak Mani-Utenam and Matimekush-Lac John. In the letter, Alderon extended offers to meet and address any questions or concerns the Québec communities may have, and to provide additional information on Alderon's 2011 exploration plans with a goal of building respectful relationships. In January 2011, Alderon met separately with the Chief of Matimekush-Lac John, and a representative from Uashat mak Mani-Utenam, at which time Alderon provided a more detailed overview of Alderon and its exploration efforts of the Property.

In February 2011, additional letters were sent to the Québec Innu communities of Uashat mak Mani-Utenam and Matimekush-Lac John, inviting them to meet with Alderon in Toronto during a conference in March. A meeting was held in Toronto between the Chief, a councilor of Uashat mak Mani-Utenam and a legal representative from the community. At that time there were no concerns raised regarding the exploration component of Alderon's program. During the meeting, the Chief expressed an interest in negotiating a MOU with Alderon. Alderon forwarded a copy of a draft MOU to the Uashat representatives on March 23, 2011 and there has been ongoing communication between the two parties since then. On May 11, 2011, Alderon met with Uashat mak Mani-Utenam legal counsel and a representative of the community to discuss their concerns with Alderon exploration program. Alderon also met with councillors and legal counsel from Uashat on August 16 and September 29, 2011 to discuss the next steps in advancing discussions.

Alderon offered to meet with NunatuKavut Community Council in August 2011 to provide a Project overview and update. On September 13, 2011, Alderon sent a letter to NCC providing an overview of the Project and reiterating the offer to meet with Alderon representatives. Discussions between Alderon and NCC to arrange a meeting to discuss the Project are ongoing.

Alderon will continue to engage and communicate with stakeholders and Aboriginal groups who have an interest in the Property and the company's activities.

5.0 EXISTING ENVIRONMENT

5.1 Physical and Biological Environment

5.1.1 Physical Environment

Climate

The climate of western Labrador is sub-arctic, characterized by long cold winters and short mild summers. Temperatures in the area can range from -40°C in the winter to 25°C in the summer.

Physiography and Surficial Geology

The Kami Property is located within a relatively rugged physiography with rolling hills and valleys reflecting the structure of the underlying bedrock. Elevation ranges from 580 to over 700 m, with slopes that are generally standing at angles of 2 to 15%.

The natural overburden material in the area is mapped as 'undifferentiated till' (Klassen et al 1992). Extrapolating surficial geology conditions mapped in adjacent properties (Kirby et al 1988) and limited overburden thickness observations made from exploration drill programs in nearby mineralization zones, it is inferred that that veneers and blankets of glacial till are generally encountered overlying bedrock. Thicker deposits of overburden on the order of 20 to 50 m occur in lower lying areas representing rock fold depressions, while thinner overburden veneers and bedrock, either exposed or concealed by vegetation would be expected near the crests of ridges. The Labrador Project site is located within the zone of 'isolated patches of permafrost', near the southern extremity of the 'sporadic discontinuous permafrost' zone (NRC 1993).

Bedrock and Structural Geology

The Labrador Project site is located within a formation of soft sedimentary rocks referred to as the "Labrador Trough", within an area of extensive iron ore deposits. Bedrock geology at the site is mapped as folded sequences of the Knob Lake Group (Watts, Griffis and McOuat 2010). The property is underlain by dolomite and calcitic marble of the Denault / Duley Formation; biotite bearing quartzofeldspathic schist of the Attikamagen / Katsao Formation; graphitic-micaceous schist of the Menihek / Nault Formation; quartzite, schist and quartz pebble conglomerate of the Wishart / Carol Formation; and silicate carbonate and oxide iron formations of the Sokoman / Wabush Formation, which hosts mineralization at the property.

Seismicity

According to the available seismic hazard mapping (2005 Seismic Hazard Map from the Geological Survey of Canada, and the 2005 National Building Code of Canada Seismic Hazard Map), the Labrador Project site is located within a relatively low seismic hazard area known as

the “stable central region”, with no record of significant earthquakes, and relatively low predicted ground accelerations.

5.1.2 Atmospheric Environment

Air Quality

Regionally, air quality is likely to approach that of a pristine environment, but locally, mining activity in the area has affected the quality of the atmospheric environment. Mining emissions are dominated by particulate emissions. Activities that are mechanical rather than chemical or combustion tend toward emission of particulates in the coarser fraction. Particulate Matter (PM) 10 and PM 2.5 would both be of interest in the area. The residential community space heating is dominated by the use of electric heat, therefore combustion of fuel oils and wood for heating is much less prevalent that would be anticipated in a remote northern community. In summary, the air quality of the area is good overall, with some localized evidence of particulate matter anticipated due to the mining industry.

