Project Registration / Project Description for the DSO - Howse Property Project

HML
Howse Minerals Limited

FINAL

March/April 2014

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LIST OF ABBREVIATIONS AND SYMBOLS

%	Percentage
°C	Celsius
≠	Not equal to
AANDC	Aboriginal Affairs and Northern Development Canada
ABA	Acid Base Accounting
AIP	Agreement-In-Principle
AP	Acid Potential
ARD	Acid Rock Drainage
asl	Above Sea Level
BCWRM	Brace Centre for Water Resources Management
BP	Before Present
CAM	Conseil des Atikamekws et des Montagnais
CARMA	CircumArctic Rangifer Monitoring and Assessment Network
CCCMA	Canadian Centre for Climate Modelling and Analysis
CCME	Canadian Council of Ministers of the Environment
CDA	Castonguay, Dandenault et Associés Inc.
CEAA	Canadian Environmental Assessment Agency
CGCM2	Coupled Global Climate Model
CIML	Champion Iron Mines Limited
CLSC	Centre Local de Services Communautaires (Local Community Services Centres)
cm	Centimeter
CNA	College of the North Atlantic
CNSC	Canadian Nuclear Safety Commission
CO	Carbon Monoxide
dBA	Decibel
DFO	Fisheries and Oceans Canada
DSO	Direct Shipping Ore
E	East
EA	Environmental Assessment
EC	Environment Canada

EIS	Environmental Impact Study
ELAIOM	Elross Lake Area Iron Ore Mine
EPA	Environmental Protection Act
EPP	Environmental Protection Plan
EPR	Environmental Preview Report
FDSN	Federation of Digital Seismograph Networks
FMD	Forest Management District
GNL	Government of Newfoundland and Labrador
GRCH	George River Caribou Herd
ha	Hectare
H_2S	Hydrogen sulfide
HML	Howse Minerals Limited
HSE	Health, Safety and Environment
HST	High Subarctic Tundra
IBA	Impact and Benefits Agreements
IOC	Iron Ore Company
ITUM	Innu Takuaikan Uashat mak Mani-Utenam
kg	Kilogram
km	Kilometer
km/h	Kilometer per hour
$L/s/km^2$	Liter per second per square kilometer
LDSB	Labrador District School Board
LGRHA	Labrador-Grenfell Regional Health Authority
LIL	Labrador Innu Lands
LIM	Labrador Iron Mines Ltd.
LIOP	LabMag Iron Ore Project
LISA	Labrador Innu Settlement Area
LMN	Labrador Metis Nation
LSA	Local study area
µm	Microgram or one-millionth of a gram
µm/L	Microgram per Liter

$\mu g/m^3$	Microgram per cubic meter
µmho/cm	Micro-ohm per centimetre
MDDEFP	Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs
MDDEP	Ministère du Développement durable, de l'Environnement et des Parcs
mg/L	Milligram per Liter
MIR	Millennium Iron Range
m	meter
m^3	cubic meter
m^3/s	cubic meter per second
mm	millimeter
mm/d	millimeter per day
MMER	Metal Mining Effluent Regulations
MN	Nuttli magnitude
MRC	Municipalité régionale de comté
MSF	Mid Subarctic Forest
Mt	Million tonnes
N	North
NAD	North American Datum
NEB	National Energy Board
NCC	NunatuKavut Community Council
n.d.	No data
NEQA	Northeastern Quebec Agreement
NHS	National Household Survey
NIMLJ	Nation Innu Matimekush – Lac John
NLDEC	Newfoundland and Labrador Department of Environment and Conservation
NLDOF	Newfoundland and Labrador Department of Finance
NLDNR	Newfoundland and Labrador Department of Natural Resources
NLDOT	Newfoundland and Labrador Department of Transportation
NLIAAS	Intergovernmental and Aboriginal Affairs Secretariat, Government of Newfoundland and Labrador
NML	New Millennium Iron Corp.
NNK	Naskapi Nation of Kawawachikamach

NNP	Net Neutralization Potential
NO	Nitrogen Oxides
NP	Neutralizing Potential
NPR	Neutralization Potential Ratio
NPS	Naskapi Police Service
NTDB	National Topographic Data Base
PFWA	Paul F.Wilkinson & Associates
PPE	Personal Protective Equipment
QI	Québec International
QNS&L	Québec North Shore & Labrador Railway
RDL	Reported Detection Limit
ROM	Run-of-mine
RNC	Royal Newfoundland Constabulary
RRCSL	Renewable Resources Consulting Services Limited
S	South
SARA	Species at Risk Act
SO	Sulfur Oxide
SO_2	Sulfure Dioxide
TC	Transport Canada
TCLP	Toxicity Characteristic Leaching Procedure
TEM	Terrestrial Ecosystem Mapping
TEOM	Tapered Element Oscillation Microbalance
TLH	Trans Labrador Highway
TQ	Transports Québec
TRT	Tshiuetin Rail Transportation Inc.
TSMC	Tata Steel Minerals Canada Ltd.
UTM	Universal Transverse Mercator
W	West
WWSC	White Wolf Snowmobile Club

GLOSSARY

Benthos	An organism that lives on or in the bottom of a body of water such as a river, lake, or sea.
Local Study Area	The area where Howse Property Project's infrastructures and activities will be located and in which detailed terrestrial ecosystem mapping was completed.
Biota	All of the living organisms (including animals, plants, fungi, and micro-organisms) that are found in a particular area.
Chert	A hard, brittle sedimentary rock consisting of microcrystalline quartz.
Chiroptera	Bats, a highly-specialized group of insectivorous mammals, which are the only mammals capable of flying like birds.
Cobble	A rock fragment, rounded or abraded, that is larger than a pebble and smaller than a boulder.
Conductivity	The transfer of heat from one object to another through direct physical contact.
Cryoturbation	The mixing of soil horizons due to freezing and thawing, commonly in association with underlying permafrost.
Decibel	A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to referenced sound pressure amplitude. The reference pressure is 20 micro-Pascal.
Dissolved oxygen	The oxygen dissolved in water. The amount is usually expressed in parts per million.
Ecoregion	An area of the landscape with characteristic regional climate and landforms, as expressed in typical vegetation physiognomy and composition, soils and topography.
Ecotype	The most detailed ecological classification units within ecoregions, which are used to delineate and describe terrestrial landscapes or, alternatively, ecosystems in this report. Ecotypes occur in predictable landscape positions and feature characteristic landform, site and soil characteristics that can be identified through stereoscopic interpretation of aerial photographs and described in detail during site visits.
Ericaceous	Of or pertaining to a plant family that includes numerous plants, mostly from temperate climates, that normally grow in acidic soils.

Fen	A sedge-dominated, groundwater-fed type of wetland that accumulates peat, but is less acidic than a bog.
Fluvial	Of or pertaining to a river or rivers.
Freshet	A comparatively high rate of flow of freshwater of short duration in a stream, resulting from heavy rainfall or rapid snow melts.
Glaciofluvial	Pertaining to the sediments (commonly moderately- to well-sorted sand, gravel or cobbles) eroded, transported and deposited by glacial meltwater in ice-contact or proglacial environments.
Herpetofauna (Herptile)	All reptiles and amphibians (e.g., salamanders, frogs, toads, caecilians, snakes, lizards, turtles, tuataras and crocodilians).
Hydrometric station	A station on a river, lake, estuary or reservoir where water quantity and quality data are collected and recorded. Such data may include stage (water surface elevation), discharge, sediment concentration, water temperature, chemical and biological properties of water, ice formations and other characteristics.
Landform	A distinct, three-dimensional feature on the earth's surface that has originated through a particular set of erosional and/or depositional processes and thus can be recognized wherever it occurs.
Littoral	The shallower parts of a waterbody along the shore; often defined as the area where rooted aquatic macrophytes can grow.
Mesic	Of or pertaining to well-drained soils that retain some water.
Moraine	Landform deposited directly by glacial ice, typically consisting of grains ranging in size from clay to boulders.
Migratory bird	A bird referred to in the Migratory Birds Convention and includes the sperm, eggs, embryos, tissue cultures and parts of the bird
Order	A taxonomic group between the Class and the Family.
Particulate matter	Microscopic solid and liquid particles, of various origins, that remains suspended in the air for any length of time.
Permafrost	Perennially frozen soil and/or bedrock typically found in areas with arctic or subarctic climates.
pH	A term used to describe the hydrogen-ion activity of a system; a solution of pH 0 to 7 is acid, pH 7 is neutral, pH over 7 to 14 is alkaline.

Recharge	The replenishment of water in an aquifer. Much of the natural recharge of groundwater occurs in spring and comes from the melting snowpack or from streams in mountainous regions. It can also occur during local heavy rainstorms. Groundwater often discharges into a river or lake, maintaining its flow in dry seasons.
Riparian	Pertaining to the banks of, or area immediately adjacent to, a watercourse.
Roosting site	A daytime retreat or night-time resting place for bats and birds.
Rubble	A loose mass of rough, angular rock fragments, coarser than sand.
Sediment	Bottom material in a lake or a stream that has been deposited after the formation of a lake basin or stream course. It originates from the remains of aquatic organisms, chemical precipitation of dissolved minerals and erosion of surrounding lands.
Sublimation	Process of change from ice (solid state) to water vapour (gaseous state).
Till	Material deposited directly by glacial ice with grains ranging in size from clay to boulders.
Total particulate matter	Any particulate with a diameter less than 100 microns.
Turbidity	A measure of suspended particulates in water.
Veneer	A thin (typically <2 m), commonly discontiguous surficial deposit overlying another material or bedrock.
Waterbody	Pertaining to watercourses, lakes, reservoirs and ponds.
Water table	The upper water level of a body of groundwater.

EXECUTIVE SUMMARY

Introduction

An unincorporated Joint Venture was formed between Howse Minerals Ltd. (HML), Labrador Iron Mines Ltd (LIM), Tata Steel Minerals Canada Ltd. (TSMC) and Labrador Iron Mines Holdings Limited. HML is a wholly-owned subsidiary of TSMC based in St. John's, Newfoundland, created for the purpose of developing the Howse Property.

Name of the Undertaking: Direct Shipping Ore – Howse Property

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The DSO – Howse Property, thereafter named the Project, is subject to the Newfoundland and Labrador *Environmental Protection Act* (EPA), SNL 2002 and *Environmental Assessment Regulations*, 2003 which require submitting a project registration for examination to the Department of Environment and Conservation (the Department) for "[...] anyone who plans a project that could have a significant impact on the natural, social or economic environment". If the Department determines that a Provincial Environmental Assessment (EA) is required, the project registration will be used to develop the guidelines for the preparation of an Environmental Preview Report (EPR) or an Environmental Impact Statement (EIS).

In addition to the Provincial requirements, the Project is a "designated project" under the *Regulations Designating Physical Activities*, pursuant to the *Canadian Environmental Assessment Act*, 2012 (CEAA 2012).This is because the project is described in paragraph 16(a) of the Regulations, which describes the following activity: "the construction, operation, decommissioning and abandonment of a new metal mine, other than a rare earth element mine or gold mine, with an ore production capacity of 3,000 t/day or more". Accordingly, the proponent must submit a project description to the Canadian Environmental Assessment Agency referred in this document as "the Agency" for review. The Agency will consider this project description, the potential that the project may cause adverse environmental effects, and comments from the public received during a 20-day comment period in deciding whether an environmental assessment of the Project is required under CEAA, 2012.

CEAA 2012 contains specific reference to the inclusion of Aboriginal communities in the EA process through cooperation and communication. Whenever possible, consultation processes will be coordinated and information collected will be used to inform both federal and provincial agencies.

A regional environmental study as per the Agency's definition of "a focused assessment of the development potential of an area, which examines the cumulative effects of the forecasted development scenarios" has not been or is not being carried out in the region where the Project will be located.

The Undertaking

HML is planning on developing the iron ore deposit at the Howse Property with the support of adjacent infrastructure. The deposit is located in Labrador between Irony Mountain, Pinette Lake and TSMC's DSO Project Phase 1 (Figure A). The Howse Property Project is located 25 km northwest of Schefferville, Quebec. The centre of the pit is located at 67°8'19.07"W, 54°54'31.18"N and the mineral rights of the Property are registered to LIM (49%) and HML (51%) in the form of two map-staked licences: 021314M and 021315M, which replace licence 0201430M.

The Howse Property is located on provincial Crown land, without any particular zoning. The distance, as the crow flies, of the Project to federal lands is shown in Table A. The Project area also lies outside of areas for which there is a land use plan.

Table A Distance to Nearest Federal Lands

	FEDERAL LAND	APPROXIMATE DISTANCE FROM HOWSE PROPERTY (km)
Quebec	Schefferville Airport	24
	Matimekush (Aboriginal community)	24
	Lac John (Aboriginal community)	25
	Kawachikamach (Aboriginal community)	25
	3 wing Bagotville (Military base)	780
Labrador	Labrador City Airport	219
	Wabush Airport	222
	Sheshatshiu (Aboriginal community)	479
	Natuashish (Aboriginal community)	404
	5 wing Goose Bay (Military base)	472

According to the Proponent, the Project can be brought into production in a relatively short period of time and at a low capital cost, as the Project requires few new installations and as some of the required infrastructures (e.g. the railway, access road, the camp, mining equipment and explosive storage) are already in place at the nearby TSMC's DSO Project complex, which is currently under construction. The Howse Property Project was not in the initial plans of TSMC. However, due to a delay in the construction of the haul road to the DSO 4 Project 2a (Goodwood and Sunny deposits) and DSO 4 Project 2b (Kivivic deposits), the exploitation of these deposits is postponed. This situation creates uncertainty in the ore supply of TSMC's DSO project. The early development of the Howse Property ensures a bridge between this Project and TSMC's other DSO Projects, hence ensuring a stable ore supply.

A conventional open pit drill and blast operation mining method will be used at the Howse Property. The extracted iron ore will be crushed and screened on-site, hauled by truck to the TSMC's DSO Project rail loop loading area (less than 5 km from the Project), and then shipped by train to Sept-Îles.

The construction of new infrastructures will be required to exploit the deposit at the Howse Property. Mainly, the physical works and activities involved for the Project:

- Open pit: approximately 72 hectare (ha) surface area with a maximum depth of 160 m. Production rate is expected to be 1.3 Mt of ROM per year during the first year and 2.2 Mt per year in subsequent years until the end of the mine's service life in 2027. The maximum planned production is 10,000 tonnes per day which will be reached in 2017.
- Stockpiles: approximately 66 ha surface area for overburden and roughly 4 ha for topsoil; surrounded by peripheral ditches linked to a sedimentation pond.
- Waste rock dump: about 67 ha surface area; surrounded by peripheral ditches linked to a sedimentation pond.
- Crushing and screening facility: approximately 3 ha surface area powered by generators. The facility will be built on a pad that is 100 m wide by 150 m long.
- Access and haul road: the existing old road from past mining activities of IOC will be used (1.3 km) and an additional 2.0 km of road will need to be built in order to link the Howse Property to the existing TSMC DSO Project road network. This road will be shared by mining trucks and light vehicles.
- Water management infrastructures: peripheral wells at the pit perimeter will be installed to lower the water table below the elevation of the mining operation. Dewatering will be carried out as required by means of diesel-powered pumps. All snowmelt and runoff water will be collected and drained to a sedimentation pond before being discharged into the environment.

Apart from a stockpile of low-grade material on TSMC's DSO Project complex site and some increase in dust due to the increase in vehicle traffic, the Howse Property Project is not likely to add any pressure on the DSO Project plant complex activities management. No tailings or tailings process water will be generated from the Howse Property Project. The capacity of the worker's camp will never exceed its limit of 150 workers, therefore, no increase in domestic waste is expected from the Howse Property Project and domestic solid waste generated from the operation of the mine will be disposed of at TSMC-approved landfill.

Some areas could not be considered to build infrastructures due to the topography and presence of sensitive environments, i.e. Irony Mountain area, wetlands and Goodream Creek. The proposed layout as shown in Figure B was selected in order to accommodate aboriginal rights or interests after consultation with aboriginal organizations and family trapline holders, to minimize the visual impact and the environmental impact on wetlands, water quality and fish habitat.

The approved facilities at the TSMC's DSO Project plant complex, which are currently under construction, and which HML is planning to use include: a processing plant; covered piles of processed ore; a rail car loading system; an existing railway track from former Iron Ore Company (IOC) operations; a camp to accommodate the workers; offices; a warehouse; workshops; garages; a laboratory; a landfill; and a wastewater treatment facilities.

The construction phase involves pit development, and includes the removal and storage of the overburden, construction of access and haul road, construction of crushing and screening facility, restoration of temporary work areas and transportation and traffic. The potential sources of pollutants and emissions during this phase are noise, vibration, dust, suspended solids, exhaust gases and greenhouse gases from heavy machinery and other vehicles.

The operations phase involves the following activities: removal and storage of the overburden and waste rock management, iron ore extraction (mining), screening and crushing (primary treatment), dewatering, transportation of ore and other traffic, hazardous waste management, and a progressive site restoration. During this phase, the potential sources of pollutants and emissions are noise, vibration, suspended solids, dust, exhaust gases from heavy machinery, generators, drilling operations, and other light vehicle traffic. The greenhouse gases likely to be emitted by blasting and the generator are carbon monoxide (CO) and small quantities of nitrogen oxides (NO_x), sulfur oxides (SO_x) and hydrogen sulfide (H_2S).

Hazardous waste, including used oil, will be labelled and stored at the TSMC's DSO Project complex in an appropriate receptacle, with adequate separation where necessary, and will be disposed of as per TSMC's hazardous waste management program and policies.

The emulsion used for blasting, which is a solution consisting mainly of water and ammonium nitrate will be the only explosive waste found on-site. The emulsion will be made by a third-party outside of the TSMC Property and delivered on-site by truck at the explosive storage area on an as-needed basis. Residue waste such as boxes will be burned at the TSMC's DSO Project complex as per federal regulations.

The last phase, the decommissioning phase, will include the demobilization of the facilities and heavy machinery, and the reclamation and closure of the Howse Property. As per the Government of Newfoundland and Labrador's *Mining Act*, 1999, and as per its contractual obligations under Impact and Benefit Agreements (IBA) signed with Aboriginal communities, the proponent will develop a rehabilitation and closure plan which will achieve the following objectives:

- Provide a balanced and maintenance-free environment for existing fish and wildlife;
- Create a landscape compatible with surrounding areas while taking into account that previous disturbances caused by former IOC mining operations occurred in the vicinity of the site prior to TSMC's developments;
- Keep potential sources of pollution, fire hazards and public liability at an acceptable level and develop mitigation measures, if required; and
- Provide a safe environment for long-term public access.

During the last phase, the potential sources of pollutants and emissions are noise, suspended solids, dust, exhaust gases and greenhouse gases from heavy machinery and other vehicles.

Environmental factors such as the topographic features of the site, climatic conditions, the presence of watercourses, and hydrogeological conditions may adversely affect the Project. The effects from the environment on the project may vary from minor facility deterioration to catastrophic failure. Federal and provincial standards will be used as mitigation tools in the design stage to prevent environment factors from substantially affecting the Project.

Description of the Physical Environment

The climate of central Ungava has been classified as humid micro-thermal. The growing season is very short and precipitation is moderate. A little more than half of precipitation falls as snow in this region.

Baseline data on the ambient air quality were collected when ambient levels were assessed at the Howells River site, located near the Project. The results show that relatively low particulate concentrations are found in the natural environment. With respect to metals, all concentrations measured are below the Air Pollution Control Regulations from the government of Newfoundland and Labrador.

The ambient noise level measurements taken within the framework of the LabMag Iron Ore Project at the Howells River site are used to describe the ambient noise levels prior to the implementation of the Project. The measured noise levels varied from 36.3 to 39.7 dBA. Those sound intensities reflect local activities, such as the passing of an airplane, a helicopter and a few trucks in the vicinity, as well as the presence of birds.

The distribution and characteristics of landforms in the vicinity of the Project reflect a combination of ridges and valleys formed by folded, iron-rich, Pre-Cambrian metamorphic bedrock; glacial erosion and deposition from a generally northwestward flowing portion of the Laurentide Ice Sheet; deglacial meltwater processes; and post-glacial accumulation of organic matter. The study area is comprised in a discontinuous permafrost zone.