Acoustic Environment

The mining operations in the area use heavy vehicles and other equipment. Residential and commercial areas are largely not affected because of the distance separating them from the mine operations, although occasional blasting at the mines is evident at varying levels throughout the towns. Many residents use relatively large vehicles, such as 4x4s and other trucks, and the proportion of trucks on the town roads may be higher than would be observed in southern communities. In the recreational areas outside of the town, such as Duley Park, the acoustic environment is that of a wilderness area although recreational powered vehicles such as motorcycles and all-terrain vehicles (ATVs) are evident.

5.1.3 Terrestrial Environment

Vegetation

Labrador occupies the easternmost section of the Canadian Shield. Soils are characterized by deposits of sandy, glacial till and classified mostly of ortho humo-ferric podzols and stony fibrisols with rocky outcrops (Protected Areas Association of Newfoundland and Labrador (PAANL) 2008). It occupy’s the Mid-subarctic Ecoregion, which encompass the flat and upland plateaus of central and western Labrador. Wetlands can be found throughout the region, particularly in areas of low local relief. String bogs and string fens occur over large areas, with eskers and drumlins also common. Vegetation species commonly found in most parts of this ecoregion include black spruce (*Picea mariana*), Labrador tea (*Rhododendron groenlandicum*), and dwarf birch (*Betula glandulosa*). In well-drained areas, vegetation is dominated by white spruce (*Picea glauca*) and balsam fir (*Abies balsamea*). Other species found in this ecoregion include larch (also known as juniper) (*Larix laricina*), trembling aspen (*Populus tremuloides*) and Jack pine (*Pinus banksiana*) (PAANL 2008).

Wildlife

The location is typical of the boreal forest and contains a variety of wildlife including (Town of Labrador City and Eastern Habitat Joint Venture 2010):

- wolf (*Canis lupus*)
- beaver (*Castor canadensis*)
- porcupine (*Erithizon dorsatum*)
- snowshoe hare (*Lepus americanus*)
- Canada lynx (*Lynx canadensis*)
- muskrat (*Ondatra zibethicus*)
- red squirrel (*Tamiasciurus hudsonicus*)
- red fox (*Vulpes vulpes*)
- moose (*Alces alces*)
- black bear (*Ursus americanus*)

Initial data from wildlife surveys conducted in support of the Labrador Project components in summer 2011 identified presence of seven mammal species, either through direct observation or observation of sign (e.g., scat). These species were red squirrel, snowshoe hare, beaver, muskrat, moose, wolf, and black bear.

More than 39 bird species have been identified in the Labrador City Wetland Stewardship Zone, which encompasses the Labrador Project location (Town of Labrador City and Eastern Habitat Joint Venture 2010). More than 30 species of waterfowl, songbirds, and raptors have been identified during waterfowl and songbird surveys conducted for the Project.

5.1.4 Aquatic Environment

The lakes, ponds, and streams in western Labrador form part of the headwaters of the Churchill River. The west side of the Labrador Project site drains north to Walsh River, which flows into Long Lake. The center and east side of the Labrador Project site drain to Mills Lake and Long Lake. The main access is through an area drains to Jean Lake. Jean Lake and Long Lake eventually drain to Wabush Lake.

Based on fish sampling studies reported by DFO (Bruce et al. 1979), various studies in Wabush Lake, and recent surveys conducted in lakes and streams along the Bloom Lake Rail route (Jacques Whitford (JW) 2008), and Labrador City's Habitat Conservation Plan (Town of Labrador City and Eastern Habitat Joint Venture 2010) fish species present in the region include:

- lake whitefish (*Coregonis clupeaformis*)
- longnose sucker (*Catostomus catostomus*)
- northern pike (*Esox lucius*)
- lake trout (*Salvelinus namaycush*)

- brook trout (*Salvelinus fontinalis*)
- white sucker (*Catastomus commersoni*)
- round whitefish (*Prospium cylindraceum*)
- ouananiche (land-locked Atlantic salmon *Salmo salar*)
- burbot (*Lota lota*)
- longnose dace (*Rhinichthys cataractae*)
- slimy sculpin (*Cottus cognatus*)
- mottled sculpin (*Cottus bairdii*)
- lake chub (*Couesius plumbeus*)

Brook trout are widely distributed in streams. The regionally dominant lake are reported to be lake whitefish and longnose sucker. Lake trout are widely distributed in regional lakes. Residents of western Labrador pursue angling in the summer and ice fishing in the winter.

5.1.5 Sensitive Areas

There are two types of sensitive or special areas in the vicinity of the Labrador Project site: a provincial park reserve and a wetland stewardship zone consisting of several management units.

Provincial Park Reserves protect areas with important natural features and landscapes. These areas are part of a provincial initiative to protect representative portions of all the different ecoregions within this Province. These areas have no day use or camping facilities. The Duley Lake Provincial Park Reserve was created to protect the open lichen woodland which is representative of the Mid-subarctic Ecoregion (DOEC 2010). The Duley Lake Provincial Park Reserve is approximately 7 km^2 and is located approximately 90 m from the Rose North Waste Rock Disposal Area, 1.1 km from Rose Pit, and 10 km from Labrador City.

Wetland Stewardship Zone agreements were signed by the Town of Labrador City, Wabush and the provincial DOEC. These agreements pledged their commitment to conservation and protection of wetlands within the Zones in consultation with the provincial Wildlife Division. These were formalized with the development of Habitat Conservation Plans. The Plans identify Management Units within the Wetland Stewardship Zones. The towns have committed to using Habitat Conservation Plans as a guide to best management practices in and around the Stewardship Zones and Management Units, including use of riparian buffers around all waterbodies and marsh areas with the Units.

5.2 Socio-economic Environment

It is anticipated that this Project will provide sustainable social and economic benefits to the western and central Labrador regions. The areas most likely to be affected are the primary places of residence of the labour force: western Labrador, and Upper Lake Melville. While all Labrador Project activity will occur in western Labrador, the baseline conditions in central

Labrador are included because labour, goods and services will also potentially be drawn from these areas.

In 2006, there were 26,364 people residing in 32 communities across Labrador, which made up 5.2% of the provincial total. In 2006, the population of western Labrador (8,979) represented 34.1 percent of Labrador's population, with the majority living in Labrador City. Compared to other parts of Labrador, a relatively small proportion (6.6% in 2006) of the population of western Labrador is identified as Aboriginal. Production mining is the main activity in western Labrador and in 2006 the labour force consisted of 5,370 individuals. The participation rate was much higher in western Labrador (72.3%) than in Upper Lake Melville (64.3%) in 2006. In 2005, the median income from employment for residents of western Labrador averaged $33,488, higher than the Upper Lake Melville average of $24,196 (Statistics Canada 2006).

There were 3,470 occupied private dwellings in western Labrador in 2006 of which approximately 80 percent were owned. The average value of owned dwellings was $107,604 in Labrador City at that time, up from $73,206 in 2001 (Statistics Canada 2006). This jump in housing prices is a result of increased mining activity in the area and plans for expansion at the IOCC's Labrador City mine. This activity has led to a population increase as workers move into the area, which has resulted in a shortage of housing (Cleary 2010). Adding to the need for housing is the fact that many people are choosing to remain in western Labrador once they retire; past trends indicate approximately 65% of retirees have chosen to maintain residency in western Labrador (Labrador West, no date).

Cabins are located in the vicinity of the Kami mine and associated infrastructure; as such, occupants of these cabins may be affected by dust and/or noise, depending on their proximity to Project activities. As indicated in Section 4, Alderon has initiated discussions with cabin owners.

Affordable and social housing has been identified as a need in western Labrador as people, including low-income seniors, are being displaced from their rental accommodations due to increasing rents and families are being forced to leave the area due to high housing prices (Jancewicz 2011). Housing prices are expected to continue to rise in the area, however new residential construction is underway in Wabush and there are plans for the development of a new subdivision in Labrador City, as well as an expansion to the Labrador City Industrial Park (Vrbanic 2010). In order to alleviate some pressure on the housing situation, IOCC is expanding its temporary workers camp, has a housing subsidy program for workers and has financed the development of a former school into apartment units to accommodate new employees (Jancewicz 2011).