Depositional evidence of meltwater activity, rare in the region, occurs within the area encompassed by the Howse Property itself. In this area, a relatively uniform cover of till overlies buried glaciofluvial sand and gravel. The landform is interpreted to be a buried kame, more or less centered on the deposit, overridden by a late glacial advance. Drilling by the IOC has shown that the overburden covering the Howse Property is about 30 m thick. Silty sand is the most widespread surficial material in the vicinity of the Project. The Howse area is dominated by Irony Mountain which is a prominent bedrock knob resistant to glacial erosion. The Howse Property is a Direct Shipping Ore body (DSO) type which is a leached enriched iron formation.

The groundwater flow is supposed to follow the runoff pattern. From a hydrogeological point of view, the dome shaped kame, more or less centered on the Howse Property, corresponds to a recharge area of groundwater. The groundwater flow is supposed radial from the top of the kame which is circled by a series of wetlands that correspond to areas of discharge of groundwater. The groundwater contributes to feed the creeks and lakes surrounding the dome. The northeast flank of Irony Mountain contributes also to the recharge of the groundwater of the Project footprint area.

Knowledge of the surface flow pattern in the area was updated through field observations and interpretation of 2008 aerial photographs. With a cumulative length of 36 km in the Local Study Area (LSA), the flow is achieved through three main watercourses, namely Goodream Creek to the north, Burnetta Creek to the west and Elross Creek to the south-east.

All of the lakes and ponds cover a surface area of 0.5 km². Triangle Lake is by far the largest water body, followed by Pinette Lake. Small ponds are located nearby, just north-east of the deposit, while the other small lakes and ponds can be found in the periphery of the LSA.

Numerous hydrometric stations already exist in the LSA. There are three types of measurements: instantaneous, recording, and near real-time. Compared to Howells River, smaller watercourses like Elross or Burnetta Creek have less variation in their flow rate. When we compared flow rate results along the same watercourse, evidence of strong downstream resurgence appeared. Results imply that both creeks surrounding Irony Mountain are largely fed by groundwater in their downstream sections.

Physico-chemical *in situ* parameters measured (including dissolved oxygen, temperature, conductivity) were consistent with good water quality in such environments. Conductivity was exceptionally low; the virtual absence of nutrients, salts or impurities in the water showed no correlation between the location of sampling sites downstream and former mining activities. The overall quality of the water for metals and conventional parameters is considered good in comparison to the water of water in the area and as per the Canadian Council of Ministers of the Environment (CCME) guidelines on water quality.

The Schefferville station of the Federation of Digital Seismograph Networks (FDSN) is located within the Eastern Background seismic zone, in which low-level but occasionally noteworthy seismicity may occur.

As for the acid generating potential, based on the acid rock drainage results in the Timmins area and geological similarity between the Timmins area and the Howse Property, it can be deduced that the geological formations that will be encountered in and around the Howse Property have a low acid generating potential.

Description of the Biological Environment

A portion of the study area has been disturbed by previous mining activity, which ended in 1982, in some cases to such an extent that the original condition of the landscape is no longer recognizable. Mining-related alterations to the landscape include numerous test pits and trenches, survey cut-lines, access roads and yards, and abandoned camps, infrastructure and equipment.

The Project is located within two ecoregions: Mid Subarctic Forest (MSF) Ecoregion and the High Subarctic Tundra (HST) Ecoregion. The MSF Ecoregion is characterized by a forest cover that is generally discontinuous; a transition between the relatively productive closed boreal forests to the south and the treeless subarctic tundra to the north. HST Ecoregion support vegetation dominated by shrubs, low shrubs and graminoids.

Black Spruce Lichen Woodland (MSF05) covers more than 40% of the Project footprint. Ecotype MSF05 is typified by a low cover of black spruce and commonly continuous cover of reindeer lichens. Alpine Shrub Mesic (HST01) represents 20% of the Project footprint. Trees are absent or infrequent; the shrub layer is dominated by glandular birch, while the herbaceous layer is diverse. The Mesic / Zonal Spruce Feathemoss Ecotype (MSF01) occupies less than 15% of the Project footprint. Compared to Ecotype MSF05, Ecotype MSF01 has a more closed canopy of black and white spruce and a higher shrub cover. Feather mosses are more abundant than reindeer lichens in the moss layer. Wetlands (forested swamps, shrub and herb fens, riparian shrub fens) represent around 20% of the Project footprint. No flora species at risk were observed during the surveys of terrestrial ecosystems despite exhaustive inventories. An analysis of species designated by the federal and the provincial government revealed that no species at risk might be found in the vicinity of the Project.

The woodland caribou, tundra ecotype, or migratory caribou that might be found in the vicinity of the Project belong to the George River herd. In general, the Project is contained within the migratory corridor of the George River herd that links their calving and wintering grounds. No ranges of forest-dwelling caribou or sedentary caribou overlap the Project LSA. Based on the absence of caribou sightings in several years of survey, there has been no evidence that the study area has been used by sedentary caribou during the pre-calving period in recent years, if ever.

The wolverine, listed both federally and provincially as endangered, has a low potential to be present in the region. The last sighting was in 1978. Prior to 1978, the most recent wolverine sightings in the Schefferville region were those made by the Innu of Matimekush–Lac John in the 1950s. The wolverine is probably extremely rare in Quebec and Labrador or it might have disappeared.

Chiroptera species were not formally identified during the 2005 and 2006 surveys.

A total of 52 species were identified during the breeding bird survey carried out throughout the located on the TSMC DSO Project properties, including 4 birds of prey, 13 aquatic birds and 35 terrestrial birds. Of those 52 species, 41 are considered migrating species under the Convention on Migratory Species. Two bird species at risk are known to nest in the vicinity of the Project footprint: the migratory bird, grey-cheeked thrush and the rusty blackbird. The short-eared owl and harlequin duck have been sighted regionally.

Most of the waterfowls and shorebirds inventoried during the 2011 May and September migration were located within the Howells River boundaries, more than 3 km away from any Project footprint. Waterfowl, Four Lesser Scaups and two Common Goldeneyes were observed during spring migration at Triangle Lake. No waterfowls were seen on Triangle Lake during the fall migration. The only goose hunting site located close to the Howse Project footprint is Pinette Lake, an area not directly affected by the Project. No ducks or geese were seen on Pinette Lake during the spring and fall migrations. Several sightings of rusty blackbirds and the migratory bird, grey-cheeked thrush were made during both migration periods.

Twelve species of fish have been recorded in the Schefferville region and in the Howells River basin. However, only five species are present in the LSA: brook trout, burbot, lake chub, lake trout and round whitefish.

Description of the Socioeconomic Environment

Archeological work was carried out in the vicinity of the LSA and resulted in the discovery of some prehistoric sites as well as numerous Aboriginal sites from the contemporary period. Another archeological inventory was carried out on properties affected by TSMC's DSO project, but it did not reveal any new archeological sites. A Stage 1 Historic Resources Assessment was conducted in 2008 and no archeological site was identified

Four Quebec communities, located in the Schefferville area, are the nearest to the proposed Howse Property mining site. The non-Aboriginal Town of Schefferville, a former IOC mining town, is located 24 km from the Howse Property. The Innu communities of Matimekush and Lac John are located near Schefferville at 24 km and 25 km respectively from the Property. The Naskapi Nation of Kawawachikamach (NNK) is located 25 km from the Property.

The mining industry is cyclical and affects the rate of population growth or decline in communities that are largely reliant on mineral extraction. Permanent population change has the greatest effect on community infrastructure and services. Temporary populations such as construction crews and fly in – fly out workforces may not affect communities unless individuals are housed there. However, they often affect regional services such as transportation.

The communities of Labrador West (Labrador City and Wabush) are more than 200 km away from the proposed Howse Property but workers, materials and equipment for the Project will likely move through, or use services and infrastructure in Labrador City and Wabush.

The economy of the Quebec Labrador border region is dependent on a geological area known as the Labrador Trough. Interest in mining in this area continues to increase as a result of global demand for mineral resources. The two operating Labrador West mines (IOC and Wabush Mines) have been active since the early 1960s. Currently, mining companies are making major investments in the iron ore industry in the Labrador Trough.

In recent years, various mining companies such as TSMC, LIM and NML are investing in a number of projects in the Howell's River area and former IOC sites near Schefferville. As per the Benefits Plan agreement signed with the Government of Newfoundland and Labrador, residents from this province will continue to make up a majority of the workforce, while Newfoundland and Labrador businesses, particularly Labrador West businesses, will continue to supply goods and services to support the mining industry in the region.

Communities in the Quebec Labrador border region are mainly reliant on the mining industry. Strong employment and participation rates are evident, due largely to mining activity. The participation rate and employment rate in Schefferville is higher than the provincial average. With the Project, Matimekush – Lac John and Kawawachikamach participation and employment rates are likely to increase.

Aboriginal traditional uses are often considered to refer to the practices, traditions and customs that distinguish the distinctive culture of an Aboriginal group and which were practiced prior to European contact and control, and can include, for example, hunting or fishing for food and ceremonial purposes. Section 35 of the *Canadian Constitution Act* (1982) recognizes and affirms the existing Aboriginal and treaty rights of the Indian, Inuit, and Metis peoples of Canada, the existence, nature and scope of which have been further defined through land claim and other agreements (treaties) between governments and particular Aboriginal groups in specific areas, as well as through various legal decisions.

The proposed Project does not overlap or otherwise interact with land areas that have been designated as Labrador Innu Lands (Category 1), Labrador Innu Settlement Area (Category 2) or Permit-Free Hunting Areas (Category 3) under the current Labrador Innu Land Claims Agreement-in-Principle.

In terms of known current land, water and resource use activities for traditional purposes, existing and available information indicates that there are presently three core areas for traditional land and resource use activities by the Sheshatshiu Innu:

- group of lakes at the headwaters of Eagle River in southeastern Labrador and its tributaries;
- area of Central Labrador bounded by Uinnukapau (Winnokapau Lake) in the south, Smallwood Reservoir (formerly Mishikamau) in the west, Atshuku-nipi (Seal Lake) in the north, and Nipishish (Nipishish Lake) in the east; and,
- area centered on three lakes – Ashuapamatikuan (Shipiskan Lake), Ashtunekamuku (Snegamook Lake), and Shapeiau (Shapio Lake).

The identified core areas for current Labrador Innu land, water and resource use is located outside of the proposed Project area. The closest site is more than 150 km away.

Other Quebec-based aboriginal groups and the NunatuKavut Community Council have tabled to Canada and to the Newfoundland and Labrador Governments asserted land claims in the region that are yet to be accepted for negotiations by the Newfoundland and Labrador Government. The proposed Project has no impact on the land claims process. The closest Innu site is more than 150 km away.

The Innu of Matimekush-Lac John currently maintains many aspects of their traditional way of life and culture. Like other Aboriginal and northern communities, hunting, fishing, and other such activities form a key part of their food supply and overall culture. Although historically the travel routes and associated activities of the Innu extended through the western Labrador region, in recent years travel into the interior has been somewhat reduced and land use has been more focussed on areas nearer to the communities and especially, the vicinity of existing access roads and other linear infrastructure such as the railway connecting Schefferville to Sept-Iles, Quebec. However, there are established travel routes to the east of the Project area within Quebec, which have been used to reach hunting areas further north, and the associated practice of various harvesting activities.

After they began to reside in the Schefferville area more permanently during the twentieth century, Naskapi land use and harvesting activities focused increasingly upon areas adjacent to the community, and the most concentrated land use currently occurs within a radius of between approximately 30 and 50 km around Kawawachikamach. Recent studies have indicated that the NNK members undertake traditional activities such as hunting (large and small game), fishing and gathering and associated travel and camping throughout an overall region that encompasses the lands and waters to the north and west of their community, including areas that are accessible through existing access road networks and adjacent areas in Quebec and Labrador. In particular, the Howells River Valley and the hills on both sides of it are reportedly used extensively by Naskapi throughout the year.

The interrelationship between health as a Valued Ecosystem Component and the ELAIOM, as well as monitoring and mitigation measures are addressed in TSMC'S DSO Project 1a (ELAIOM) EIS (NML, 2009). A component study on Aboriginal health can also be consulted in said study.

Commercial land, water and resource use include mining, outfitting and forestry (exclusively in Labrador). Known resource harvesting includes fishing, hunting and to a lesser degree, trapping, and domestic wood cutting. Figure C shows the known resource harvesting area as well as seasonal residences located in the vicinity of the Howse Property Project.

The only protected areas in western Labrador are located within the municipal planning areas of the Towns of Labrador City and Wabush. No existing or proposed protected areas are located within the LSA.

During recent consultations related to this Project, representatives of Aboriginal communities also described the presence of Irony Mountain (Kauteitinat) site near the Project area, and discussed its importance to the Innu.

Consultation and Issues Scoping

Consultation is the cornerstone of the Environmental Assessment (EA) process, and a key aspect of the Proponent's approach to its project planning and development activities.

Integrating the environmental and human components of sustainable development in mining is important for HML. The company is committed to working with Aboriginal communities impacted by its activities and to ensuring that Aboriginal communities and organizations are consulted appropriately on the proposed Project and that there is a meaningful accommodation of their rights and interests as required by Section 35 of the *Canadian Constitution Act (1982)* and as per IBAs signed with them.

Project-related IBAs and other Agreements signed with individual Aboriginal groups include the following:

Labrador Iron Mines (LIM):

- Innu Nation : IBA dated July 17, 2008
- NNK: IBA dated September 2, 2010
- Nation Innu Matimekush-Lac-John (NIMLJ): IBA dated June 6, 2011;
- Innu Takuaikan Uashat mak Mani-Utenam (ITUM): IBA dated February 13, 2012; and
- NunatuKavut Community Council (NCC): Economic Partnership Agreement, dated December 14, 2012

Tata Steel Minerals Canada (TSMC):

- NNK: IBA dated June 10, 2010
- NIMLJ: IBA dated June 6, 2011
- Innu Nation: IBA dated November 11, 2011
- ITUM: IBA dated February 9, 2012
- NCC: Cooperation Agreement dated August 14, 2013

The responsible development of the Howse Property is provided for in the LIM agreements. The spirit of these agreements is embodied in the provision of mechanisms for full and effective participation and involvement of said groups in the planning and implementation of the Howse Property Project so that socioeconomic benefits flow to them and that their traditional activities and knowledge are respected and that environmental impacts are minimized.

HML has determined, based on the company's owner's (TSMC) previous work with the concerned Aboriginal groups, that the groups most impacted by the Howse Project planned activities are ITUM, the NNK and the NIMLJ. This is due to the fact that family trapline holders in the area around Howse (lot #211 – Jean-Marie Mackenzie family; and lot # 207 – Louis (Sylvestre) Mackenzie family) are ITUM members and the area near the Kauteitinat Mountain has been identified as a sensitive area in the ITUM Impact and Benefit Agreement with Labrador Iron Mines, while members of the NNK and the NIMLJ actively use the land near the Howse Property (Irony Mountain / Kauteitinat and the Howell's River valley) (see Figure C). Members of Innu Nation and NCC are not known to use the land in the Howse area. Therefore engagement, in keeping with the spirit of the agreements signed, will be carried out with all five groups, but will be more extensive with the three former groups.

The Proponent has provided Project overview information to, and corresponded and met with, the provincial and federal governments on various occasions. Table B presents a summary of the recent consultations with Aboriginal Groups and the key outcomes.

Table B Consultations with Aboriginal Groups to Date and Key Outcomes

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
NIMLJ	Montreal, June 3, 2013	▪ Presentation of information on the Joint Venture and plans to mine the Howse Deposit. ▪ No concerns were raised
Innu Nation	Montreal, July 18, 2013	▪ Provision of a Project update, including information on the Joint Venture and plans to mine the Howse Deposit. ▪ No comments were received
ITUM	Montreal, August 8,2013	▪ Provision of a Project update, including information on the Joint Venture and plans to mine the Howse Deposit. ▪ Indicated that further discussion on the mining of Howse will be required at a later time
IBA Implementation Committee represented by the NIMLJ, NNK, ITUM, Innu Nation, NCC and TSMC	Schefferville, August 28, 2013	▪ Provision of a Project update, including information on the Joint Venture and plans to mine the Howse Deposit. ▪ No concerns were raised
TSMC Community HSE Committee, represented by the NIMLJ, NNK, ITUM and Innu Nation	Uashat, October 7, 2013	▪ Provision of information on planned mining activities relating to the Howse Deposit, including details on the Exploration Plan ▪ NIMLJ and ITUM representatives expressed concern with the proximity to Irony Mountain ("Kauteitinat"), which has spiritual and historical significance to the Innu, as well as the Project's planned production timeframe. ▪ It was explained that a separation (buffer) zone would be established and maintained between Kauteitinat and Project activities; ▪ Aboriginal groups will be kept informed of exploration and development activities as they progress, and TSMC will support the groups in the dissemination of information to their membership.
Correspondence (electronic mail) sent individually to NIMLJ, NNK, ITUM and Innu Nation representatives regarding the 2014 permit application for the Howse Deposit	October 15 2013	▪ No responses were received
NIMLJ Council	Howse Property Site, November 7, 2013	▪ Potential disruptions to goose hunting activities on the opposite (west) side of Kauteitinat in May as a result of noise from the proposed mining activities. ▪ HML adjusted Project layout to minimize visual impacts on Kauteitinat and ensure continuous access to harvesting grounds at Pinette Lake and the Howell's River Valley. ▪ HML to consider, and discuss with the NIMLJ, how to avoid or reduce any such potential disturbance through Project construction and operations planning.
ITUM delegation (including Council representatives and	Howse Property Site, November 10, 2013	▪ The Howse deposit is situated on the trapline of the Jean-Marie Mackenzie family and the Louis Sylvestre Mackenzie family, presently residing in Uashat and

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
members of the Jean-Marie Mackenzie family and the Louis Sylvestre Mackenzie)		Maliotenam. ▪ Before the commencement of its exploration program at Howse, TSMC brought an ITUM delegation which included members of the Mackenzie family, to the Howse site to evaluate and discuss the exploration works and its distance from Kauteitinat. ▪ The ITUM delegation requested that TSMC establish a sufficient buffer zone between Kauteitinat and the planned exploration and mining activities and make efforts to minimize any visual impact of these activities. ▪ HML adjusted Project layout to reduce waste pile height and thus the visual impact as well as increased the distance between Irony Mountain and the Project.
NIMLJ	By Email, January 24th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
ITUM	By Email, January 24th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
NNK Council	Kawawachikamach, January 28th, 2014	▪ HML presented information on the Howse Project including location, purpose, environmental assessment process, environmental effects, impact avoidance and reduction, maps. Handouts were also provided including maps and a pamphlet in French and Innu (Appendix IV). ▪ Question on harvesting ground access was raised. HML explained that the company will ensure that land users will continuously have access to harvesting grounds except for periods of blasting. ▪ Questions on the mechanics of the IBA were raised. HML explained that LIM will be responsible for revenue-sharing payments.
Innu Nation (Community HSE Committee)	Timmins Site (invited but could not participate due to schedule conflict), January 28th 2014,	▪ Provided information electronically on TSMC's DSO Project and on the Howse Project including location, purpose, environmental assessment process, environmental effects, impact avoidance and reduction, maps. ▪ No comments on Howse were received.
NunatuKavut Community Council (Community HSE Committee)	Timmins Site, January 28th 2014	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in English and Naskapi (Appendix IV). ▪ No concerns were raised.
Innu Takuaikan Uashat mak Maniutenam (Community HSE Committee)	Timmins Site, January 28th 2014	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in French and Innu.