5.3 Environmental Effects

Valued Environmental Components (VECs) have been identified and defined based on the understanding of the Labrador Project area (Table 7). The definition, basis for selection, assessment boundaries (including proposed data sources and limitations), and potential interactions with the Labrador Project components are presented in Table 7. The VECs may be further refined during the course of the environmental assessment based on results of additional data gathering and analysis and consultation.

Table 7 Potential Valued Environmental Components to be Assessed in the Kami Iron Ore Mine and Rail Spur (Labrador) Project Environmental Assessment

VEC	Definition	Basis for Selection	Information Source(s) and Boundaries	Potential Interactions (Before Mitigation)			
				Construction	Operation and Maintenance	Decommissioning	Malfunctions and Accidental Events
Atmospheric Environment	• Ambient air quality • Acoustic environment (noise)	• Protection of human health and safety, as well as ecological heath and aesthetics • Potentially sensitive human and wildlife receptors • Provisions of federal *Canadian Environmental Protection Act* and *Air Quality Regulations* under the NL *Environmental Protection Act* • Concerns with greenhouse gas emissions	• Ambient noise monitoring to assess baseline conditions • Air pollutant and noise dispersion modeling to determine zone of influence for operating emissions • Spatial boundaries limited to within areas that can reasonably be affected by the Project (i.e., sensitive receptors) • Scope of assessment limited to air and noise emissions from Project activities at the mine site, including access roads • Project scope does not include any potential emissions that may be associated with end-use of products from Kami Mine	• Impacts on ambient air quality from dust and construction vehicle emissions • Effects of noise from construction	• Impact on ambient air quality (including air pollutants and greenhouse gases) due to mining operations and transportation of concentrate from the site • Impact on ambient sound levels due to mining and concentrating operations and transportation of concentrate from the site • Air / noise emissions associated with rail transportation	• Impacts on ambient air quality from dust and vehicle emissions • Effects of noise from decommissioning activities	• Impact on ambient air quality (including air pollutants and greenhouse gases) • Fugitive emissions (i.e., dust, smoke)

VEC	Definition	Basis for Selection	Information Source(s) and Boundaries	Potential Interactions (Before Mitigation)			
				Construction	Operation and Maintenance	Decommissioning	Malfunctions and Accidental Events
Water Resources	• Quality and quantity of groundwater and surface water resources in the vicinity of the Project	• Concerns regarding potential for release of hazardous materials on-site and potential contamination associated with mine and process water management • Possible lowering of water table and effects on surface water / groundwater interactions (e.g., wetlands)	• Assessment based on site-specific information • Spatial boundaries include the Project property boundary and relevant watersheds	• Potential impacts related to erosion and sedimentation associated with on-site construction and modification of the hydrologic regime	• Potential impacts related to mine water management as well as effects on water quality from discharges • Potential effects related to water use (demand)	• Potential impacts related to erosion and sedimentation associated with on-site decommissioning activities	• Potential for accidental releases of hazardous materials related to construction or operation (petroleum, oils, lubricants) • Malfunction of water treatment and erosion and sediment controls
Wetlands	• Wetlands are commonly referred to as marshes, swamps, fens, bogs, and shallow water areas that are saturated with water long enough to promote wetland or aquatic processes	• Wetlands represent a sensitive habitat type that often supports a diversity of species	• Assessment based on existing information and field survey • Spatial boundaries include footprint of the Labrador project components and areas that could reasonably be affected by the Project • Efforts will be made to avoid impacts to wetlands during detailed design phase of the	• Site grading and filling and/or alteration of hydrology can affect wetland habitat directly or indirectly	• Indirect habitat degradation or alteration with alteration of local hydrology	• N/A	• Habitat degradation or alteration and direct mortality from hazardous materials releases and uncontrolled surface runoff

VEC	Definition	Basis for Selection	Information Source(s) and Boundaries	Potential Interactions (Before Mitigation)			
				Construction	Operation and Maintenance	Decommissioning	Malfunctions and Accidental Events
			Project				
Rare Plants	• Rare vascular plants and uncommon species assemblages	• Protection of species biodiversity and critical habitat • *Species at Risk Act* • *NL Endangered Species Act*	• Assessment based on existing information and field survey • Spatial boundaries include footprint of the Labrador Project components and areas that could reasonably be affected by the Project	• Site grading and filling and/or alteration of hydrology can cause the loss of rare plants and/or uncommon species assemblages	• N/A	• N/A	• Habitat degradation or alteration and direct mortality from hazardous materials releases and uncontrolled surface runoff
Freshwater Fish and Fish Habitat	• Effects on habitat quality and species in freshwater bodies	• Protection of aquatic species diversity • *Fisheries Act* • *Species at Risk Act* • NL *Endangered Species Act*	• Assessment based on existing information and field survey • Spatial boundaries limited to areas that could reasonably be affected (i.e., hydrological impacts) by the Project • Efforts will be made to avoid impacts to freshwater bodies and watercourses and habitats	• Habitat degradation or alteration and direct mortality associated with construction (e.g., siltation of watercourses) • Indirect habitat degradation or alteration of local hydrology	• Potential for turbidity, siltation and contamination from surface runoff • Indirect habitat degradation or alteration of local hydrology	• Habitat degradation or alteration and direct mortality associated with decommissioning (e.g., siltation of watercourses)	• Habitat degradation or alteration and direct mortality of freshwater aquatic species from uncontrolled site runoff or hazardous materials spills.
Birds and Wildlife	• Migratory and non-migratory birds with a focus on species with special status (1) potentially feeding, breeding, moving	• Concern with protection of species biodiversity and critical habitat • *Migratory Birds*	• Assessment based on existing information and field surveys • Spatial boundaries limited to footprint of the facility (i.e.,	• Habitat loss, degradation or alteration and direct mortality associated with facility construction (e.g.,	• Loss of habitat • Disruption of feeding, breeding, movement and/or migratory patterns due to presence of facility (e.g. lights,	• Potential hazardous materials spills (e.g. fuel) or non-authorized ship discharges • Habitat degradation	• N/A

VEC	Definition	Basis for Selection	Information Source(s) and Boundaries	Potential Interactions (Before Mitigation)			
				Construction	Operation and Maintenance	Decommissioning	Malfunctions and Accidental Events
	and/or migrating through the Kami Mine Area, and their habitat • Includes critical habitats such as waterfowl gathering areas	*Convention Act* • *Species at Risk Act* • *Newfoundland and Labrador Endangered Species Act*	cleared areas) and areas that could reasonably be affected by the Kami Mine (e.g., through noise and visual stimulus or hazardous materials spills)	clearing construction) • Disruption of feeding, breeding, movement and/or migratory patterns due to noise and presence of construction activity and fencing	noise)	or alteration and direct mortality from hazardous materials releases and uncontrolled surface runoff	
Historic Resources	• Per the NL *Historic Resources Act*, a historic resource refers to a work of nature or of humans that is primarily of value for its archaeological, prehistoric, historic, cultural, natural, scientific or aesthetic interest, including an archaeological, prehistoric, historic or natural site, structure or object	• Concern with effective management and preservation of archaeological and heritage resources • NL *Historic Resources Act*	• Based on existing information (e.g., previous assessment and site records) and field survey • Spatial boundaries limited to footprint of area to be disturbed by Labrador Project activities	• Disturbance to and loss of archaeological and heritage sites from site clearing, grubbing and grading	• N/A	• N/A	• N/A
Current Use of Land and Resource Use for Traditional Purposes by Aboriginal People	• Lands and resources of specific social, cultural or spiritual value to Aboriginal communities of Labrador and Québec with documented use of Project area	• Concerns for Aboriginal interests (i.e., current use of lands for traditional purposes) • *Canadian Environmental Assessment Act*	• Based on existing information and information that Aboriginal groups may provide • Spatial boundary is the Property within Labrador	• Effects on land and resource use from construction activities	• Effects on land and resource use from presence of facility	• N/A	• Effects on land and resource use from accidental releases of hazardous materials

VEC	Definition	Basis for Selection	Information Source(s) and Boundaries	Potential Interactions (Before Mitigation)			
				Construction	Operation and Maintenance	Decommissioning	Malfunctions and Accidental Events
Current Use of Land and Resources by Other Users	• Existing land development (industrial, commercial, residential), recreation, and areas of special community or social value. Includes discussion of land ownership.	• Important socio-economic component • Municipal land use plans • Concerns of local cabin owners • *Navigable Waters Protection Act*	• Based on existing information and on-going consultation with land and resource users, including cabin owners	• Exclusion / promotion of development (industrial, commercial, residential) • Exclusion of recreation sites (e.g., recreational fishing areas) or elimination of areas of special community or social value	• Onsite waste disposal (e.g., waste piles and water treatment systems) could affect future development of site after decommissioning	• N/A	• Spills or accidents could affect land use or recreation
Communities	• Physical and social infrastructure of communities in close proximity to the Project	• Important socio-economic component	• Assessment based on existing information supplemented by interviews with physical and social service providers (e.g., healthcare professionals, educational institutions) • Spatial boundaries limited to the communities in western Labrador due to proximity to the Project	• Work force in-migration could result in increased pressure on physical and social infrastructure	• Work force in-migration could result in increased pressure on physical and social infrastructure	• Pressure on physical and social infrastructure will be reduced with the reduction of the work force	• Spills or accidents could affect physical and/or social infrastructure