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PRONENT RESPONSE
		▪ Concerns were raised on the cumulative impact of dust caused by mining activities in general. ▪ Although dust originates from multiple sources, it was agreed that HML and the communities will collaborate to take steps towards greater dust control in the Schefferville area, including the creation of a Steering Committee on air quality involving the Town of Schefferville, other mining companies active in the area, and which will require the support of the provincial and federal governments in the area of investment in the local road system.
NIMLJ (Community HSE Committee Meeting)	Timmins Site, January 28th 2014,	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in French and Innu. ▪ Concerns were raised on the cumulative impact of dust caused by mining activities in general ▪ Although dust originates from multiple sources, it was agreed that HML and the communities will collaborate to take steps towards greater dust control in the Schefferville area, including the creation of a Steering Committee on air quality involving the Town of Schefferville, other mining companies active in the area, and which will require the support of the provincial and federal governments in the area of investment in the local road system. ▪ The NIMLJ recommended hiring Innu environmental science graduates for environmental monitoring work. HML indicated that it previously has provided, though the TSMC DSO Project, job shadowing opportunities for students interested in environmental studies and is continuously seeking profiles of Aboriginal candidates for the position of Environmental Technician/Coordinator. The NIMLJ will forward résumés of Innu's with the relevant education for consideration in future employment and work experience opportunities.
NNK (Community HSE Committee)	Timmins Site, January 28th 2014	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in English and Naskapi. ▪ Concerns were raised on the cumulative impact of dust caused by mining activities in general. ▪ Although dust originates from multiple sources, it was agreed that HML and the communities will collaborate to take steps towards greater dust control in the Schefferville area, including the creation of a Steering Committee on air quality involving the Town of Schefferville, other mining companies active in the area, and which will require the support of the provincial and federal governments in the area of investment in the local road system.

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
Innu Nation	By Email, January 29th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
NNK	By Email, January 29th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
NCC	By Email, January 29th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ NCC asked about the mechanics of the IBA obligations in relation to the joint venture between LIM and HML and the implications if LIM defaults on its revenue-sharing payments. HML explained that should LIM default on payments relating to the Howse Project, HML will assume responsibility for said payments.
NNK Community-at-large	Kawawachikamach, January 29th, 2014	▪ Information Centre held in which approximately 10-15 community members attended. Information was presented on location, purpose, nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Posters were made available, as well as handouts including maps and pamphlets in English and Naskapi. ▪ The following questions and concerns were raised by attendees: o Will Howell's River be impacted by the Project? HML indicated that it will not because it is sufficiently distant and on the other side of Irony Mountain. o Mining is destructive to the land and the people who use it and is occurring at an overly advanced pace. HML noted the comment. o What is the restoration plan? HML indicated that it will be progressive in nature and consist of laying topsoil that was set aside from preliminary mining works and the planting of vegetation, building safety barriers around pits, re-sloping waste dumps that will resemble the natural landscape, environmental monitoring 10 years following pit closure.
Members of the Jean-Marie Mackenzie family and the Louis Sylvestre Mackenzie (holders of Trapline no's 207 and 211)	Uashat, January 30th , 2014	▪ HML provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in French and Innu. ▪ A Mackenzie family member asked why this location was chosen to mine and whether the mine couldn't be farther away. HML explained that this area specifically represents a high iron content ore body. ▪ A Mackenzie family member asked where the process water will be sent. HML indicated that no tailings process water is expected since the ore will be mined, crushed, screened and shipped without being processed at the plant. ▪ A Mackenzie family member indicated that many birds nested on Kauteitinat. HML confirmed that as a

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
		mitigation measure, clearing and stripping will be suspended during bird nesting periods which take place in the Spring as stated in TSMC Environmental Protection Plan. ▪ A Mackenzie family member recommended hiring Innu environmental science graduates for environmental monitoring work. HML indicated that it previously has provided, though the TSMC DSO Project, job shadowing opportunities for students interested in environmental studies and is continuously seeking profiles of Aboriginal candidates for the position of Environmental Technician/Coordinator. ▪ A Mackenzie family member asked whether TSMC or HML test for mercury and other heavy metals in fish, given that there is some apprehension that fish that they eat from fishing could contain heavy metals as a result of mining. HML indicated that it does not have a procedure in place for monitoring of heavy metals in fish. ▪ Mackenzie family members raised concerns about possible dumping of wastewater into nearby lakes, as was witnessed and recorded by local residents near another mining operation. HML indicated that it did not have sufficient information on the matter to comment. ▪ A Mackenzie family member asked whether there was a possibility that blasting activities could cause cracks in Kauteitinat. HML indicated that such cracks would not occur given the measures taken to contain the blast to a very small area. ▪ A Mackenzie family member asked what the schedule was for workers. HML explained that schedules vary according to the employer/contractor, but that work schedules for Aboriginal workers can, depending on the nature of the work, be adjusted according to a mutually acceptable rotation.
ITUM Community-at-large	Uashat and Maliotenam, January 30th, 2014,	▪ Pamphlets on the Howse Project in French and Innu were distributed in public places in Uashat and Maliotenam.
NIMLJ and ITUM Councils	Matimekush, February 12th, 2014,	▪ Meeting to discuss the Howse Project and other matters. Project information including maps and pamphlets in French and Innu were distributed. ▪ ITUM asked about the mechanics of the IBA obligations in relation to the joint venture between LIM and HML and the implications if LIM defaults on its revenue-sharing payments. HML explained that should LIM default on payments relating to the Howse Project, HML will assume responsibility for said payments.

HML will continue with its communication and engagement activities (including meetings with committees, elected councils, local land users, an information centre, radio announcements), as per the following plan (Table 6.5):

Table C Howse Property Project Engagement Plan

ABORIGINAL GROUP	ORGANIZATION / INDIVIDUALS	MEANS	DATE AND LOCATION
Innu Nation	Innu Nation Representatives, Community HSE Committee	Meeting	Quarterly/ Timmins Site
NunatuKavut Community Council	NCC Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
Innu Takuaikan Uashat mak Maniutenam	ITUM Environment Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
	ITUM Council		Annually, Uashat
	Trapline Families (Lots #211, #207 – see Figure 6.1)		Annually, Uashat
Naskapi Nation of Kawawachi-kamach	NNK Environment Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
	NNK Council		Annually, Naskapi Nation Office
	Community at-large	Radio Program	Quarterly, Naskapi Radio
Nation Innu Matimekush-Lac John	NIMLJ Environment Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
	NIMLJ Council	Meeting	Annually, NIMLJ Nation Office
	Interested community members	Information Centre	March 2014, Matimekush Community Centre
	Community at-large	Radio Program	Quarterly, Matimekush

As for consultation with non-aboriginal local stakeholders, no formal consultation has occurred yet. Meetings are planned for April 2014. However, the local population of Schefferville is welcomed to visit and to provide comments to the Information Center of the Howse Property Project at the NML/HML's office in Schefferville. To this date, no comments had been raised about the Howse Property Project at the Information Center.

The Proponent also understands that this EA Registration will be made available to all interested parties, including relevant Aboriginal and non-Aboriginal organizations, for their information, review and comment as part of the EA process, and that any concerns or other input received will be considered in governmental decisions around whether the Project may proceed, and if so, under what terms and conditions.

Potential Environmental and Socioeconomic Effects and their Management

The Proponent developed a comprehensive strategy to minimize its negative effects on the biophysical and social environments and to maximize its positive effects. The same standard and special mitigation measures applied to the TSMC's DSO Project will also be reinforced for all of the Howse Property Project phases.

The project is adjacent to the provincial border between Labrador and Quebec and the closest projected infrastructure is about 950 m from the border. Given the proximity of the Project, there is a potential for changes to the environment to occur in Quebec essentially in relation to air quality and noise due to increased traffic, blasting operations and running generators. However, these changes should be negligible as the receptors are located far enough from the Project and air quality standard will be respected at all time.

Activities taking place during the construction phase may result in the emission of pollutants and noise. The noise generated by construction phase activities should not affect the receptors in the region given their distance from the construction sites. During site preparation and construction, the dust generated by traffic on unpaved roads and by site preparation work could affect air quality. During the operations phase, the principal sources of noise will be blasting, transportation and handling activities. The highest level of noise, excluding blasting activities, will only be perceived at the workers' camp. As for the noise generated by blasting, it will be perceptible by all receptors, but this level of noise will occur over very short periods (a few seconds). Its anticipated frequency is relatively low (once a week), and blasting will occur during the day and at a set hours.

The atmospheric emissions related to the operations phase will consist mainly of particulate matter. Several standard pollution control measures will be in place to substantially reduce particulate emission.

The construction activities will have an effect on water quality since the project infrastructures will be located close to some water bodies and, given the local topography, suspended matter may be generated by surface run-off. Some coloration of the water might also occur at this stage. Surface run-off will be intercepted by a ditch network and directed to a sedimentation pond before reaching the natural environment.

The effects that are expected to occur during the construction phase will continue during the operations phase. Seepage from waste rock piles is another potential effect on water quality. However, risks of acidification and seepage from waste rock are considered to be very low.. Dewatering the pit will lower the water table. Some water bodies have a risk of drying out locally, particularly around the pits. Since the hydrogeological study has not yet been completed, it is not possible at this time to know the water table's drawdown radius inside which the water bodies could dry out. Nevertheless, dewatering water will be discharged upstream of Goodream creek and will stay in the Howells River watershed, so overall water balance will not be modified.

The construction phase activities will affect the terrestrial ecosystems, especially with the clearing, stripping and mine development of the Howse Property Project. The construction of the crushing/screening facilities will affect 3.07 ha of ecosystems, none of which are wetlands. The clearing, stripping and site preparation for the open pits and their related stockpiles occupy most of the project footprint, affecting a total area of 208.88 ha, of which 20.86 ha are wetlands. Pit dewatering may also alter the moisture regime of wetlands immediately adjacent to the Howse pit, considering the drawdown of the water table. All disturbed or destroyed ecosystems are very common both locally and regionally.

Some of the ecosystems that will be affected during the construction phase are potential habitats for terrestrial fauna species at risk or for other species of interest. The disturbance to the most suitable habitats for migratory caribou represents 96 ha. However, considering the thousands of square kilometers that migratory caribou cover each year, the loss associated with the Project is altogether small. For sedentary caribou, a loss of habitat might result in increased predation and hunting rather than a reduction of available food. However, the Project LSA does not encompass any known ranges of sedentary caribou. The nesting habitats of two bird species at risk will be affected by the construction phase. To prevent any loss of broods, clearing and stripping should not be carried out during the breeding bird season (from May through August). Loss of habitats during the construction phase should not considerably disturb migratory bird during their migration as the majority of high quality habitats (staging areas) are located down in the Howell's River valley more than 3 km away from the Project. Noise disturbance, mostly caused by transportation and traffic, may have a minor effect on caribou and wolverine (if present). For migratory caribou, noise disturbance might result in a modification of their migratory pattern. The sedentary caribou is particularly sensitive to disturbances during the calving season. However, since there is no caribou have been seen in the vicinity of the Project in recent years, it is not expected that the Project will disturb sedentary caribou. Special mitigation measures will be developed for the Project including:

- Implementation of a workers' awareness program;
- Speed limit and preventive maintenance program for mufflers;
- Interruption of noise-generating activities should a group of approximately 100 migratory caribou approach within 5 km or when a group of approximately 10 caribou approaches within 3 km;
- Prohibition of hunting for workers.

In cooperation with GNL and Government of Québec, TSCM and HML will participate actively in the Caribou Ungava Research Program a large research program on the ecology and population dynamics of migratory caribou of the Quebec-Labrador peninsula in a context of climate change.

Noise disturbance have a potential effect on migratory birds, especially during the breeding season. It might cause birds, such as the rusty blackbirds, to avoid the area. Since it was recommended to proceed with the clearing and stripping outside the breeding bird period, it might lessen the noise disturbance for birds during the construction period.

Mining and dewatering are the main activities that could potentially have an effect on the aquatic fauna or its habitat while operations and maintenance are ongoing. Indeed, blasting near water bodies may injure or kill fish from all life stages. By limiting charges to 4,400 kg between August and January, the impact on fish eggs should not be considerable since it will ensure the protection of fish eggs in Goodream Creek, which is a known spawning ground. The rest of the year (February to July), a maximum charge of 27,800 kg will prevent fish mortality in all water bodies. Theoretically, dewatering could indirectly cause the disappearance of aquatic habitats by lowering the water table but none of the adjacent water bodies are considered fish habitats since no fish was caught in them and due to the low quality of the habitat. Finally, the potential siltation due to the discharge of suspended matter in the surface water could have a direct impact on the survival of fish and benthos.

HML is planning to use TSMC's existing workforce and up to 50 new employees, including from the Aboriginal communities, and rotational workers to construct and operate the Howse Property. These workers are housed in TSMC camp accommodations near the work site and outside of municipalities to minimize their effect on communities. These commuting workers use local and regional air transportation, roads and accommodations as they travel to and from the camp site. Development and implementation of the Howse Property will sustain the local economy, including the Aboriginal economy, and create ongoing opportunities for employment and businesses (over $150 million have been invested in Aboriginal businesses and partnerships since the beginning of TSMC's DSO project).

Support has been and will continue to be provided by LIM and TSMC for local infrastructure (local arena and pool, healing centre, training, education, environmental protection, economic development, traditional activities, arts and music, and revenue sharing). Furthermore, there are clear measures identified for safe, healthy, respectful and culturally cognizant work conditions and arrangements as these relate to counselling, transportation, rotation schedules, cultural leave, harvesting restrictions by workers staying at Camp and country food.

Project construction and operations will result in changes in access to particular sites within the Project area for defined periods, due to required site restrictions for safety reasons. This phase will also potentially affect activities through the alteration of the natural landscape following the development of the various Project components and other associated activities within the Project area as well as, potentially, within the larger zone of influence of the various Project-related disturbances (noise, dust, visual intrusions). Nevertheless, the Project footprint and LSA represent a very small proportion of the overall area available for resource harvesting and commercial land use activities. As the Project is not likely to adversely affect the location or timing of current non-Aboriginal use of land, water and resources, nor the overall level of participation in activities, no associated decrease in the overall quality or value of these activities is anticipated.

Land, water and resource use activities are an important and integral part of the culture and lifestyles of many Aboriginal people and communities, and may be affected by development projects both directly and indirectly. Any change in the distribution (location and / or timing) or overall level of such activities may translate into a change in the quality and cultural value of these pursuits by Aboriginal persons and communities. As a way to mitigate the impacts the Project may have on Aboriginal harvesting activities, the Proponent has provided through IBAs community funds for the support of traditional activities. In any event, the disturbances on Aboriginal harvesting activities caused by the Project will be localized and minimal as other areas of Labrador and / or Quebec will still be accessible for the pursuit of traditional activities of each of the Aboriginal groups under consideration.

For the DSO Project, TSMC has in place a Community Health, Safety and Environment Committee (HSE) composed of the five concerned Aboriginal groups who meet together with TSMC on a quarterly basis. TSMC plans to maintain this committee and include the Howse Property Project to its conversations. With a view to supporting a holistic approach, the Committee acts as an avenue for meaningful exchanges between the groups on all matters relating to the communities' health, safety and the environment as they pertain to the TSMC's and HML's activities, planned works, impacts and mitigation measures. When deemed useful, guests are invited to participate, including Elders and other experts in order to seek and integrate expert advice into day-to-day procedures and strategies. In addition to community and company experts in safety and the environment, community health and social services representatives will be invited to participate in meetings that address community health matters that might be linked to mining activities.

During recent consultations related to this Project, NIMLJ and ITUM representatives described the presence of Irony Mountain ("Kauteitinat") site near the Project area, and discussed its importance to the Innu. In doing so, the First Nation representatives and local population expressed concern with the Project's proximity to this site, which has spiritual and historical significance. To help address this concern and to accommodate Aboriginal interests, the Proponent will establish and maintain a separation (buffer) zone between Kauteitinat and the Project, and there will be on-going dialogue and cooperation with the relevant Aboriginal groups in defining and implementing this separation area and other associated mitigation measures. The initial Project layout was also greatly modified to reduce visual effects of the Project on local landscape.

As TSMC is now operating the DSO Project 1a (ELAIOM) and completed the EA processes for 2a and 2b, comprehensive monitoring mechanisms are already in place to ensure that the above objectives are attained. HML will use and, if required, adapt these monitoring mechanisms to the Project by:

- Modifying the Environmental Protection Plan developed for the Construction and Operation Phases of TSMC's DSO Project 1a in order to incorporate the Project monitoring objectives;
- Adapting the Environmental Effects Monitoring (EEM) study design to the Project environment. It should be noted that Elross Creek and Goodream Creek are already covered by TSMC's DSO Project 1a EEM study design;
- Adapting the Government of Newfoundland and Labrador/Environment Canada Real-time Monitoring Program to the Project environment (Elross Creek and Goodream Creek water quality instant monitoring is already effective and measures all main water quality parameters);
- Including the Project monitoring objectives in the community Health, Safety and Environment (HSE) Committee meetings, established in Spring 2013. As discussed above, the HSE Committee monitor and facilitate the implementation of TSMC's (and eventually HML) obligations under its respective IBAs, provincial and federal laws, and corporate policies.

HML is confident that the above environmental monitoring measures will adequately monitor all essential biophysical and socioeconomic effects as well as the effectiveness of their related mitigation measures.

Additionally, all mining activities will be covered by an Environmental Protection Plan (EPP) prepared by HML specifically for the Project. The EPP will include provisions for blasting and drilling, erosion protection, vegetation and wildlife control, protected species control, etc.

Approval of the Undertaking

In addition to approval under the provincial and federal EA process, the proposed Project will also require a number of other environmental permits and authorizations from the following departments / agencies:

- Canadian Wildlife Service, Environment Canada
- Department of Environment and Conservation
- Department of Natural Resources
- Department of Transportation and Works
- Engineering and Inspections Division, Service NL
- Engineering Services Division, Service NL
- Environment Canada
- Environmental Protection Division, Department of Environment and Conservation
- Fisheries and Oceans Canada
- Industry Canada
- Mineral Lands Division, Department of Natural Resources
- Mines Branch, Department of Natural Resources;
- Natural Resources Canada
- Operations Division, Service NL
- Pollution Prevention Division, Department of Environment and Conservation
- Program and Support Services Division, Service NL
- Service NL

- Transport Canada
- Water Resources Management Division, Department of Environment and Conservation

A list of the potential permits and authorization required for the project is presented at Table D.