VEC	Definition	Basis for Selection	Information Source(s) and Boundaries	Potential Interactions (Before Mitigation)			
				Construction	Operation and Maintenance	Decommissioning	Malfunctions and Accidental Events
Employment and Business	• Employment levels and the supply and service business community of western and central Labrador including analysis of local (Newfoundland and Labrador) financial benefits from the Project	• Important socio-economic component	• Assessment based on existing information (e.g., census data), interviews with employment and economic development professionals, and Project requirements • Spatial boundaries limited to the Central and western Labrador Regional Economic Development Zones as the Project has the potential to affect the business community and employment throughout western and central Labrador	• Exclusion / promotion of development (industrial, commercial, residential) • Increased opportunities for employment and contracting	• Exclusion / promotion of development (industrial, commercial, residential) • Increased opportunities for employment and contracting	• Opportunities for employment and contracting will return to baseline levels	• N/A

5.4 Waterbodies

Table 8 provides a preliminary list of the approximate width and depth of waterbodies potentially affected by the Labrador Project components. The locations of waterbodies are provided in Figure 11. Select photos of the lakes and ponds are provided in Appendix A. Field work is ongoing through 2011 to fully assess waterbodies potentially affected by the Project.

Table 8 Waterbodies Potentially Affected by the Labrador Project Components

Lakes and Ponds		
Pond Sampling Station	**Name**	**Approximate Maximum Depth (m)**
RP01	Unnamed Pond	1.25
RP02	Unnamed Pond	8.8
RP03	Unnamed Pond	4.5
RP04	Unnamed Pond	9
RP05	Unnamed Pond	3.7

Streams				
Connecting streams	**Name**	**Average Depth (m)**	**Approximate Maximum Width (m)**	**Approximate Minimum Width (m)**
RP01-PLS Stream	Unnamed Stream	0.54	4.2	2.4
RP02-RP01 Stream	Unnamed Stream	0.41	4.9	0.8
RP03-RP02 Stream	Unnamed Stream	0.2	3.9	0.3
RP04-RP02 Stream	Unnamed Stream	0.21	4.9	0.4
RP05-RP04 Stream	Unnamed Stream	0.22	2.6	1.4
TDA01	Unnamed Stream	0.40	2.1	0.5
TDA02	Unnamed Stream	0.27	5.5	0.7
RND	Unnamed Stream	Underground stream, few intermittent water pockets		
RSD	Unnamed Stream	0.23	2.1	0.4

Stream Crossings				
Stream Crossing #	**Crossing Type**	**Average Depth (m)**	**Approximate Maximum Width (m)**	**Approximate Minimum Width (M)**
SC01	Road	0.14	18.5	6.0
SC02	Road	0.18	2.1	0.42
SC03	Road, Power, Rail	0.31	5.2	0.4
SC04	Rail	0.20	3.6	2.1
SC05	Road, Power, Rail	0.25	4	3
SC06	Road, Power, Rail	0.19	2.5	0.8
SC07	Road, Power, Rail	0.20	1.5	0.5
SC08	Road, Power, Rail	0.41	23	10.
SC09	Rail	0.77	2.8	1.7

RP = Rose Pit
TDA = Tailings Management Facility
RND = Rose North Disposal Area
RSD = Rose South Disposal Area

One pond and three streams are located within the proposed Rose Pit area. One stream is located in the Rose South Waste Rock Disposal Area. Two streams are located in the TMF area (identified as TDA01 and TDA02 in Figure 11).

Stream TDA01

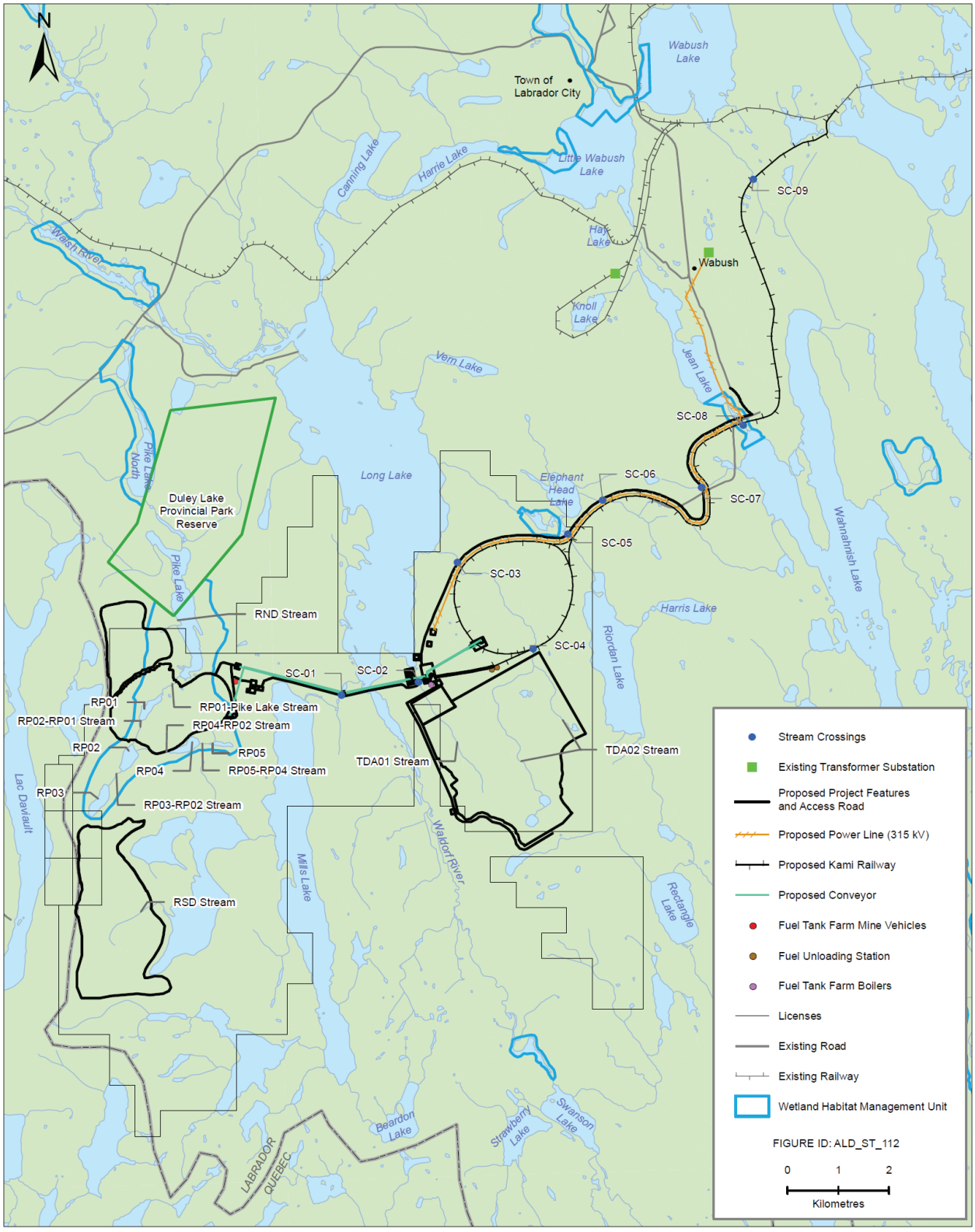
Stream TDA 01 is a first order stream with a total length of approximately 3 km, of which approximately 1.8 km is within the proposed TMF and approximately 0.5 km is within the proposed polishing pond. Stream TDA01 ranges from approximately 0.5 to 2.1 m in width and has an average depth of 40 cm.

Stream TDA02

Stream TDA02 has a total length of approximately 9.5 km. The headwaters of this stream are comprised of two first order streams that have a combined length of 5.5 km. Each first order stream begins as small standing water sections, less than 1 m deep, within the TMF. The combined area of the standing water sections is 0.08 km^2. The confluence of the two first order streams within the TMF results in a second order stream that flows to Long Lake, of which approximately 200 m is within the TMF. Stream TDA02 ranges from approximately 0.7 to 5.5 m in width and has an average depth of approximately 27 cm.