Table D List of Potentially Applicable Environmental Permits and Authorizations

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
Government of Newfoundland and Labrador				
Development Plan and Rehabilitation and Closure (R&C) Plan Approval	*Mining Act* and *Mining Regulations*	Project development	Mines Branch, Department of Natural Resources	The *Mining Act* includes a number of key requirements which pertain to mine development in the province, including the preparation and approval of a Development Plan and a Rehabilitation and Closure (R&C) Plan, as well as the posting of appropriate Financial Assurances
Surface Lease	*Mineral Act* and *Regulations*	Any mining development on Crown Lands	Mineral Lands Division, Department of Natural Resources	A Surface Lease issued under Section 33 of the *Mineral Act* is required for development of a Mining Lease issued under the Act
Mineral Exploration Approval	*Mineral Act* and *Regulations*	Any mineral exploration and geotechnical activities within a Mining Lease or Mineral Licence	Mineral Lands Division, Department of Natural Resources	An application for Exploration Approval must contain a detailed plan and description of the proposed activities
Certificate of Approval for any Alteration to a Body of Water	*Water Resources Act*	Any activities which may alter a water body, including in or near water works	Water Resources Management Division, Department of Environment and Conservation	Permits are required for construction activities within 15 m of the high watermark of any water body as well as any in-stream activity. - Schedule A –Culverts - Schedule B –Bridges - Schedule C –Dams - Schedule D –Fording - Schedule E –Pipe Crossing – Water Intake - Schedule F –Stream Modification or Diversion - Schedule G –Small Bridges - Schedule H –Other Alterations
Certificate of Approval for Site Drainage	*Water Resources Act*	Drainage from work sites	Water Resources Management Division, Department of Environment and Conservation	Approval is required related to the management of on-site drainage

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
Water Use License	*Water Resources Act*	Water withdrawal for use in construction and operation activities	Water Resources Management Division, Department of Environment and Conservation	Water use authorization is required for all beneficial uses of water
Application for Permit for Constructing a Non-Domestic Well	*Water Resources Act*	Establishment of a water well	Water Resources Management Division, Department of Environment and Conservation	A license is required to establish a non-domestic water well in Newfoundland and Labrador
Policy Directives	*Water Resources Act*	Project activities	Water Resources Management Division, Department of Environment and Conservation	The Department has a number of potentially applicable policy directives in place, including those related to: Infilling Bodies of Water; Development in Wetlands; and others
Compliance Standard	*Water Resources Act, Environmental Control Water and Sewage Regulation*	Any waters discharged from the project	Department of Environment and Conservation	A person discharging sewage and other materials into a body of water must comply with the standards, conditions and provisions prescribed in these regulations for the constituents, contents or description of the discharged materials
Quarry Permit (if required)	*Quarry Materials Act* and *Regulations*	Extracting borrow material	Mineral Lands Division, Department of Natural Resources	A permit is required to dig for, excavate, remove and dispose of any Crown quarry material
Commercial Cutting Permit Operating Permit	*Forestry Act* and *Cutting of Timber Regulations*	Clearing land areas for the Project	Department of Natural Resources	A permit is required for the commercial cutting of timber on Crown Land
Permit to Burn (if required)	*Forestry Act* and *Forest Fire Regulations*	Any burning required during the Project	Department of Natural Resources	A permit is required to light fires outdoors between April and December. Permits are not issued during forest fire season
Certificate of approval for diesel generators	*Environmental Protection Act,*	Any diesel generators or other project components or activities	Pollution Prevention Division, Department of Environment and	The Regulations outline specific ambient air quality standards and emission standards, as well as

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
	Air Pollution Control Regulations	with air emissions	Conservation	relevant engineering design (e.g., stack height) requirements and other provisions
Fuel Tank Registration - Storing and Handling Gasoline and Associated Products	*Environmental Protection Act*, and *Storage and Handling of Gasoline and Associated Products Regulations*	Storing and handling gasoline and associated products	Engineering Services Division, Service NL	Fuel Tank Registration is required for storing and handling gasoline and associated products
Mobile Fuel Storage Tank Relocation Request Form (if required)	*Environmental Protection Act* and *Environmental Guidelines for Fuel Cache Operations*	Temporary fuel storage	Engineering Services Division, Service NL	A permit is required for any temporary fuel storage in a remote location
Permit for Storage, Handling, Use or Sale of Flammable and Combustible Liquids	*Fire Prevention Act*, and *Fire Prevention Flammable and Combustible Liquids Regulations*	Storing and handling flammable liquids	Engineering Services Division, Service NL	This permit is issued on behalf of the Office of the Fire Commissioner. Approval is based on information provided for the Certificate of Approval for Storing and Handling Gasoline and Associated Products
Certificate of Approval for Collecting or Transporting Used Oil	*Environmental Protection Act*, *Used Oil Control Regulations*	Information on the equipment used for collecting and transporting used oil.	Engineering Services Division, Service NL	A person shall not engage in the collection, transportation and storage of used oil without first applying for a certificate of approval.
Wildlife management license (if required)	*Wildlife Act*	Dealing with nuisance wildlife	Department of Natural Resources	The Department provides direction on handling nuisance animals. Details on the situation must be provided for a permit to be issued
Compliance Standard	*Fire Prevention Act*, *Fire Prevention Regulations*	On-site structures (temporary or permanent)	Engineering Services Division, Service NL	All structures must comply with fire prevention standards
Occupancy review and permit (if required) for building	*Occupational Health and Safety Act* and *Regulations*	Project-related occupations	Service NL	Outlines minimum requirements for workplace health and safety. Workers have the right to refuse

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
				dangerous work. Proponents must notify Minister of start of construction for any project greater than 30 days in duration
Compliance Standard	*Occupational Health and Safety Act, Workplace Hazardous Materials Information System Regulations*	Handling and storage of hazardous materials	Operations Division, Service NL	Outlines procedures for handling hazardous materials and provides details on various hazardous materials
Building Accessibility Exemption Registration	*Building Accessibility Act and Regulations*	Any buildings required to support the project that does not require public access.	Operations Divisions, Service NL	Exemption from building access requirements should be made for all buildings related to the project
Electrical Permit and Inspection	*Public Safety Act, Electrical Regulations*	Infrastructure for the project requiring electrical wiring	Program and Support Services Division, Service NL	Electrical work must be completed under permit by a registered contractor or the work must be inspected by Service, NL
Fire and Life Safety Plan Review	*Fire Protection Services Act*	Any building required to support the project	Engineering and Inspections Division, Service NL	All commercial building plans must be approved with regard to fire prevention and suppression systems
Compliance standards; permits may be required	National Fire Code National Building Code Life Safety Code	On-site structures (temporary or permanent)	Service NL	Compliance / approval is required for all Project related buildings
Government of Canada				
Letter of Advice or Authorization for Works or Undertakings Affecting Fish Habitat	*Fisheries Act*	Any activities in or near water that may support a fishery	Fisheries and Oceans Canada	DFO has established Newfoundland and Labrador Operational Statements for various activities. These are available online (*http://www.dfo-mpo.gc.ca/habitat/what-quoi/os-*

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
				eo/nl/index-eng.asp) and outline environmental protection measures that, if followed during construction and maintenance activities, will result in no contravention of Section 35 of the *Fisheries Act* DFO will make a determination on the level of risk associated with the project activity. If it is determined to be a low risk then a Letter of Advice may be issued. If it is determined to be a higher level of risk an Authorization may be required
Explosives Purchase and Possession Permit (if required)	*Explosives Act*	Purchase and possession of explosives	Natural Resources Canada	A permit is required to purchase and possess explosives
Explosives Transportation Permit (Contractor)	*Explosives Act*	Transportation of explosives	Natural Resources Canada	A permit is required for transporting explosives
Compliance Standard	*Fisheries Act*, Section 36(3), Deleterious Substances	Any run-off from the Project site being discharged to receiving waters	Environment Canada	Environment Canada is responsible for Section 36(3) of the *Fisheries Act*. Discharge must not be deleterious and must be acutely non-lethal
Compliance Standard	*Migratory Birds Convention Act* and *Regulations*	Any activities which could result in the mortality of migratory birds and endangered species and any species under federal authority	Canadian Wildlife Service, Environment Canada	Prohibits disturbing, destroying or taking a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, and possessing a live migratory bird, carcass, skin, nest or egg. The Canadian Wildlife Service should be notified about the mortality of any migratory bird in the Project area
Policy	Federal Policy on Wetland Conservation	Any disruption of wetland habitat	Environment Canada	The goals of this policy should be considered where a project could affect wetland habitat

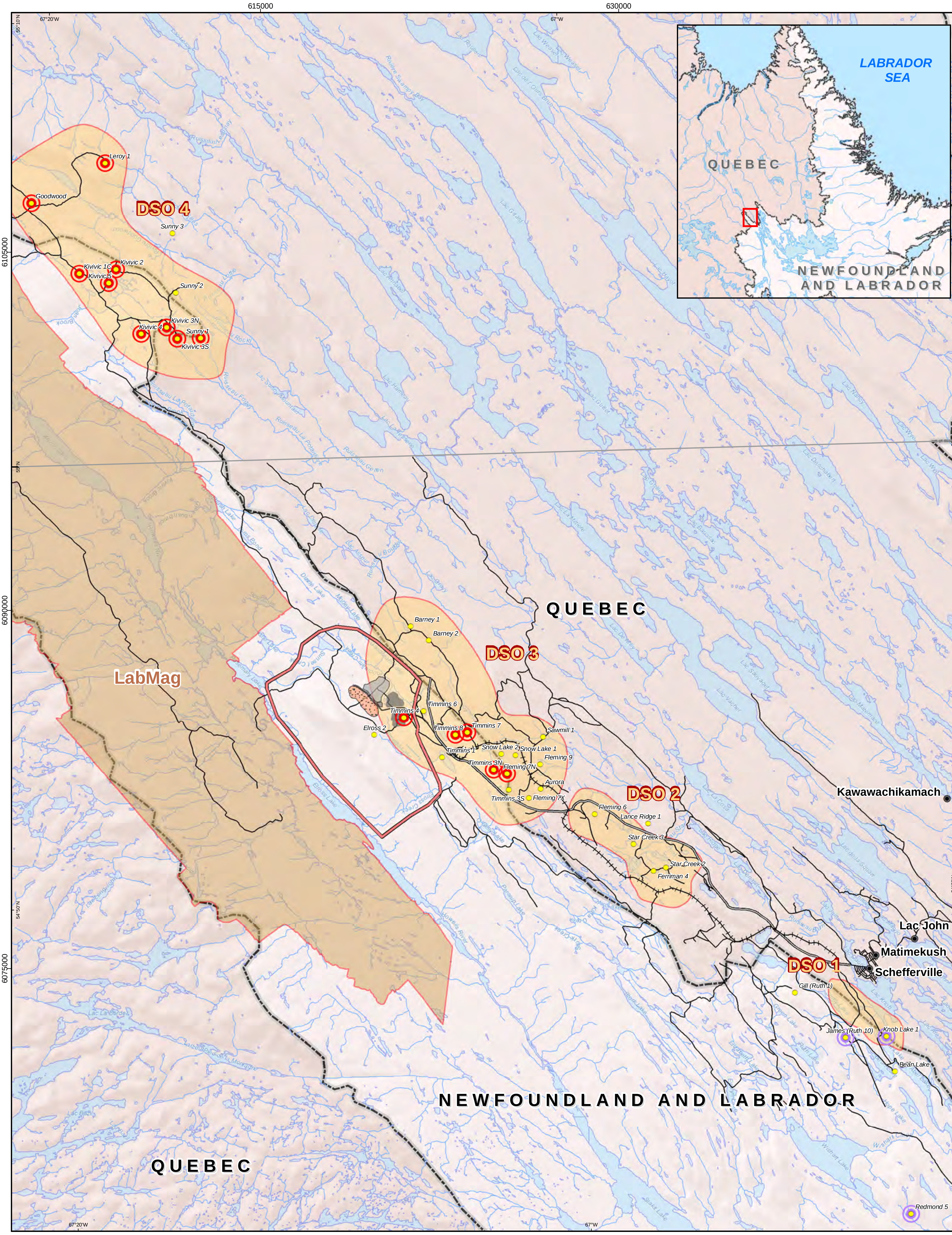
Project Schedule

The construction phase for the Howse Property is expected to start in 2016, subject to regulatory and environmental approvals.

HML is planning to start extracting iron ore at the Howse Property by 2016. Mining activities at the Howse Property are expected to go on until 2027, for a total of twelve years.

Funding

The Project does not depend on a grant or loan of capital funds from a federal, provincial or other government agency. It will be financed solely by private investment.



LEGEND

Infrastructure And Mining Components

- DSO - Deposit
- LIM Project
- TSMC Project
- Proposed Howse Pit
- Proposed Low Grade/Overburden Stockpile
- Proposed Crushing/Screening Facility
- Proposed Waste Rock Dump
- DSO Howse Local study area
- DSO - Other Site
- Taconite - LabMag

Basemap

- Town
- Railroad
- Road
- Watercourse
- Waterbody
- Provincial Boundary

Figure A

Location

DSO Howse Property

0 2,5 5 7,5 10

Kilometers

SCALE:
1:150 000

UTM 19N Nad 83

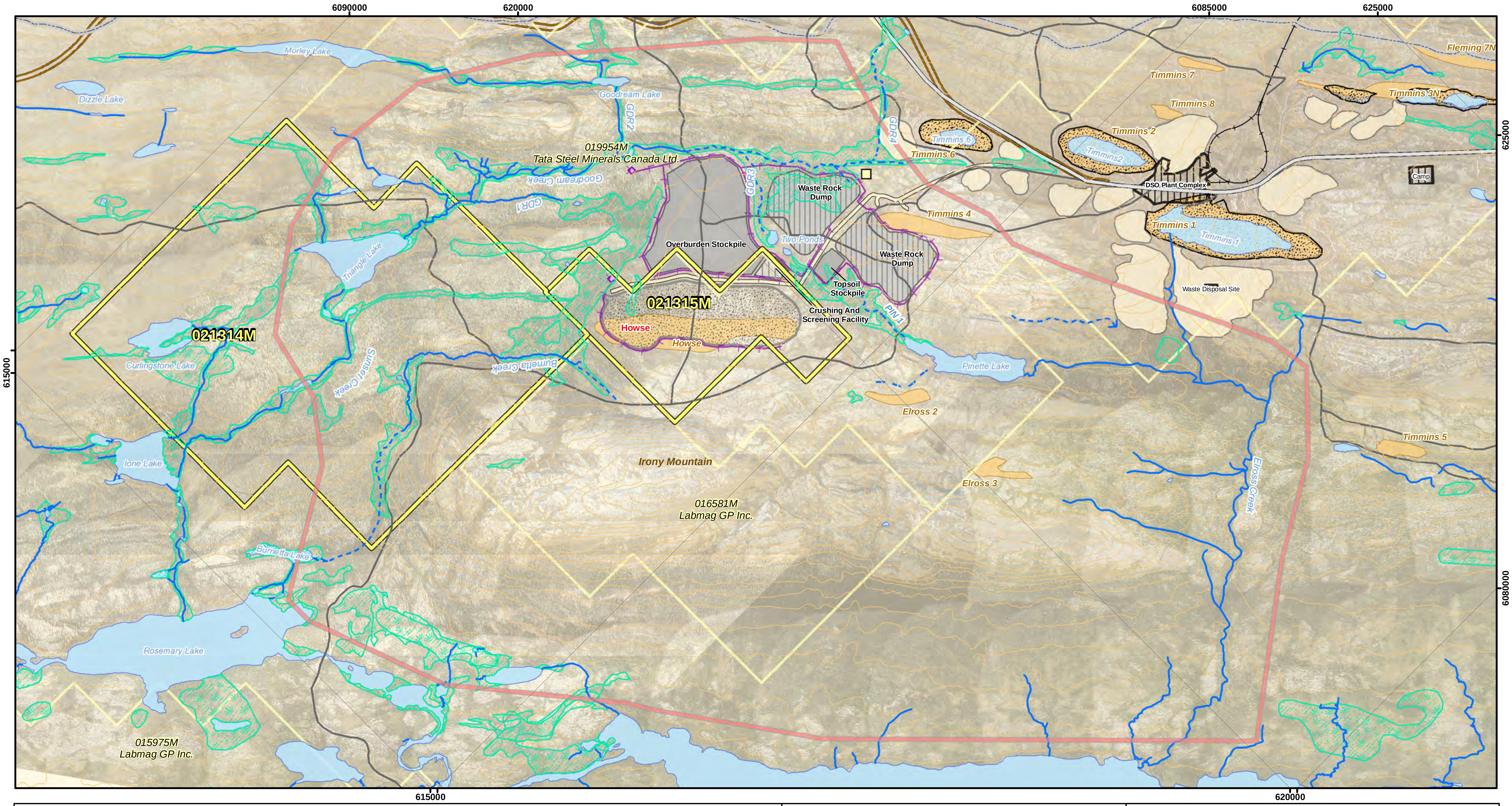
FILE, VERSION, DATE, AUTHOR:
GH-0466, 03, 2014-01-14, E.D., J.T.

SOURCES:

Map base
Government of Canada, NTDB, 1:50,000, 1979
SNC Lavalin, Groupe Hémisphères, Hydrology update, 2013.

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/ MET-CHEM, Howse Deposit Design for General Layout., 2013

GroupeHemispheres



LEGEND

Basemap

- Permanent Watercourse
- Intermittent Watercourse
- Storm Run-off
- Disappearing Stream
- Artesian Spring
- Waterbody
- Contour Line (50 ft)
- Provincial Border
- Existing Road
- Main Access Road
- Wetland
- Local Study Area

Infrastructure And Mining Components

- Proposed Howse Pit
- Proposed Low Grade/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Sedimentation Pond
- Proposed Mine Haul Road
- Proposed Ditch
- Potential Road To DSO Area 4
- Proposed Railroad
- Timmins 4 Sedimentation Pond-3
- DSO Howse - Claims Labrador Iron Mines Limited(49%)/ Howse Minerals Ltd.(51%)
- Other Claim
- Elross Lake Area Iron Ore Mine (ELAIOM) Plant Infrastructure footprint
- Existing Dump
- Existing Pit
- Deposit

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0467-05, 2014-03-26, E.D., J.T.

SCALE: 1:30 000

UTM 19N NAD 83

0 500 1 000 2 000
Meters

SOURCES:
Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Boundary used for claims
SNC Lavalin, Groupe Hémisphères, Hydrology update, 2013

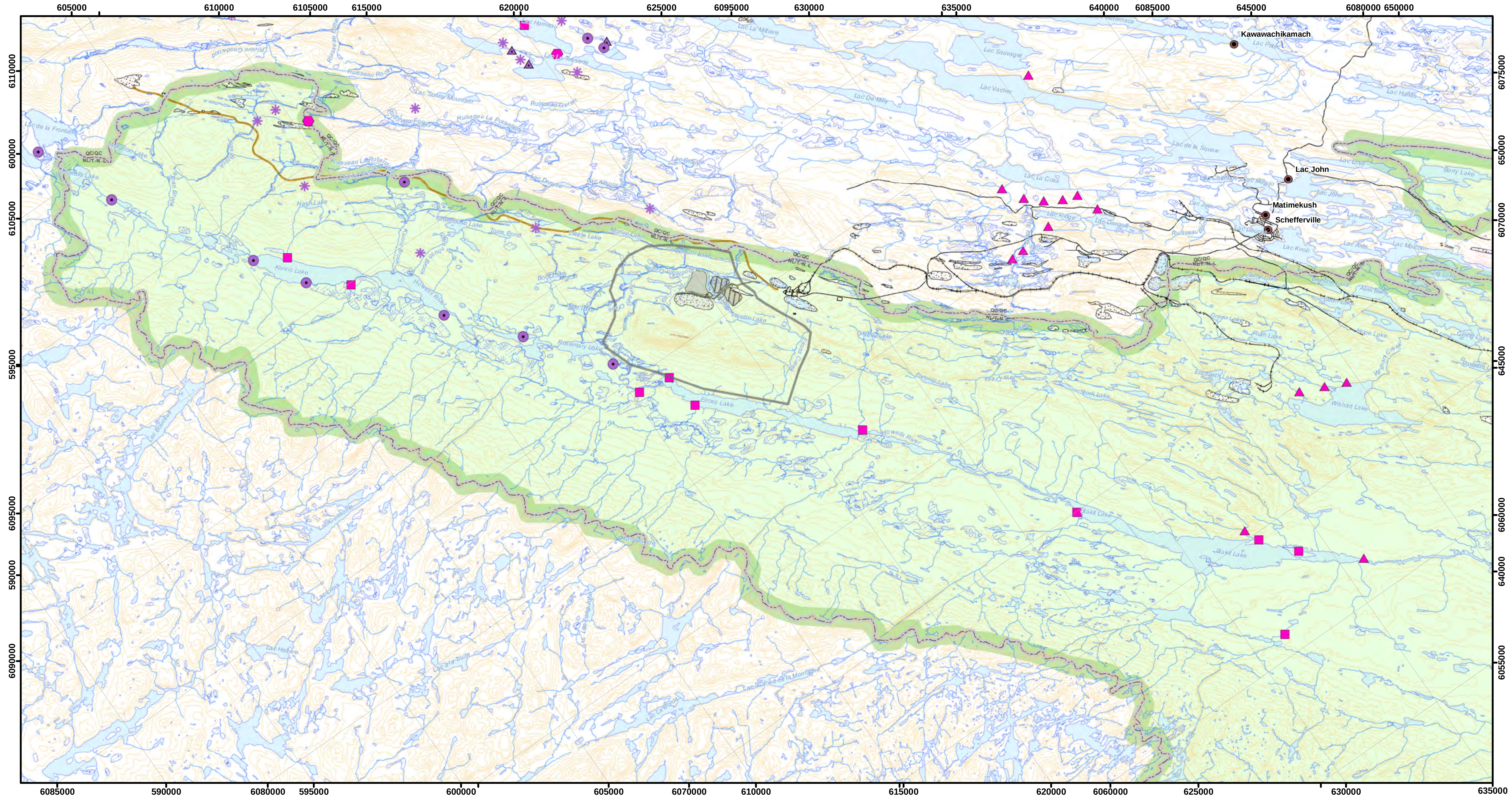
Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/ MET-CHEM Howse
Deposit Design for General Layout, 2013

Howse Property And TSMC DSO Project Infrastructure

DSO Howse Property

Figure B

GroupeHemispheres



LEGEND

Recreational Land Use

- Town
- Innu Cabin
- Naskapi Cabin
- Other Cabin
- Labrador Small Game/Fur zone
- Labrador Black Bear Management Area
- Bustard Observation And Hunting Site
- Beaver Lodge And Observation Site
- Picking Site (Cloudberry, Lingonberry, Bog bilberry, Blueberry, Labrador tea)

Infrastructure And Mining Components

- Existing Road
- Potential Road To DSO Area 4
- Proposed Railroad
- Deposit
- Proposed Howse Pit
- Proposed Topsoil/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Mine Haul Road

*Hydronyms are oriented along the direction of water flow

Basemap

- Contour Line (15 m)
- Provincial Border
- Watercourse
- Waterbody
- Wetland
- Local Study Area

FILE, VERSION, DATE, AUTHOR:
GH-0478-03, 2014-03-26, E.D.