The proposed access road, rail, and/or transmission line will cross streams at nine different locations (Figure 11).

Figure 11 Potentially Affected Waterbodies



6.0 APPROVALS, PERMITS AND AUTHORIZATIONS

Following release from the provincial environmental assessment process, the Labrador Project components will require a number of approvals, permits and authorizations prior to Project initiation. In addition, throughout construction and operation, compliance with various standards contained in federal and provincial legislation, regulations and guidelines will be required. Alderon will also be required to comply with any other terms and conditions associated with the release. Table 9 summarizes potential permits, approvals and authorizations that may be required for the Labrador Project components.

Table 9 Potential Permits, Approvals, and Authorizations

Permit, Approval or Authorization Activity	Issuing Agency
Provincial	
• Release from environment assessment process	DOEC – Environmental Assessment Division
• Permit to Occupy Crown Land	DOEC – Crown Lands Division
• Permit to Construct a Non-Domestic Well • Water Resources Real-Time Monitoring • Certificate of Environmental Approval to Alter a Body of Water • Culvert Installation • Fording • Stream Modification or Diversion • Other works within 15m of a body of water (site drainage, dewater pit, settling ponds)	DOEC – Water Resources Management Division
• Certificate of Approval for Construction and Operation • Certificate of Approval for Generators • Industrial Processing Works • Approval of MMER Emergency Response Plan • Approval of Waste Management Plan • Approval of Environmental Contingency Plan (Emergency Spill Response) • Approval of Environmental Protection Plan	DOEC – Pollution Prevention Division
• Permit to Control Nuisance Animals	DOEC – Wildlife Division
• Pesticide Operators License	DOEC – Pesticides Control Section
• Blasters Safety Certificate • Magazine License • Approval for Storage & Handling Gasoline and Associated Products • Temporary Fuel Cache • Fuel Tank Registration • Approval for Used Oil Storage Tank System (Oil / Water Separator) • Fire, Life and Safety Program • Certificate of Approval for a Waste Management System	Government Service Centre (GSC)

Table 9 Potential Permits, Approvals, and Authorizations (continued)

Permit, Approval or Authorization Activity	Issuing Agency
Provincial	
• Approval of Development Plan, Closure Plan, and Financial Assurance • Mining Lease • Surface Rights Lease • Quarry Development Permit	DNR – Mineral Lands Division
• Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land • Permit to Cut Crown Timber • Permit to Burn	DNR – Forest Resources
• Approval to Construct and Operate a Railway in Newfoundland and Labrador	Department of Transportation and Works (DTW)
Federal	
• Authorization for Harmful Alteration, Disruption or Destruction (HADD) of fish habitat	DFO
• Approval to interfere with navigation	Transport Canada
• Licence to store, manufacture or handle explosives	Natural Resources Canada
• Approval to construct a railway	Canadian Transportation Agency
Municipal	
• Building Permit • Development Permit Application • Excavation Permit • Fence Permit • Occupancy – Commercial Permit • Open Air Burning Permit • Signage Permit	Town of Labrador City
• Building Permit • Development Permit Application • Excavation Permit • Fence Permit • Occupancy – Commercial Permit • Open Air Burning Permit • Signage Permit	Town of Wabush

7.0 FUNDING

Alderon will wholly finance the Project. There is no requirement for a loan or grant from any government agency.

8.0 DATE AND CEO SIGNATURE

Todd Burlingame
Alderon Iron Ore Corp. Executive Vice President of Environment & Aboriginal Affairs

2011/10/05
Date

Tayfun Eldem, P.Eng.
Alderon Iron Ore Corp. President and Chief Executive Officer

2011/10/05
Date

9.0 PROJECT RELATED DOCUMENTS

Documents completed in support of the Project include:

Watts, Griffis, and McOuat. 2010. Technical Report And Mineral Resource Estimate on the Kamistiatusset Property, Newfoundland and Labrador for Alderon Resource Corp. 43-101 Technical Report. May 2010.

Alderon Resource Corp. 2011. Registration Pursuant to Part X of the *Environmental Protection Act* for Kamistiatusset Property Exploration 2011, Labrador City, NL. June 3, 2011.

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APPENDIX A

Photos of Select Waterbodies

RP01

RP02

RP03

RP04

RP05