N

0 2,5 5 10
Kilometers

SCALE: 1:150 000

UTM 19N NAD 83

SOURCES:

Basemap and Land Use Components
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Land Use Atlas, 2009
Daniel Clement, 2009.

Mining Components
TATA Steel Minerals Canada Limited/
MET-CHEM Howse Deposit Design
for General Layout., 2013
Groupe Hémisphères, Hydrology and update, 2013

Known Resource Harvesting

DSO Howse Property

Figure C

GroupeHemispheres

SOMMAIRE EXÉCUTIF

Introduction

Une entente non constituée a été créée entre Howse Minerals Limited (HML), Labrador Iron Mines Limited (LIM), Tata Steel Minerals Canada Limited (TSMC) et Labrador Iron Mines Holdings Limited. HML est une filiale en propriété exclusive basée à St. John's à Terre-Neuve et fondée par TSMC dans le but de développer le Projet Howse.

Titre du projet : Projet de minerai de fer à enfournement direct – Projet Howse

Promoteur : Howse Minerals Limited
Rajesh Sharma
Directeur général
215 Water Street, Atlantic Place, Suite 809
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Téléphone : 709-722-5714

Principale personne-ressource : Loic Didillon
Gestionnaire environnement et autorisation gouvernementale
c/o Tata Steel Minerals Canada Limited
1000, rue Sherbrooke Ouest, Bureau1120
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loic.didillon@tatasteelcanada.com
Téléphone : 514-764-6705

Le projet de minerai de fer à enfournement direct (MFED) – Projet Howse, ci-après « le Projet », est assujetti à des législations telles que l'*Environmental Protection Act* de Terre-Neuve-et-Labrador, S.N.L. 2002 et l'*Environmental Assessment Regulations 2003* qui prévoient que « quiconque planifie un projet pouvant avoir d'importantes répercussions sur l'environnement naturel, social ou économique » doit soumettre le projet à des fins d'enregistrement et d'examen au ministère de l'Environnement et de la Conservation. Si ce dernier estime qu'une évaluation environnementale (EE) provinciale est nécessaire, l'enregistrement du projet sera utilisé pour développer les directives relatives à la préparation d'un rapport environnemental préliminaire (REP) ou d'une étude d'impact environnementale (EIE).

En plus des exigences provinciales, le Projet doit respecter la *Loi canadienne sur l'évaluation environnementale* de 2012 (LCEE 2012). En vertu de la section 16 du Règlement désignant les activités concrètes, « la construction, l'exploitation, la désaffectation et la fermeture d'une nouvelle mine métallifère, autre qu'une mine d'éléments des terres rares ou mine d'or, d'une capacité de production de minerai de 3 000 t/jour ou plus » doit se conformer à la LCEE. Par conséquent, une description de projet doit être soumise à l'Agence canadienne d'évaluation environnementale, ci-après « l'Agence », afin d'être examinée. Advenant que cette dernière demande une EE fédérale, il est prévu que la description du projet sera utilisée pour développer les directives relatives à la préparation d'une EIE. L'Agence considérera cette description de projet, le potentiel que celui-ci peut entraîner des effets environnementaux négatifs, et les commentaires du public reçus au cours d'une période de commentaires de 20 jours pour décider si une évaluation environnementale du projet est exigée en vertu de la LCEE, 2012.

La LCEE 2012 contient des dispositions particulières visant à inclure les communautés autochtones dans le processus de l'EE en promouvant la coopération et la communication. Dans la mesure du possible, des processus de consultation seront coordonnés et des renseignements seront recueillis, puis communiqués aux agences gouvernementales fédérales et provinciales pour les informer.

Une étude régionale de l'environnement selon la définition de l’Agence d’ « une évaluation ciblée du potentiel de développement d'une région, qui examine les effets cumulatifs des scénarios de développement prévus », n'a pas été ou n'est pas menée dans la région où le projet sera situé.

Le Projet

HML prévoit exploiter le gisement de minerai de fer du Projet Howse. Le gisement est situé au Labrador entre le mont Irony, Pinette Lake et la phase 1 du Projet MFED de TSMC (figure A). Le projet Howse est situé à 25 km de Schefferville, Québec. Le centre de la mine est situé à 67°8’19.07”W, 54°54’31.18”N; les droits miniers de la propriété appartiennent à LIM (49 %) et HLM (51 %) sous la forme de deux concessions minières : 021314M et 021315M, qui remplacent la concession 0201430M.

Le projet Howse est situé sur des terres provinciales où aucun zonage particulier ne s’applique. Les distances, à vol d’oiseau, du projet aux terres domaniales les plus proches sont listées dans le Tableau A. De plus, l’aire du projet n’est pas située dans une région pour laquelle un plan d’aménagement du territoire a été produit

Tableau A Distance aux terres domaniales les plus proches

	TERRE DOMANIALE	DISTANCE APPROXIMATIVE À PARTIR DU PROJET HOWSE (km)
Québec	Aéroport de Schefferville	24
	Matimekush (Communauté autochtone)	24
	Lac John (Communauté autochtone)	25
	Kawachikamach (Communauté autochtone)	25
	Bagotville (Base militaire)	780
Labrador	Aéroport de Labrador City	219
	Aéroport de Wabush	222
	Sheshatshiu (Communauté autochtone)	479
	Natuashish (Communauté autochtone)	404
	Goose Bay (Base militaire)	472

Le Projet prévoit d’utiliser les infrastructures actuellement en construction au complexe de la phase 1 du projet MFED de TSMC (ex. ligne ferroviaire, route d’accès, le camp, équipement minier et une zone d’entreposage d’explosifs), il est possible de mener à terme le Projet en relativement peu de temps et en y investissant peu de ressources financières. Le développement du projet minier Howse ne faisait pas partie des plans initiaux de TSMC. Cependant, un retard dans la construction de la route de halage vers le projet 2a (DSO 4, gisements Goodwood et Sunny) et le projet 2b (DSO 4, gisements Kivivic), l’exploitation de ces gisements est remise à plus tard. Cette situation crée de l’incertitude dans l’approvisionnement en minerais des projets MFED de TSMC. Ainsi, le développement du projet minier

Howse crée un pont entre les projets MFED de TSMC en assurant ainsi un approvisionnement en minerai stable.

Une méthode d'exploitation de mine à ciel ouvert conventionnelle sera utilisée pour le Projet Howse. Le minerai de fer extrait sera concassé et tamisé sur place, transporté par camion jusqu'à la zone de chargement de train (Projet MFED de TSMC située à moins de 5 km du Projet Howse), puis expédié par train à Sept-Îles.

La construction de certaines infrastructures sera nécessaire afin d'exploiter le gisement du projet Howse. Les principales installations et infrastructures suivantes devront être construites pour le Projet :

- Mine à ciel ouvert : surface approximative de 72 ha et d'une profondeur maximale de 160 m. La capacité de production annuelle est prévue à 1,3 million de tonne (Mt) métrique de minerai brut au cours de la première année et à 2,2 Mt par année au cours des années suivantes, et ce, jusqu'à la fin de la durée de vie de la mine en 2027. La production maximale prévue est de 10 000 tonnes par jour et devrait être atteinte en 2017.
- Piles de stockage : surface approximative de 66 ha pour le mort-terrain et de 4 ha pour la terre végétale. Les piles de stockages seront entourées de fossés de drainage périphériques reliés à un bassin de sédimentation.
- Haldes stériles : surface d'environ 67 ha. Les haldes seront entourées de fossés de drainage périphériques reliés à un bassin de sédimentation.
- Installation de concassage et tamisage : surface d'environ 3 ha. Alimentée par des génératrices, cette installation sera construite sur une plateforme d'une largeur de 100 m et d'une longueur d'environ 150 m.
- Route d'accès et de halage : la route existante construite par la IOC pour des activités minières antérieures sera utilisée (1,3 km) et 2,0 km de route supplémentaire devront être construits pour relier le Projet Howse au réseau routier actuel développé par TSMC pour le projet MFED. Cette route sera empruntée par des camions d'exploitation minière et des véhicules légers.
- Installations de gestion des eaux : des puits périphériques seront installés dans le périmètre de la mine afin d'abaisser la nappe phréatique en dessous du niveau de l'exploitation minière. Le dénoyage sera effectué selon les besoins à l'aide de pompes à moteur diesel. L'eau provenant de la fonte des neiges et de la pluie sera recueillie et acheminée par un fossé de drainage à un bassin de sédimentation avant d'être déchargée dans l'environnement.

Outre la pile de stockage de minerai à faible concentration sur au complexe minier du projet MFED de TSMC et une certaine augmentation de la poussière due à l'augmentation du trafic de véhicules, le projet minier Howse n'est pas susceptible d'ajouter de la pression sur le projet MFED de TSMC. Aucun résidu ou d'eau de procédé ne seront générés par le projet minier Howse. La capacité du camp de travailleurs ne dépassera pas la limite de 150 travailleurs. Par conséquent, aucune augmentation des ordures ménagères n'est projetée. Les déchets solides domestiques générés par l'exploitation de la mine seront éliminés dans la décharge approuvée de TSMC.

Certaines zones n'ont pu être considérées pour construire les infrastructures listées ci-dessus en raison de la topographie et de la présence de milieux sensibles, tels que la zone entourant le mont Irony, les milieux humides ainsi que Goodream Creek. La localisation des infrastructures (Figure B) a été choisie afin de prendre en considération les droits des autochtones, leurs intérêts en plus de minimiser l'impact visuel et les impacts environnementaux sur les milieux humides, la qualité de l'eau et l'habitat du poisson.

Comme mentionné, HML utilisera les installations approuvées au complexe du projet MFED de TSMC. Les infrastructures principales de ce complexe incluent les éléments suivants : une usine de traitement, des piles de minerai traité recouvertes par un dôme, un système de chargement des wagons, une voie ferrée des anciennes opérations de l'Iron Ore Company (IOC), un camp de travailleurs, des bureaux, un entrepôt, des ateliers, des garages, un laboratoire, un site d'enfouissement ainsi que des installations de traitement des eaux usées.

La phase de construction comprend les activités suivantes : l'aménagement du site de la mine incluant l'enlèvement et l'empilement des morts-terrain, la construction de la route d'accès et de halage, la construction de l'installation de concassage et de tamisage, la restauration des aires de travail temporaires et le transport des marchandises et la circulation de véhicules. Pendant cette phase, les sources potentielles de polluants et émissions sont le bruit, les vibrations, la poussière, les matières en suspension, les gaz d'échappement ainsi que les gaz à effet de serre provenant de la machinerie lourde et le trafic des véhicules.

Au cours de la phase d'exploitation, les activités suivantes sont prévues : l'enlèvement et l'empilement des morts-terrains et la gestion des stériles, l'extraction du minerai de fer (exploitation minière), le concassage et tamisage du minerai (traitement primaire), le dénoyage, le transport du minerai et d'autres marchandises, la gestion des déchets dangereux ainsi que la restauration progressive du site. Pendant cette phase, les sources potentielles de polluants et émissions sont le bruit, les vibrations, la poussière, les matières en suspension, les gaz d'échappement provenant de la machinerie lourde, des génératrices, des opérations de forage et le trafic des véhicules. Les gaz à effets de serres pouvant être émis pendant cette phase sont le monoxyde de carbone et de faibles quantités d'oxydes d'azote, d'oxydes de soufre et de sulfure d'hydrogène.

Les déchets dangereux, y compris l'huile utilisée, seront étiquetés et entreposés au complexe du projet DSO de TSMC dans un récipient approprié, avec une séparation adéquate le cas échéant, et être éliminés tel que convenu par la gestion des programmes et des politiques de TSMC.

L'émulsion utilisée pour le dynamitage, qui est une solution consistant principalement d'eau et de nitrate d'ammonium sera le seul déchet explosif. L'émulsion sera effectuée par une tierce partie à l'extérieur de la propriété TSMC et livrée sur place par camion dans la zone de stockage d'explosifs selon les besoins. L'es déchets de résidus tels que des boîtes seront brûlées au complexe du projet DSO de TSMC la selon les règlements fédéraux.

Les activités liées à la dernière phase, soit la fermeture et le démantèlement, incluront la démobilisation des installations et de la machinerie lourde, ainsi que la réhabilitation et la fermeture du Projet Howse. Conformément à la *Loi sur les mines* du gouvernement de Terre-Neuve-et-Labrador de 1999, le promoteur s'engage à concevoir un plan de réhabilitation et de fermeture qui atteindra les objectifs suivants :

- Fournir un environnement équilibré et ne nécessitant aucun entretien pour les poissons et les espèces sauvages;
- Créer un paysage compatible avec le territoire avoisinant en tenant compte des perturbations environnementales préalablement causées par les opérations minières d'IOC qui se sont déroulées dans les environs du site avant son exploitation par TSMC;
- Maintenir les sources de pollution potentielles, les risques d'incendie et la responsabilité civile à un niveau acceptable et, au besoin, mettre en place des mesures d'atténuation;
- Offrir un environnement sûr qui permettra un accès public à long terme.

Pendant la dernière phase, les sources potentielles de polluants et émissions sont le bruit, la poussière, les matières en suspension, les gaz d'échappement ainsi que les gaz à effet de serre provenant de la machinerie lourde et le trafic des véhicules.

Certains facteurs environnementaux tels que la topographie du site, les conditions climatiques, la présence de cours d'eau et les conditions hydrogéologiques pourraient avoir un impact sur le Projet. Les effets peuvent varier entre de légers dommages aux installations à une défaillance catastrophique. Les normes fédérales et provinciales seront utilisées comme outils d'atténuation des risques durant l'étape de la conception afin de veiller à ce que les facteurs environnementaux n'aient pas d'impact considérable sur le Projet.

Description du milieu physique

Dans la zone centrale de l'Ungava, le climat est de type microthermique humide. La période de végétation est très courte et les précipitations sont modestes. Un peu plus de la moitié des précipitations tombe sous forme de neige dans cette région.

Des données de référence sur la qualité de l'air ambiant ont été recueillies lors d'une analyse des niveaux ambiants au site de la Howells River, situé près du Projet. Les résultats montrent une présence relativement faible de particules dans le milieu naturel. En ce qui a trait aux métaux, toutes les concentrations mesurées étaient inférieures à la norme.

Les mesures relatives au niveau de bruit ambiant qui ont été prises dans le cadre du projet de minerai de fer LabMag au site de la Howells River ont été utilisées pour décrire les niveaux de bruit ambiant préalables à la mise en œuvre du Projet Howse. Les niveaux de bruit mesurés se situent entre 36,3 et 39,7 dBA. Ces intensités sonores reflètent les activités locales telles que le passage d'avions, d'hélicoptères ou de quelques camions ainsi que la présence d'oiseaux dans le secteur.

La distribution et les caractéristiques topographiques avoisinantes au Projet Howse révèlent une combinaison de crêtes et de vallées constituée de substrat rocheux plié, riche en fer, métamorphique et précambrien; une érosion et des dépôts glaciaires provenant communément d'une partie du nord-ouest de la nappe glaciaire Laurentides; des processus de fonte des eaux dus à la déglaciation et une accumulation postglaciaire de matières organiques. Le secteur à l'étude (SAE) est situé dans une zone de pergélisol discontinu.

Des preuves sédimentaires d'eau de fonte, qui sont rares dans cette région, se trouvent dans la zone directement englobée par le gisement Howse. Dans cette zone, une couche de till relativement uniforme a recouvert du sable et du gravier fluvioglaciaires. Cette forme de relief est considérée comme étant un kame enfoui, plus ou moins centrée sur le gisement, causée par une avancée glaciaire tardive. Un forage exécuté par l'IOC a révélé que l'épaisseur du mort-terrain recouvrant le gisement Howse était d'environ 30 m. Le sable silteux est le matériau de surface le plus commun dans les environs du Projet. La région Howse est dominée par le mont Irony, un pic rocheux proéminent et résistant à l'érosion glaciaire. Le Projet Howse est d'un type de minerai à enfournement direct qui est une formation ferrière enrichie par lessivage.

L'écoulement des eaux souterraines devrait suivre le sens du ruissellement. D'un point de vue hydrogéologique, le kame, qui est plus ou moins centré sur le gisement Howse, correspond à une zone de recharge des eaux souterraines. L'écoulement des eaux souterraines est présumé être radial, du haut du kame en forme de dôme qui est encerclé par une série de milieux humides correspondant à des zones de décharge d'eau souterraine. Cette eau participe à l'alimentation des ruisseaux et des lacs entourant le dôme. Le flanc nord-est du mont Irony contribue aussi à la réalimentation des eaux souterraines de la zone d'empreinte du Projet.

Les connaissances relatives à l'écoulement de l'eau de surface dans le secteur ont été mises à jour suite à des observations sur le terrain et à l'interprétation de photographies aériennes de 2008. D'une longueur cumulative de 36 km dans le SAE, l'écoulement se produit par l'entremise de trois principaux cours d'eau, soit Goodream Creek vers le nord, Burnetta Creek vers l'ouest et Elross Creek vers le sud-est.

L'ensemble des lacs et des étangs couvre une étendue de 0,5 km². Le Triangle Lake est de loin le plus grand cours d'eau, suivi de Pinette Lake. De petits étangs sont situés à proximité, au nord-est du gisement, alors que d'autres petits lacs et étangs se trouvent en périphérie du SAE.

Plusieurs stations hydrométriques existent déjà dans le SAE. Trois types de mesures sont possibles : instantanées, enregistrées et quasi instantanées. Comparativement à la Howells River, les variations de débit sont moins importantes dans les plus petits cours d'eau tels que Elross Creek et Burnetta Creek. Une comparaison des résultats des débits au long de ce même cours d'eau a révélé une forte résurgence en aval. Les résultats suggèrent que les deux ruisseaux en bordure du mont Irony sont principalement alimentés par des eaux souterraines dans leurs tronçons en aval.

Les paramètres physico-chimiques mesurés *in situ* (y compris l'oxygène dissous, la température et la conductivité) concordaient avec une eau de bonne qualité dans de tels environnements. La conductivité était exceptionnellement faible, puis la quasi-absence de nutriments, de sels ou d'impuretés dans l'eau n'a pas révélé de liens entre l'emplacement des sites de prélèvements en aval et les anciennes activités minières. La qualité générale de l'eau en ce qui concerne les métaux et les paramètres traditionnels de contrôle est bonne.

La station de la Fédération internationale des réseaux de sismographes numériques (*International Federation of Digital Seismograph Networks*) à Schefferville est située à l'intérieur de la zone sismique de l'est du Canada où, en général, de faibles, mais pouvant être à l'occasion importantes, activités sismiques peuvent se produire.

Selon les résultats relatifs au drainage rocheux acide de la région de Timmins et les similarités géologiques entre la région de Timmins et le gisement Howse, il est possible de déduire que les formations géologiques qui seront trouvées à l'intérieur ou à proximité du Projet Howse ont un potentiel de génération d'acide très faible.

Description du milieu biologique

Une partie du SAE a été perturbée par des activités minières antérieures, qui ont pris fin en 1982. Dans certains cas, les dommages ont atteint un point où il n'était plus possible de reconnaître la condition originale du paysage. Les modifications au paysage découlant de l'exploitation minière comprennent de nombreux trous de prospection, des tranchées d'exploration, des bandes défrichées, des routes d'accès et des chantiers, ainsi que des camps, des infrastructures et des équipements abandonnés.

Le Projet est situé dans deux écorégions : la forêt subarctique moyenne (FSM) et la toundra subarctique supérieure (TSS). L'écorégion FSM est caractérisée par une couverture forestière qui n'est habituellement pas continue, soit une transition entre les forêts boréales denses relativement productives au sud et la toundra subarctique sans arbre au nord. L'écorégion TSS abrite une végétation dominée par des arbustes et des graminoïdes.

La pessière noire à lichens - forêt ouverte (FSM05) couvre plus de 40 % de l'empreinte du Projet. L'écotype MSF05 est caractérisé par une faible couverture d'épinettes noires et par une couverture souvent continue de lichens des rennes. Les arbustaies alpines à bouleau glanduleux- mésiques (TSS01) représentent 20 % de l'empreinte du Projet. Les arbres y sont absents ou peu nombreux, la strate arbustive est dominée par le bouleau glanduleux tandis que la strate herbacée est diversifiée. L'écotype mésique et zonal de l'épinette noire/épinette blanche – thé du Labrador - hypne de Schreber (FSM01) représente moins de 15 % de l'empreinte du Projet. Comparativement à l'écotype FSM05, l'écotype FSM01 possède une forêt à couvert plus fermé d'épinettes noires et blanches, ainsi qu'une plus grande couverture d'arbustes. Les mousses hypnacées sont plus abondantes que les lichens des rennes dans la strate muscinale. Les milieux humides (marécages forestiers, fen arbustifs ou herbacés, fen riverain) constituent approximativement 20 % de l'empreinte du Projet. Aucune espèce végétale en péril n'a été observée lors des études des écosystèmes terrestres. De plus, une analyse des espèces désignées par les gouvernements fédéral et provincial a révélé qu'aucune espèce en péril ne pourrait être trouvée dans les environs du Projet.

Les caribous des bois, écotype toundrique ou caribous migrateurs qui pourraient se trouver près du Projet appartiennent au troupeau de la George River. De manière générale, le Projet se situe dans le corridor migratoire du troupeau de la George River qui relie leur lieu de mise bas et leur territoire d'hivernage. Aucun habitat de caribou des bois, écotype forestier ou caribou sédentaire ne chevauche le SAE. Étant donné qu'aucun caribou n'a été aperçu durant plusieurs années d'études, il n'y a pas eu de preuve que le SAE a été utilisé par des caribous sédentaires lors de la période précédant le vêlage au cours des dernières années.

Le carcajou, une espèce répertoriée comme menacée à l'échelle fédérale comme à l'échelle provinciale, est potentiellement présent dans la région. Il a été observé pour la dernière fois en 1978. Avant cette date, les plus récentes apparitions de carcajous dans la région de Schefferville remontent aux années 1950, où ils auraient été vus par des Innus de Matimekush–Lac John. Le carcajou est probablement extrêmement rare au Québec et au Labrador, et il est possible qu'il ait disparu.

Aucune espèce de chiroptère n'a formellement été identifiée lors des échantillonnages de 2005 et 2006.

Un total de 52 espèces a été identifié lors de l'étude de migration des oiseaux pour la phase 1 du projet de MFED de TSMC incluant 4 oiseaux de proie, 13 oiseaux aquatiques ainsi que 35 oiseaux terrestres. De ces 52 espèces, 41 sont considérées comme des oiseaux migratoires selon la Convention sur les oiseaux migrateurs. Il est connu que deux espèces d'oiseaux en péril nichent à proximité du Projet : l'oiseau migrateur, la grive à joues grises et le quiscale rouilleux. Le hibou des marais et l'arlequin plongeur ont été aperçus à l'échelle régionale.

La plupart des oiseaux aquatiques et de rivage recensé au cours de la migration en mai et septembre 2011 étaient situés dans les limites de la rivière Howells, soit à plus de 3 km du Projet. La sauvagine ainsi que quatre petits fuligules et deux garrots communs été observée durant la migration printanière au lac Triangle. Cependant, aucune sauvagine n'a été vue durant la migration automnale au lac Triangle. Le seul site de chasse à l'oie situé à proximité de l'empreinte du Projet minier Howse est Pinette Lake, une zone ne sera pas directement touchée par le projet. Aucun canard ou oie n'a été vu sur le lac Pinette pendant les migrations du printemps et de l'automne. Plusieurs observations de quiscale rouilleux et de l'oiseau migrateur, la grive à joues grises ont été faites au cours de deux périodes de migration.

Douze espèces de poissons ont été répertoriées dans la région de Schefferville et dans le bassin de la Howells River. Cependant, seulement cinq espèces sont présentes dans le SAE : l'omble de fontaine, la lotte, le méné de lac, le touladi et le ménomini rond.

Description du milieu socioéconomique

Des interventions archéologiques ont été réalisées en périphérie du SAE et ont donné lieu à la découverte de quelques sites préhistoriques et de nombreux sites autochtones de la période contemporaine. Un autre inventaire archéologique a été réalisé sur les propriétés affectées par le projet MFED de TSMC. Celui-ci n'a pas relevé de nouveaux sites archéologiques. Une évaluation des ressources historiques de l'empreinte du Projet (Stage 1) a été effectuée en 2008 au moyen d'une inspection visuelle et aucun site archéologique n'a été découvert.

Quatre communautés québécoises, situées dans la région de Schefferville, sont les plus proches du site d'exploitation minière proposé du Projet Howse. La ville non autochtone de Schefferville, anciennement une ville minière établie par l'IOC, se trouve à 24 km du Projet. Les communautés innues de Matimekush et du Lac John, qui sont près de Schefferville, sont situées à 24 et à 25 km respectivement du Projet. La Nation Naskapi de Kawawachikamach (NNK) se trouve à 25 km du Projet.

L'industrie minière est cyclique et affecte le taux de croissance ou de déclin des communautés qui en dépend. Les changements permanents de population affectent en premier lieu les infrastructures et les services communautaires. Il est possible que les populations temporaires telles que les équipes de construction et la main d'œuvre qui font des allers-retours n'exercent pas d'effet sur les communautés à moins que les individus y soient logés. Toutefois, ils ont souvent un impact sur certains services régionaux tels que les transports.

Les communautés de l'ouest du Labrador (Labrador City et Wabush) sont à plus de 200 km du Projet Howse, mais les travailleurs, les matériaux et l'équipement nécessaires au Projet transiteront probablement par Labrador City et Wabush, ou ils utiliseront leurs services et leurs infrastructures.

L'économie de la région frontalière du Québec et du Labrador dépend d'une zone géologique connue sous le nom de la fosse du Labrador. L'intérêt pour les ressources minières de cette région continue de croître en raison de la demande mondiale en ressources minérales. Les deux mines en exploitation de l'ouest du Labrador (IOC et Wabush Mines) sont actives depuis le début des années 1960. En ce moment, différentes compagnies minières procèdent à d'importants investissements dans l'industrie du minerai de fer dans la fosse du Labrador.

Au cours des dernières années, différentes compagnies minières telles que TSMC, LIM et NML ont procédé à des investissements dans divers projets situés dans la région de la Howells River et de l'ancien site de l'IOC près de Schefferville. Conformément au plan de retombées économiques conclu par le gouvernement de Terre-Neuve-et-Labrador, les résidents de cette province continueront à former la majorité de la main d'œuvre et les entreprises de Terre-Neuve et Labrador, plus particulièrement celles de l'ouest du Labrador, continueront de fournir des biens et des services nécessaires pour appuyer l'industrie minière dans la région.

Les nombreux emplois et les taux de participation sont évidents, en grande partie grâce aux activités minières. À Schefferville, les taux de participation et d'emploi sont plus élevés que la moyenne provinciale. Par comparaison, les taux de participation et d'emploi à Matimekush-Lac John et à Kawawachikamach sont moins élevés que la moyenne provinciale.

Les utilisations autochtones traditionnelles sont souvent considérées comme étant des pratiques, des traditions et des coutumes qui démontrent la culture distincte d'un groupe autochtone et qui étaient pratiquées avant l'arrivée et le contrôle des Européens; elles peuvent inclure, par exemple, la chasse ou la pêche de nourriture à des fins cérémoniales. La section 35 de la Loi constitutionnelle de 1982 reconnaît et confirme les droits existants – ancestraux ou issus de traités – des Indiens, des Inuits et des Métis du Canada. L'existence, la nature et l'étendue de ces droits ont été mieux définies dans les accords sur des revendications territoriales et d'autres accords (ou ententes) entre des gouvernements et des groupes autochtones particuliers dans des zones précises, ainsi que dans différentes décisions judiciaires.

En vertu de l'Entente de principe concernant les revendications territoriales des Innus du Labrador, le Projet tel que proposé ne chevauche ou n'interagit pas avec des terres ayant été désignées comme étant des terres des Innus du Labrador (catégorie 1), une région visée par le règlement avec les Innus du Labrador (catégorie 2) ou des régions de chasse sans permis (catégorie 3).

En termes de l'utilisation courante des terres et des ressources hydriques à des fins d'utilisation traditionnelles, les informations existantes et disponibles indiquent qu'il y a actuellement trois domaines essentiels pour les activités traditionnelles des Innus de Sheshatshiu :

- Groupe de lacs en amont de la rivière Eagle dans le sud-est du Labrador ainsi que ses affluents ;

- Région du Labrador centrale délimitée par Uinnukapau (Winnokapau Lake) au le sud, le réservoir Smallwood (anciennement Mishikamau) à l'ouest, Atshukunipi (Seal Lake) au le nord , et Nipishish (Nipishish Lake) à l'est , et
- Zone centrée sur trois lacs : Ashuapamatikuan (Shipiskan Lake), Ashtunekamuku (Snegamook Lake), et Shapeiau (Shapio Lake)

Les principaux domaines énumérés plus haut se trouvent bien à l'extérieur de la zone du projet à l'étude. Le site innu le plus près est à plus de 150 km du projet minier Howse.

Les Innus de Matimekush-Lac John conservent actuellement plusieurs aspects traditionnels de leur mode de vie et de leur culture. Comme d'autres communautés autochtones et du Nord, la chasse, la pêche et d'autres activités du genre constituent une partie essentielle de leur approvisionnement en nourriture et de leur culture générale. Même si, historiquement, les itinéraires suivis par les Innus et les activités s'y rattachant passaient par la région de l'ouest du Labrador, au cours des dernières années les déplacements intérieurs ont diminué quelque peu et l'utilisation des terres s'est davantage concentrée sur des zones plus proches des communautés et, notamment, à proximité des routes d'accès existantes et d'autres infrastructures linéaires. Il existe néanmoins des routes de déplacement établies à l'est de l'aire du Projet au Québec qui ont été utilisées pour atteindre des zones de chasse situées plus au nord, ainsi que les zones pour la pratique de différentes activités de récolte.

Après avoir commencé à s'installer dans la région de Schefferville de manière plus permanente au cours du 20^{e} siècle, l'utilisation des terres et les activités de récolte des Naskapis se sont concentrées davantage sur les zones à proximité de la communauté, la principale utilisation des terres étant actuellement condensée dans un rayon de 30 à 50 km autour de Kawawachikamach. De récentes études ont révélé que des membres de la NNK prenaient part à des activités traditionnelles telles que la chasse (de gros et de petit gibier), la pêche et la cueillette, effectuant les déplacements nécessaires et campant dans l'ensemble d'une région qui englobe les terres et les eaux au nord et à l'ouest de leur communauté, y compris des zones accessibles par l'entremise des routes d'accès existantes et des secteurs adjacents au Québec et au Labrador. En particulier, les Naskapis utiliseraient largement la vallée de la Howells River et les collines de ses deux côtés tout au long de l'année.

La relation entre la santé comme une composante valorisée de l'écosystème ainsi que les mesures de surveillance et d'atténuation discutées dans l'étude d'impact du projet MFED de TSMC 1a (ELAIOM). Une étude de composantes sur la santé autochtone peut également être consultée dans ladite étude.

L'utilisation commerciale des terres, de l'eau et des ressources comprend l'exploitation minière, les pourvoiries et la foresterie (exclusivement au Labrador). Les ressources récoltées connues incluent la pêche, la chasse et le piégeage ainsi que la coupe de bois à usage domestique. La figure C présente une carte des zones de ressources récoltées ainsi que des camps saisonniers situés dans les environs du projet Howse

Les seules aires protégées de l'ouest du Labrador sont situées dans des zones d'aménagement municipal dans les villes de Labrador City et Wabush. Aucune aire protégée existante ou proposée ne se trouve dans le SAE.

Lors de récentes consultations relatives à ce projet, les représentants des communautés autochtones ont également décrit la présence du mont Irony (Kauteitinat) près de la zone du projet, et ils ont discuté de son importance pour les Innus.

Consultations et portée des impacts

La consultation est une pierre angulaire du processus d'évaluation environnementale (EE), ainsi qu'un élément clé de l'approche utilisée par le promoteur dans le cadre de ses activités de planification et de mise en œuvre de Projet.

HML estime qu'il est important d'intégrer des éléments environnementaux et humains pour assurer une exploitation minière durable. La compagnie s'engage à travailler avec les communautés autochtones affectées par ses activités et à s'assurer que les communautés et les organisations autochtones soient adéquatement consultées à propos du Projet proposé. De plus, HML s'engage à respecter les droits et intérêts des communautés autochtones tel que spécifié à la section 35 de *Loi canadienne constitutionnelle* de 1982 ainsi que les ententes sur les répercussions et les avantages (ERA) signées avec eux.

Les ERA relatives au Projet et les autres ententes conclues avec des groupes autochtones individuels incluent :

Labrador Iron Mines (LIM)

- La Nation innue : ERA datée du 17 juillet 2008
- La NNK : ERA datée du 2 septembre 2010
- La Nation innue Matimekush-Lac-John (NIMLJ) : ERA datée du 6 juin 2011
- La nation innue Takuaikan Uashat mak Mani-Utenam (ITUM) : ERA datée du 13 février 2012
- Le NunatuKavut Community Council (NCC) : entente de partenariat économique datée du 14 décembre 2012

Tata Steel Minerals Canada (TSMC)

- La NNK : ERA datée du 10 juin 2010
- La NIMLJ : ERA datée du 6 juin 2011
- Nation innue : ERA datée du 11 novembre 2011
- La nation ITUM : ERA datée du 9 février 2012
- Le NCC : entente de coopération datée du 14 août 2013

L'exploitation responsable du gisement Howse est prévue dans les ententes de LIM. L'esprit de ces ententes s'inscrit dans la disposition de mécanismes visant la participation réelle des groupes mentionnés dans le Projet Howse afin que les avantages socioéconomiques leur reviennent, que leurs activités et leurs connaissances traditionnelles soient respectées et que les impacts environnementaux soient minimisés.

HML a déterminé sur la base des travaux antérieurs de TSMC avec les groupes autochtones concernés que les groupes les plus touchés par les activités prévues par le projet minier Howse sont ITUM, la NNK et la NIMLJ. Cela est dû au fait que les détenteurs de piégeage de la famille dans les environs de Howse (lot n ° 211 - Jean-Marie famille Mackenzie et lot # 207 - Louis (Sylvestre) famille Mackenzie) sont membres d'ITUM et la zone proche du Kauteitinat montagne a été identifiée comme une zone sensible dans l'ERA avec Labrador Iron Mines, tandis que les membres de la NNK et la NIMLJ utilisent activement le terrain près de la propriété Howse (Mont Irony/ Kauteitinat et la vallée de la rivière Howells) (voir figure C). Les membres de la nation innue et de la NCC ne sont pas connus pour utiliser le territoire du projet minier Howse. Par conséquent, en accord avec l'esprit des accords signés, la consultation sera réalisée avec les cinq groupes concernés, mais sera plus étendue avec les trois groupes utilisateurs du territoire.

À différentes reprises, le promoteur a fourni des informations générales sur le Projet aux gouvernements provincial et fédéral, avec lesquels il a aussi entretenu une correspondance et eu des rencontres. Le Tableau B présente un résumé des consultations tenues avec différents groupes autochtones à ce jour ainsi que les résultats.

Tableau B Résumé des consultations avec les groupes autochtones à ce jour

GROUPES AUTOCHTONES	EMPLACEMENT ET DATE DE LA SÉANCE	SUJETS DISCUTÉS LORS DE LA SÉANCE INCLUANT QUESTIONS ET COMMENTAIRES SOULEVÉS ET RÉPONSES
NIMLJ	Montréal, 3 juillet 2013	▪ Présentation d'information sur la coentreprise et les plans du projet minier Howse ▪ Aucun commentaire soulevé
Nation Innue	Montréal, 3 juillet 2013	▪ Présentation d'une mise à jour du projet comprenant les informations sur la coentreprise et les plans du projet minier Howse ▪ Aucun commentaire soulevé
Nation ITUM	Montréal, 8 août 2013	▪ Présentation d'une mise à jour du projet comprenant les informations sur la coentreprise et les plans du projet minier Howse ▪ Indications que d'autres discussions sur le projet minier Howse seront requises ultérieurement
Comité d'implémentation des ERA représenté par la NIMLJ, la NNK, la nation ITUM, la nation innue, le NCC et TSMC	Schefferville, 28 août 2013	▪ Présentation d'une mise à jour du projet comprenant les informations sur la coentreprise et les plans du projet minier Howse ▪ Aucun commentaire soulevé
Le Comité communautaire Santé, Sécurité et Environnement (SSE) fondé par TSMC et représenté par la NIMLJ, la NNK, la nation ITUM et la nation innue.	Uashat, 7 octobre 2013	▪ Présentation de l'information sur les activités projetées du projet minier Howse incluant les détails sur le plan d'exploration ▪ Les représentants de NIMLJ et ITUM ont exprimé leurs réticences face à la proximité du mont Irony (« Kauteitinat ») qui a une signification spirituelle et historique pour les Innus ainsi qu'à l'échéancier de production prévu du projet ▪ Il a été expliqué qu'une zone de séparation (zone tampon) sera établie et maintenue entre Kauteitinat et les activités du projet ▪ Les groupes Autochtones seront informés de l'exploration et du développement des activités au fur et à mesure qu'elles progressent. TSMC supportera les groupes pour la transmission de l'information aux membres.
Correspondance (courriel) envoyée individuellement aux représentants de la NIMLJ, la NNK, la nation ITUM et la nation innue concernant la soumission d'avis de projet 2014 du projet minier Howse.	15 octobre 2013	▪ Aucune réponse n'a été reçue
Le conseil de la NIMLJ	Site du projet Howse, 7 novembre 2013	▪ Perturbations potentielles sur les activités de chasse à l'oie du côté (ouest) opposé de Kauteitinat en mai en raison du bruit des activités minières proposées ▪ HML a ajusté la disposition du projet de façon à minimiser les impacts visuels et environnementaux ainsi que pour assurer un accès continu aux zones de récréation et de récolte dans la vallée de la rivière

GROUPES AUTOCHTONES	EMPLACEMENT ET DATE DE LA SÉANCE	SUJETS DISCUTÉS LORS DE LA SÉANCE INCLUANT QUESTIONS ET COMMENTAIRES SOULEVÉS ET RÉPONSES
		Howell et au lac Pinette. ▪ HML considérera et discutera avec NIMLJ des stratégies à implémenter pour éviter ou réduire les perturbations potentielles liées à la construction et l'exploitation du projet.
La délégation de la nation ITUM (incluant les représentants du conseil ainsi que des membres de la famille de Jean-Marie Mackenzie et de Louis Sylvestre Mackenzie)	Site du projet Howse, 10 novembre 2013	▪ Le projet minier Howse est situé près de la ligne de trappe de la famille de Jean-Marie Mackenzie et Louis Sylvestre Mackenzie, résidant présentement à Uashat et Maliotenam. ▪ Avant le début du programme d'exploration au site de Howse, TSMC a fait venir aussi de Howse une délégation de représentants de ITUM qui incluait une délégation des membres de la famille Mackenzie afin d'évaluer et de discuter des travaux d'exploration et de leur distance par rapport à Kauteitinat. ▪ La délégation de la nation ITUM a demandé que TSMC établisse une zone tampon entre Kauteitinat et les activités prévues d'exploration et d'exploitation du projet Howse et de faire des efforts pour minimiser les impacts visuels de ces activités. ▪ HML a ajusté la disposition et configuration du projet afin de réduire la hauteur des haldes stériles afin de diminuer les impacts visuels du Projet et a également augmenté la distance entre le Projet et Kauteitinat.
La NIMLJ	Par courriel, 24 janvier 2014	▪ Soumission de l'avis de projet préliminaire du projet Howse et possibilités de faire des commentaires pour une période de 30 jours. ▪ Aucun commentaire n'a été reçu jusqu'à ce jour.
La nation ITUM	Par courriel, 24 janvier 2014	▪ Soumission de l'avis de projet préliminaire du projet Howse et possibilités de faire des commentaires pour une période de 30 jours. ▪ Aucun commentaire n'a été reçu jusqu'à ce jour.
Le conseil de la NNK	Kawawachikamach, 28 janvier 2014	▪ HML a effectué une présentation informative sur le projet minier Howse incluant le motif du projet, la localisation, le processus d'études environnementales au provincial et fédéral, les stratégies adoptées pour réduire et éviter les impacts du projet ainsi que plusieurs cartes. Des pamphlets et des cartes en langue française et innue ont également été distribués (voir annexe III). ▪ Des questions sur l'accès aux zones de récoltes ont été posées. HML a répondu que la compagnie s'engage à maintenir un accès continu aux zones de récoltes sauf lors des périodes de dynamitage. ▪ Des questions sur le mécanisme des ERA ont été soulevées. HML a expliqué que LIM sera responsable des paiements de redevances.
La Nation Innue (comité communautaire SSE)	Site de Timmins (invitation lancée, mais n'ont pas pu participer dû à un conflit d'horaire), 28 janvier 2014	▪ Des informations sur le projet MFED ainsi que sur le projet minier Howse incluant le motif du projet, la localisation, le processus d'études environnementales au provincial et fédéral, les stratégies adoptées pour réduire et éviter les impacts du projet ainsi que plusieurs cartes ont été soumises électroniquement

GROUPES AUTOCHTONES	EMPLACEMENT ET DATE DE LA SÉANCE	SUJETS DISCUTÉS LORS DE LA SÉANCE INCLUANT QUESTIONS ET COMMENTAIRES SOULEVÉS ET RÉPONSES
		▪ aucun commentaire sur le projet minier Howse n'ont été reçus.
Le NCC (comité communautaire SSE)	Site de Timmins, 28 janvier 2014	▪ Une mise à jour des opérations de TSMC au projet DSO a été divulguée. Des informations sur le projet minier Howse ont également été partagées incluant la localisation, le motif du projet, la nature du partenariat entre LIM et HML et les implications pour les obligations des ERA, le processus d'études environnementales au fédéral et au provincial ainsi que la présentation des stratégies adoptées pour la réduction des impacts du projet. Des pamphlets et des cartes ont également été distribués en langue anglaise et naskapie (voir annexe III). ▪ Aucune question n'a été soulevée.
Innu Takuaikan Uashat mak Maniutenam (comité communautaire SSE)	Site de Timmins, 28 janvier 2014	▪ Une mise à jour des opérations de TSMC au projet DSO a été divulguée. Des informations sur le projet minier Howse ont également été partagées incluant la localisation, le motif du projet, la nature du partenariat entre LIM et HML et les implications pour les obligations des ERA, le processus d'études environnementales au fédéral et au provincial ainsi que la présentation des stratégies adoptées pour la réduction des impacts du projet. Des pamphlets et des cartes ont également été distribués en langues française et innue (voir annexe III). ▪ Des questions concernant les impacts cumulatifs reliés à la poussière causée par les activités minières de la région ont été soulevées. ▪ Même si l'origine de la poussière dans la région provient de plusieurs sources, il a été convenu que HML et les communautés collaboreraient afin de prendre des mesures pour réduire davantage la poussière dans la région de Schefferville. Ceci inclut la création d'un comité pilote sur la qualité de l'air incluant la Ville de Schefferville et d'autres compagnies minières oeuvrant dans la région. Ce comité demandera le support des gouvernements provinciaux et fédéraux dans le réseau routier local.
La NIMLJ (Comité communautaire SSE)	Site de Timmins, 28 janvier 2014	▪ Une mise à jour des opérations de TSMC au projet DSO a été divulguée. Des informations sur le projet minier Howse ont également été partagées incluant la localisation, le motif du projet, la nature du partenariat entre LIM et HML et les implications pour les obligations des ERA, le processus d'études environnementales au fédéral et au provincial ainsi que la présentation des stratégies adoptées pour la réduction des impacts du projet. Des pamphlets et des cartes ont également été distribués en langues française et innue (voir annexe III). ▪ Des questions concernant les impacts cumulatifs reliés à la poussière causée par les activités minières de la région ont été soulevées. ▪ Même si l'origine de la poussière dans la région provient de plusieurs sources, il a été convenu que HML et les communautés collaboreraient afin de prendre des mesures pour réduire davantage la poussière dans la région de Schefferville. Ceci inclut la création d'un

GROUPES AUTOCHTONES	EMPLACEMENT ET DATE DE LA SÉANCE	SUJETS DISCUTÉS LORS DE LA SÉANCE INCLUANT QUESTIONS ET COMMENTAIRES SOULEVÉS ET RÉPONSES
		comité pilote sur la qualité de l'air incluant la Ville de Schefferville et d'autres compagnies minières œuvrant dans la région. Ce comité demandera le support des gouvernements provinciaux et fédéraux dans le réseau routier local. ▪ La NIMLJ recommande d'employer des diplômés innus en science environnementale pour travailler sur les suivis environnementaux sur le site. HML a indiqué que pour le projet DSO de TSMC, plusieurs opportunités sont offertes pour des étudiants intéressés par les études environnementales de suivre des gens sur le terrain pour une certaine période. HML a également mentionné que TSMC et HML sont constamment à la recherche de candidats autochtones pour remplir les fonctions de techniciens et coordinateurs environnementaux sur le site. La NIMLJ enverra des curriculum vitae d'Innus avec des compétences adéquates pour combler ces fonctions que HML et TSMC considéreront lors des périodes d'embauches dans le futur.
La NNK (Comité communautaire SSE)	Site de Timmins, 28 janvier 2014	▪ Une mise à jour des opérations de TSMC au projet DSO a été divulguée. Des informations sur le projet minier Howse ont également été partagées incluant la localisation, le motif du projet, la nature du partenariat entre LIM et HML et les implications pour les obligations des ERA, le processus d'études environnementales au fédéral et au provincial ainsi que la présentation des stratégies adoptées pour la réduction des impacts du projet. Des pamphlets et des cartes ont également été distribués en langue anglaise et naskapie (voir annexe III). ▪ Des questions concernant les impacts cumulatifs reliés à la poussière causée par les activités minières de la région ont été soulevées. ▪ Même si l'origine de la poussière dans la région provient de plusieurs sources, il a été convenu que HML et les communautés collaboreraient afin de prendre des mesures pour réduire davantage la poussière dans la région de Schefferville. Ceci inclut la création d'un comité pilote sur la qualité de l'air incluant la Ville de Schefferville et d'autres compagnies minières œuvrant dans la région. Ce comité aura besoin du support des gouvernements provinciaux et fédéraux dans le réseau routier local.
La Nation Innue	Par courriel, 29 janvier 2014	▪ Soumission de l'avis de projet préliminaire du projet Howse et possibilités de faire des commentaires pour une période de 30 jours. ▪ Aucun commentaire n'a été reçu jusqu'à ce jour.
La NNK	Par courriel, 29 janvier 2014	▪ Soumission de l'avis de projet préliminaire du projet Howse et possibilités de faire des commentaires pour une période de 30 jours. ▪ Aucun commentaire n'a été reçu jusqu'à ce jour.
Le NCC	Par courriel, 29 janvier 2014	▪ Soumission de l'avis de projet préliminaire du projet Howse et possibilités de faire des commentaires pour une période de 30 jours. ▪ Le NCC a posé des questions reliées aux ERA et leur

GROUPES AUTOCHTONES	EMPLACEMENT ET DATE DE LA SÉANCE	SUJETS DISCUTÉS LORS DE LA SÉANCE INCLUANT QUESTIONS ET COMMENTAIRES SOULEVÉS ET RÉPONSES
		implication face au partenariat entre LIM et HML. HML a précisé que LIM était responsable des paiements de redevances. Cependant, HML a spécifié que si LIM n'honore pas ses engagements de redevances liés au projet minier Howse, HML assumera la responsabilité desdits paiements.
La communauté de la NNK	Kawawachikamach, 29 janvier 2014	▪ Un centre d'information a été tenu et a été visité par environ 10 à 15 membres de la communauté. Des informations sur le projet minier Howse ont été partagées incluant la localisation, le motif du projet, la nature du partenariat entre LIM et HML et les implications pour les obligations des ERA, le processus d'études environnementales au fédéral et au provincial ainsi que la présentation des stratégies adoptées pour la réduction des impacts du projet. Des pamphlets et des cartes ont également été distribués en langue anglaise et naskapie (voir annexe III). . ▪ Les questions et commentaires suivants ont été soulevés par les visiteurs du centre d'information: o Est-ce que la rivière Howells sera impactée par le projet? HML a indiqué que non puisque la rivière est située de l'autre côté de Kauteitinat et à une grande distance du projet. o Les projets miniers sont destructifs pour la terre et ses occupants. Les développements miniers se développent très rapidement. HML a noté le commentaire. o Quels sont les plans de restaurations? HML a indiqué que la restauration se fera progressivement. Elle consistera à la stabilisation des haldes, l'épandage de couches de sols qui ont été mise de côté lors des travaux miniers préliminaires et la plantation de végétation. Également, des barrières de sécurité autour de la fosse seront érigées. Les haldes stériles ressembleront au paysage naturel à la fermeture du site et un suivi environnemental sera en place 10 ans après la fermeture du site.
Les membres de la famille Jean-Marie Mackenzie et Louis Sylvestre Mackenzie (propriétaires des lignes de trappes numéros 207 et 211)	Uashat, 30 janvier 2014	▪ Une mise à jour des opérations de TSMC au projet DSO ont été divulguées. Des informations sur le projet minier Howse ont également été partagées incluant la localisation, le motif du projet, la nature du partenariat entre LIM et HML et les implications pour les obligations des ERA, le processus d'études environnementales au fédéral et au provincial ainsi que la présentation des stratégies adoptées pour la réduction des impacts du projet. Des pamphlets et des cartes ont également été distribués en langues française et innue (voir annexe III). ▪ Un membre de la famille Mackenzie a demandé pourquoi le projet Howse est situé à cet endroit et pourquoi le projet ne pourrait pas être situé plus loin. HML a expliqué que cet endroit spécifique est un gisement de minerai à haute teneur en fer. ▪ Un membre de la famille Mackenzie a demandé ou l'eau de procédé sera déversée. HML a répondu que le projet Howse n'aura pas d'eau de procédé puisque le minerai sera miné, concassé, tamisé et envoyé sans passé par l'usine.

GROUPES AUTOCHTONES	EMPLACEMENT ET DATE DE LA SÉANCE	SUJETS DISCUTÉS LORS DE LA SÉANCE INCLUANT QUESTIONS ET COMMENTAIRES SOULEVÉS ET RÉPONSES
		■ Un membre de la famille Mackenzie a indiqué que plusieurs oiseaux font leur nid sur Kauteitinat. HML a confirmé que les activités de défrichage et de A Mackenzie family member indicated that many birds nested on Kauteitinat. HML a répondu que par mesure de mitigation, tel que prescrit dans le Plan de protection environnementale de TSMC, les activités de défrichage et de décapage ne seront pas effectuées durant la saison de reproduction de ces oiseaux (juin à août). ■ Un membre de la famille Mackenzie a recommandé que HML emploie des diplômés innus en science environnementale pour travailler sur les suivis environnementaux sur le site. HML a indiqué que pour le projet DSO de TSMC, plusieurs opportunités sont offertes pour des étudiants intéressés par les études environnementales de suivre des gens sur le terrain pour une certaine période. HML a également mentionné que TSMC et HML sont constamment à la recherche de candidats autochtones pour remplir les fonctions de techniciens et coordinateurs environnementaux sur le site ■ Un membre de la famille Mackenzie a demandé si TSMC ou HML testait les poissons pour leur teneur en mercure ou autres métaux lourds, étant donné qu'il y pourrait y avoir une certaine appréhension que les poissons dont ils se nourrissent puissent contenir des métaux lourds à la suite de l'exploitation minière. HML a indiqué qu'il n'y a actuellement aucune procédure en place pour faire le suivi des métaux lourds dans les poissons pêchés. ■ Un membre de la famille Mackenzie a soulevé sa préoccupation s'il était possible que HML déverse des eaux usées dans les lacs des environs puisque certains résidents locaux disent avoir été témoins de ce genre de pratique dans les environs. HML a indiqué qu'elle n'avait pas assez d'information sur le sujet pour pouvoir émettre des commentaires. ■ Un membre de la famille Mackenzie famille a demandé s'il est possible que les activités de dynamitage produisent des craques/fissures sur Kauteitinat. HML a indiqué que ce genre de fissure n'arrivera pas à cause des mesures de prévention prises lors des activités de dynamitage. ■ Un membre de la famille Mackenzie a demandé quel était l'horaire de travail pour les travailleurs du site. HML a expliqué que l'échéancier variait selon l'employeur/entrepreneur, mais que l'horaire pour les travailleurs autochtones pouvait, en fonction de la nature du travail, être ajusté en une rotation de travail mutuellement acceptable.
Les membres de la communauté de la nation ITUM	Uashat et Maliotenam, 30 janvier 2014	■ Des pamphlets sur le projet minier Howse en langue française et innue ont été distribués dans des endroits publics dans les communautés de Uashat et Maliotenam.
Les conseils de la NIMLJ et la nation ITUM	Matimekush, 12 février 2014	■ Une réunion pour discuter du projet Howse et autres sujets. Des cartes et pamphlets en langue française et innue ont été distribués. ■ La nation ITUM a posé des questions reliées aux ERA et leur implication face au partenariat entre LIM et HML.

GROUPES AUTOCHTONES	EMPLACEMENT ET DATE DE LA SÉANCE	SUJETS DISCUTÉS LORS DE LA SÉANCE INCLUANT QUESTIONS ET COMMENTAIRES SOULEVÉS ET RÉPONSES
		HML a précisé que LIM était responsable des paiements de redevances. Cependant, HML a spécifié que si LIM n'honore pas ses engagements de redevances liés au projet minier Howse, HML assumera la responsabilité desdits paiements.

HML poursuivra sa communication et les activités d'engagement (y compris les réunions avec les comités, les conseils élus, les utilisateurs locaux, un centre d'information, annonces à la radio, etc.), selon le plan suivant (tableau C):

Tableau C : Plan d'engagement du Projet minier Howse

GROUPES AUTOCHTONES	ORGANISATION	MOYENS	DATE ET EMPLACEMENT
Nation Innue	Représentants de la nation Innue, Comité communautaire Santé, Sécurité et Environnement (SSE)	Réunion	Rencontres trimestrielles/ Site Timmins de TSMC
Le NCC	Représentant du NCC, Comité communautaire (SSE)	Réunion	Rencontres trimestrielles/ Site Timmins de TSMC
La Nation ITUM	Représentant la nation ITUM, Comité communautaire (SSE)	Réunion	Rencontres trimestrielles/ Site Timmins de TSMC
	Conseil de la nation ITUM		Annuellement/ Uashat
	Familles propriétaires de lignes de trappes (Lots #211, #207 – voir Figure 6.1)		Annuellement/ Uashat
La NNK	Représentant de la NNK, Comité communautaire (SSE)	Réunion	Rencontres trimestrielles/ Site Timmins de TSMC
	Conseil de la NNK		Annuellement, Naskapi Nation Office
	L'ensemble de la communauté	Programme radio	Trimestriel, Radio naskapie
La Nation Innu Matimekush-Lac	Représentant de la NIMJL, Comité communautaire	Réunion	Quarterly, Timmins Site

GROUPES AUTOCHTONES	ORGANISATION	MOYENS	DATE ET EMPLACEMENT
John	(SSE)		
	Conseil de la NIMLJ	Réunion	Annually, NIMLJ Nation Office
	Membres de la communauté intéressés	Centre d'informatio n	March 2014, Matimekush Community Centre
	L'ensemble de la communauté	Programme Radio	Quarterly, Matimekush

En ce qui concerne la consultation des communautés locales non autochtones, aucune consultation formelle n'a eu lieu jusqu'à présent. Des rencontres sont prévues pour avril 2014. Cependant, la population locale de Schefferville est invitée à venir visiter le centre d'information présentant le projet minier Howse au bureau de NML/HML de Schefferville. À ce jour, aucun commentaire n'a été soulevé à propos du projet minier Howse au Centre d'information.

Impacts environnementaux et socioéconomiques potentiels et leur gestion

Le promoteur a développé une stratégie globale dans le but d'atténuer les impacts négatifs sur les milieux biophysiques et sociaux et de maximiser les effets positifs. Les mêmes mesures d'atténuation usuelles et particulières applicables au projet MFED de TSMC seront renforcées durant toutes les phases du Projet Howse.

Le projet est situé près de la frontière entre le Québec et le Labrador. L'infrastructure la plus près sera la route à environ 950 m de la frontière. Compte tenu de cette proximité, des changements dans l'environnement pourraient se produire au Québec, plus particulièrement à ce qui a trait à la qualité de l'air et le bruit causés par l'augmentation du trafic, les opérations de dynamitage ainsi que l'utilisation de génératrices. Toutefois, ces changements devraient être négligeables étant donné que les récepteurs sont situés suffisamment loin du projet et puisque les normes en matière de qualité de l'air seront respectées en tout temps.

Les activités qui se dérouleront durant la phase de construction pourront causer des émissions de polluants et de bruit. Le bruit généré par les activités liées à cette phase ne devrait pas affecter les récepteurs dans la région étant donné la distance qui les sépare du Projet Howse. Lors de la préparation et de la construction du site, la poussière causée par la circulation de véhicules sur les routes non pavées et par les travaux de préparation du site pourrait avoir un impact sur la qualité de l'air. Au cours de la phrase d'exploitation, les principales sources de bruit seront le dynamitage, le transport et les activités de manutention. Le plus haut niveau de bruit, à l'exception du dynamitage, sera seulement entendu au camp des travailleurs. En ce qui concerne le bruit généré par le dynamitage, il sera perceptible par tous les récepteurs, mais ce niveau de bruit se produit exclusivement sur des périodes très courtes (quelques secondes). Sa fréquence prévue est relativement faible (une fois par semaine), et le dynamitage aura lieu pendant la journée et à une heure fixe.

Les émissions atmosphériques causées par la phase d'exploitation consisteront principalement de matières particulaires. Plusieurs mesures usuelles de limitation de la pollution seront maintenues pour réduire considérablement les émissions de particules.

Les activités de construction auront un impact sur la qualité de l'eau, car les infrastructures du Projet seront situées près de certains cours d'eau et, compte tenu de la topographie locale, des particules en suspension pourraient être générées par les écoulements de surface. Une certaine coloration de l'eau pourrait se produire à cette étape. Les écoulements de surface seront interceptés par un réseau de fossés et dirigés vers un bassin de sédimentation avant d'atteindre le milieu naturel. Les impacts anticipés durant la phase de construction devraient continuer au cours de la phase d'exploitation. Les eaux d'infiltration des haldes de stériles peuvent elles aussi avoir un impact potentiel sur la qualité de l'eau. Cependant, les risques relatifs à l'acidification et aux eaux d'infiltration des haldes de stériles sont jugés très faibles.. Le dénoyage abaissera la nappe phréatique. Certains cours d'eau risquent d'être asséchés à l'échelle locale, notamment autour des puits de dénoyage. Étant donné que l'étude hydrogéologique n'a pas encore été complétée, il n'est actuellement pas possible de connaître le rayon de rabattement de la nappe phréatique où des cours d'eau pourraient s'assécher. Néanmoins, l'eau de dénoyage sera déchargée en amont de Goodream Creek et demeurera dans le bassin versant de la Howells River, ce qui signifie que le bilan hydrique ne changera pas.

Les activités de la phase de construction auront également un impact sur les écosystèmes terrestres, notamment en raison du défrichage, du décapage et du développement minier liés au Projet Howse. La construction de l'installation de concassage et de tamisage affectera 3,07 ha d'écosystèmes qui ne sont pas des milieux humides. Le défrichage, le décapage et la préparation du site pour la mine à ciel ouvert et les piles de stockage qui y sont associées constituent la principale empreinte du Projet, affectant une superficie totale de 208,88 ha, dont 20,86 ha sont des milieux humides. Le dénoyage pourrait aussi avoir un impact sur le taux d'humidité des milieux humides immédiatement adjacents au gisement Howse, compte tenu de l'abaissement de la nappe phréatique. Tous les écosystèmes perturbés ou détruits sont très communs à l'échelle locale et dans la région.

Certains des écosystèmes qui seront affectés lors de la phase de construction sont des habitats potentiels pour des espèces terrestres en péril ou pour d'autres espèces dignes d'intérêt. La perturbation causée aux habitats les plus appropriés au caribou migrateur (MSF05) représente 96 ha. Toutefois, en considérant les milliers de kilomètres carrés que les caribous migrateurs parcourent chaque année, la perte de territoire causée par le Projet est relativement petite. Pour le caribou sédentaire, une perte d'habitat pourrait entraîner la prédation accrue et la chasse plutôt qu'une réduction de la nourriture disponible. Toutefois, l'aire d'étude du projet n'englobe pas les endroits connus et fréquentés par le caribou sédentaire. Les habitats de nidification de deux espèces d'oiseaux en péril seront affectés par la phase de construction. Pour éviter la perte de nichées, aucun défrichage ou décapage ne devrait avoir lieu durant la période de reproduction des oiseaux (de mai à septembre). La perte d'habitat pendant la phase déconstruction ne devrait pas perturber les oiseaux migrateurs pendant leur migration puisque la majorité des habitats de haute qualité (aires de repos) sont situées dans la vallée de la rivière Howell à plus de 3 km du projet. La perturbation par le bruit, principalement causée par le transport et la circulation de véhicules, affectera le caribou et le carcajou (si présent). Pour le caribou migrateur, le bruit pourrait causer une modification de leur parcours migratoire. Le caribou sédentaire est, quant à lui, particulièrement sensible au bruit surtout en durant la saison de vêlage. Cependant, puisqu'il n'a pas été vu dans le voisinage du projet au cours des dernières années, les impacts sur le caribou sédentaire sont considérés comme négligeables. Des mesures d'atténuation seront élaborées pour ce projet incluant :

- La mise en oeuvre d'un programme de sensibilisation des travailleurs;
- La limitation de la vitesse ainsi que le programme d'entretien préventif des silencieux des véhicules;
- Interruption des activités bruyantes si un groupe d'environ 100 caribous migrateurs approche le site à plus de 5 km du Projet ou si un groupe d'environ 10 approche de caribous à moins de 3 km;
- Interdiction de la chasse pour les travailleurs.

En collaboration avec les gouvernements de Terre-Neuve et Labrador et du Québec, TSMC et HML participeront activement au Programme de recherche sur le caribou de l’Ungava : un vaste programme de recherche dur l’écologie et la dynamique des populations de caribous migrateurs de la péninsule Québec-Labrador dans un contexte de changements climatiques.

Le bruit aura également un effet sur les oiseaux migrateurs, en particulier pendant la saison de reproduction. Cela pourrait faire en sorte que des oiseaux tel que le quiscale rouilleux évitent la zone du Projet. Puisqu’il a été recommandé de procéder aux activités de défrichage et décapage en dehors de la période de reproduction des oiseaux, les impacts sur ceux-ci pourront être réduits.

L’exploitation minière et le dénoyage sont les principales activités qui pourraient avoir un effet considérable sur la faune aquatique ou son habitat pendant que les opérations et l’entretien se poursuivront. En effet, dynamiter près de cours d’eau peut blesser ou tuer des poissons à n’importe quelle étape du cycle de leur vie. En limitant les charges à 4 400 kg entre les mois d’août et de janvier, l’impact sur les œufs de poissons ne devrait pas être important et ceux de Goodream Creek, une frayère bien connue, devraient être protégés. Durant les autres mois de l’année (de février à juillet), une charge maximale de 27 800 kg évitera la mortalité de poissons dans tous les cours d’eau. En théorie, le dénoyage devrait indirectement causer la disparition de certains habitats aquatiques par l’entremise de la diminution de la nappe phréatique, mais aucun des cours d’eau adjacents n’est considéré comme des habitats de poissons – car aucun poisson n’y a été attrapé et à cause de la faible qualité des habitats. Finalement, l’envasement potentiel dû à l’apport de matière en suspension dans l’eau de surface pourrait avoir un impact direct sur la survie des poissons et du benthos.

HML planifie d’utiliser la main-d’œuvre utilisée par TSMC et près de 50 nouveaux employés locaux et temporaires pour construire et exploiter le Projet Howse. Ces travailleurs seront logés dans des camps de TSMC situés près du site de travail et à l’extérieur des municipalités afin de minimiser les impacts sur les communautés. Ces travailleurs devront cependant utiliser des transports aériens locaux et régionaux, des routes et des logements dans le cadre de leurs déplacements vers et en provenance du campement. Le développement et la mise en œuvre du Projet Howse vont soutenir l’économie locale et créer de nouvelles occasions d’emploi et d’affaires (plus de 150 millions de dollars ont été investis dans les entreprises et partenariats avec les Autochtones depuis le début du projet MFED de TSMC).

Un soutien a été apporté et continuera d'être fourni par LIM et TSMC pour l'infrastructure locale (aréna et piscine locale, un centre de guérison, formation, éducation, protection de l'environnement, développement économique, activités traditionnelles, arts et musique, et le partage des revenus). De plus, des mesures claires sont prises pour la sécurité, les conditions et les modalités de travail sain, respectueux et culturellement consciencieux pour ce qui est de la tenue des conseils, le transport, les horaires de rotation, les congés culturels, les restrictions d'exploitation des travailleurs séjournant au camp et de la disponibilité de nourriture traditionnelle. La construction et l’exploitation du Projet occasionneront des changements d’accès à des sites particuliers à l’intérieur du secteur du Projet durant des périodes déterminées pour des raisons de sécurité. Cette étape du Projet aura potentiellement aussi un impact de par les modifications au paysage naturel causées par la mise en œuvre des différentes composantes du Projet à l’intérieur de la zone du Projet. De plus, une plus grande zone sera possiblement impactée due aux différentes perturbations du Projet tel que le bruit, la poussière et les impacts visuels. L’empreinte du Projet et le SAE représentent cependant une proportion très petite de l’ensemble de la zone accessible aux récoltes de ressources ainsi qu’aux activités liées à l’utilisation de terres à des fins commerciales. Étant donné qu’il est improbable que le Projet ait un effet négatif sur l’emplacement et l’échéancier prévus pour l’utilisation des terres, de l’eau et des ressources par les populations non autochtones, ou encore sur le degré de participation à ces activités, aucune diminution de la qualité ou de la valeur globale de ces activités n’est prévue.

Les activités liées à l'utilisation des terres, de l'eau et des ressources – qui constituent une partie importante et intégrante de la culture et des modes de vie de plusieurs populations et communautés autochtones – pourraient être affectées directement et indirectement par la mise en œuvre de projets. Tout changement relatif à l'emplacement et/ou l'échéancier ou au degré global de ces activités pourrait entraîner un changement en matière de qualité et de valeur culturelle recherchées par les individus et les communautés autochtones. Même si ces types d'empreintes et de perturbations localisées et temporaires seront causées par la construction du Projet, les renseignements existants et disponibles n'indiquent pas si des activités traditionnelles ont lieu directement à l'intérieur de l'aire proposée des infrastructures du Projet. Quoi qu'il en soit, il a été documenté que d'autres régions du Labrador ou du Québec sont bien plus importantes pour les activités traditionnelles de chacun des groupes autochtones à l'étude.

Au cours de consultations récentes liées au Projet, des représentants de la NIMLJ et de la nation ITUM ont décrit la présence du site du mont Irony («Kauteitinat») près de la zone du Projet et discuté de son importance pour les Innus et la population locale. Ce faisant, les représentants des Premières Nations ont exprimé leur inquiétude quant à la proximité entre le Projet et ce site, lequel revêt une importance à la fois spirituelle et historique. Pour aborder cette préoccupation et tenir compte des intérêts des autochtones, le promoteur établira et maintiendra une séparation (zone tampon) entre Kauteitinat et le Projet, puis poursuivra le dialogue et sa coopération avec les groupes autochtones et locaux concernés lors de la définition et de la mise en œuvre de cette zone de séparation et d'autres mesures d'atténuation associées. Le plan initial du Projet a aussi été grandement modifié afin de diminuer les effets visuels du Projet sur le paysage local.

Pour le projet DSO, TSMC a mis en place un comité communautaire de santé, sécurité et environnement (HSE), composé des cinq groupes autochtones concernés qui se réunissent avec TSMC sur une base trimestrielle. TSMC prévoit maintenir ce comité et inclure le projet de la propriété Howse à ses conversations. En vue de soutenir une approche holistique , le Comité agit comme un moyen d'échanges significatifs entre les groupes sur toutes les questions relatives à la santé des communautés , la sécurité et l'environnement qui ont trait aux activités de TSMC et HML, les, travaux prévus , les impacts et les mesures d'atténuation . Lorsque cela est jugé utile, les membres du comité sont invités à participer aux rencontres du comité, y compris les aînés et d'autres experts afin de rechercher et intégrer des conseils d'experts dans les procédures et les stratégies à implémenter. En plus des experts en matière de sécurité et de l'environnement de la communauté et de diverses compagnies, des représentants de la santé et des services sociaux communautaires seront invités à participer aux réunions que les questions de santé communautaire d'adresses qui pourraient être liés aux activités minières.

Maintenant que TSMC a commencé à exploiter le projet MFED 1a (ELAIOM) et complété les processus d'EE pour les projets 2a et 2b, d'importants mécanismes de contrôle ont déjà été mis en place pour veiller à ce que les objectifs susmentionnés soient atteints. HML utilisera et, si nécessaire, adaptera ces mécanismes de contrôle du Projet en :

- modifiant le plan de protection de l'environnement conçu pour les phases de construction et d'exploitation du Projet MFED 1a de TSMC afin d'y inclure les objectifs de contrôle du Projet;
- adaptant le plan d'Étude de suivi des effets sur l'environnement (ESEE) au milieu du Projet. Il est important de souligner que Elross Creek et Goodream Creek sont déjà couverts par le plan d'ESEE du projet MFED 1a de TSMC;
- adaptant le programme de surveillance (monitorage) instantané développé pour le gouvernement de Terre-Neuve et Labrador ainsi qu'Environnement Canada à l'environnement du Projet (la surveillance instantanée de la qualité de l'eau d'Elross Creek et de Goodream Creek est déjà en vigueur et mesure tous les principaux paramètres de qualité de l'eau);
- incluant les objectifs de contrôle du Projet dans les rencontres du comité communautaire sur la santé, la sécurité et l'environnement (SSE) qui a été établi au printemps de 2013.Le

comité SSE surveille et facilite la mise en œuvre des obligations de TSMC (et prochainement de HML) en vertu de leurs ERA respectifs, des lois provinciales et fédérales, et des politiques des entreprises.

Selon HML, les mesures de contrôles environnementales mentionnées ci-dessus permettront de surveiller adéquatement tous les effets biophysiques et socioéconomiques essentiels ainsi que l'efficacité de leurs mesures d'atténuation associées.

De plus, les activités minières seront couvertes par un plan de protection de l'environnement (PPE) établi par HML spécifiquement pour ce Projet. Le PPE devra inclure des dispositions entre autres pour le décapage et le forage, la protection contre l'érosion, la protection de la végétation et la faune et le contrôle des espèces protégées.

Approbation du projet

En plus de l'approbation requise en vertu des processus d'EE provincial et fédéral, le Projet proposé nécessitera aussi de nombreux autres permis environnementaux et des autorisations de la part des organismes suivants :

- Service canadien de la faune, Environnement Canada
- Ministère de l'Environnement et de la Conservation
- Ministère des Ressources naturelles
- Ministère des Transports et des Travaux publics
- Engineering and Inspections Division, Service NL
- Engineering Services Division, Service NL
- Environnement Canada
- Division de la protection de l'environnement, ministère de l'Environnement et de la Conservation
- Pêches et océans Canada
- Industrie Canada
- Mineral Lands Division, ministère des Ressources naturelles
- Division des mines, ministère des Ressources naturelles
- Ressources naturelles Canada
- Operations Division, Service NL
- Division de la prévention de la pollution, ministère de l'Environnement et de la Conservation
- Division des services de soutien du Programme, Service NL
- Service NL
- Transports Canada
- Division de la gestion des eaux, ministère de l'Environnement et de la Conservation

Le tableau D présente une liste des permis environnementaux et autorisations potentiellement applicables au Projet minier Howse.

Tableau D Liste des permis environnementaux et autorisations potentiellement applicables

PERMIS/AUTORISATION	LOI/RÈGLEMENT	COMPOSANTE DU PROJET/ACTIVITÉ	DÉPARTEMENT/AGENCE	NOTES
Gouvernement de Terre-Neuve et Labrador				
Plan de développement et de réhabilitation et de fermeture (R & C) Approbation des plans	*Mining Act* et *Mining Regulations*	Développement du Projet	Mines Branch, Department of Natural Resources	Le *Mining Act* comprend un certain nombre d'exigences clés qui ont trait à exploiter le développement dans la province, y compris l'élaboration et l'approbation d'un plan de développement et un plan de réhabilitation et de fermeture (R & C), ainsi que l'affichage des garanties financières appropriées
Droit de surface	*Mineral Act* et *Regulations*	Développement minier sur les terres de la Couronne	Mineral Lands Division, Department of Natural Resources	Un bail de superficie délivré en vertu de l'article 33 du Mineral Act est nécessaire pour le développement d'un bail minier émis en vertu de la Loi
Certificat d'autorisation pour la modification d'un plan d'eau	*Water Resources Act*	Toutes les activités susceptibles de modifier un plan d'eau, y compris dans ou à proximité d'adduction d'eau	Water Resources Management Division, Department of Environment and Conservation	Des permis sont exigés pour les activités de construction de 15 m de la ligne des hautes eaux de tout plan d'eau ainsi que toutes autres activités :. - Annexe A - Ponceaux - Annexe B - Ponts - Annexe C - Barrages - Annexe D - Passage à gué - Annexe E - Prise d'eau - Annexe F- Diversion - Annexe G- Petits Ponts - Annexe H - Autres modifications
Approbation d'exploration	*Mineral Act* et *Regulations*	Toute exploration minière et géotechnique des activités au sein d'un bail minier ou d'une concession minière	Mineral Lands Division, Department of Natural Resources	Une demande d'approbation d'exploration doit contenir un plan détaillé et une description des activités proposées
Certificat d'autorisation pour le drainage du site	*Water Resources Act*	Drainage du site	Water Resources Management Division, Department of Environment and	Une approbation est requise concernant la gestion du drainage du site

PERMIS/AUTORISATION	LOI/RÈGLEMENT	COMPOSANTE DU PROJET/ACTIVITÉ	DÉPARTEMENT/AGENCE	NOTES
			Conservation	
Permis pour l'utilisation de l'eau	*Water Resources Act*	Les prélèvements d'eau pour l'utilisation dans les activités de construction et d'exploitation	Water Resources Management Division, Department of Environment and Conservation	Une autorisation est requise pour l'utilisation de l'eau
Demande de permis de construction d'un puits non domestique	*Water Resources Act*	Installation d'un puits non domestique	Water Resources Management Division, Department of Environment and Conservation	Une licence est requise pour l'installation d'un puits à usage non domestique à Labrador et Terre-Neuve
Directive du programme	*Water Resources Act*	Activité du projet	Water Resources Management Division, Department of Environment and Conservation	Le ministère dispose d'un certain nombre de directives du programme potentiellement applicables en place, y compris ceux liés à l'eau; le développement dans les zones humides, et autres
Conformité au *Règlement*	*Water Resources Act, Environmental Control Water* et *Sewage Regulation*	Toutes les eaux déversées par le projet	Department of Environment and Conservation	Une personne déchargeant des eaux usées et d'autres matériaux dans un plan d'eau doit respecter les normes, les conditions et les dispositions prévues dans le présent règlement
Permis de carrière (si requis)	*Quarry Materials Act* et *Regulations*	Extraction de matériaux	Mineral Lands Division, Department of Natural Resources	Un permis est nécessaire pour creuser, enlever et éliminer toute matière de carrière
Permis de coupe commerciale Permis d'exploitation	*Forestry Act* et *Cutting of Timber Regulations*	Nettoyage des zones de terres pour le projet	Department of Natural Resources	Un permis est requis pour la coupe commerciale du bois sur les terres de la Couronne
Permis de feu (si requis)	*Forestry Act* et *Forest Fire Regulations*	Toute combustion en plein air nécessaire au cours du projet	Department of Natural Resources	Un permis est nécessaire pour allumer des feux en plein air entre avril et décembre. Les permis ne sont pas délivrés pendant la saison des incendies de forêt.
Certificat d'autorisation pour les génératrices au diesel	*Environmental Protection Act,*	Toutes génératrices alimentées au diesel ou autres composantes ou activités du	Pollution Prevention Division, Department of Environment and	Le *Règlement* prévoit des normes spécifiques de qualité de l'air ambiant et des normes

PERMIS/AUTORISATION	LOI/RÈGLEMENT	COMPOSANTE DU PROJET/ACTIVITÉ	DÉPARTEMENT/AGENCE	NOTES
	Air Pollution Control Regulations	projet comprenant des émissions à l'atmosphère	Conservation	d'émissions, ainsi que la conception pertinente d'ingénierie (par exemple, la hauteur de la pile), exigences et autres dispositions
Enregistrement de contenants de carburants : Stockage et manutention de l'essence et produits connexes	*Environmental Protection Act*, et *Storage and Handling of Gasoline and Associated Products Regulations*	Stockage et manutention de l'essence et produits associés	Engineering Services Division, Service NL	L'enregistrement des contenants est requis pour le stockage et la manutention de l'essence et autres produits associés
Formulaire de demande de relocation des réservoirs mobiles de stockage (si requis)	*Environmental Protection Act* et *Environmental Guidelines for Fuel Cache Operations*	Stockage de carburant temporaire	Engineering Services Division, Service NL	Un permis est requis pour l'entreposage temporaire de carburant en région éloignée
Permis pour le stockage, la manutention, l'utilisation ou la vente de liquides inflammables et combustibles	*Fire Prevention Act*, et *Fire Prevention Flammable and Combustible Liquids Regulations*	Stockage et manutention des liquides inflammables et combustibles	Engineering Services Division, Service NL	Ce permis est délivré au nom du Bureau du commissaire aux incendies. L'approbation se fonde sur les informations fournies pour le certificat d'autorisation pour le stockage et la manipulation d'essence et autres produits connexes.
Certificat d'autorisation pour la collecte ou le transport d'huiles usées	*Environmental Protection Act*, *Used Oil Control Regulations*	Information sur le matériel utilisé pour la collecte et le transport de l'huile usée	Engineering Services Division, Service NL	Un certificat d'autorisation est requis pour la collecte, le transport et le stockage de l'huile usée
Licence de gestion de la Faune (si nécessaire)	*Wildlife Act*	Traiter avec la faune nuisible	Department of Natural Resources	Des détails sur la situation des animaux nuisibles doivent être fournis au ministère pour la manipulation des animaux nuisibles.
Conformité au *Règlement*	*Fire Prevention Act*, *Fire Prevention Regulations*	Structures sur le site (permanente et temporaire)	Engineering Services Division, Service NL	Toutes les structures doivent être conformes aux normes de prévention des incendies
Permis d'occupation pour la	*Occupational Health and Safety Act* et	Composantes du projet reliées à	Service NL	Le permis définit les exigences minimales pour la santé et la

PERMIS/AUTORISATION	LOI/RÈGLEMENT	COMPOSANTE DU PROJET/ACTIVITÉ	DÉPARTEMENT/AGENCE	NOTES
construction (si nécessaire)	*Regulations*	l'occupation		sécurité au travail. Les travailleurs ont le droit de refuser un travail dangereux. Le Ministère doit être avisé du début de la construction de tout projet de plus de 30 jours.
Conformité au *Règlement*	*Occupational Health* et *Safety Act*, *Workplace Hazardous Materials Information System Regulations*	Manipulation et stockage de matières dangereuses	Operations Division, Service NL	Décrire les procédures de manipulation des matières dangereuses et fournir des détails sur les diverses matières dangereuses.
Enregistrement des bâtiments à accès limité	*Building Accessibility Act and Regulations*	Tous les bâtiments du projet dont l'accès du public est restreint.	Operations Divisions, Service NL	Les exemptions de conditions d'accès doivent être faites pour tous les bâtiments liés au projet dont l'accès au public est restreint.
Permis électrique et inspection	*Public Safety Act*, *Electrical Regulations*	Infrastructure pour le projet nécessitant du câblage électrique	Program and Support Services Division, Service NL	Un permis est requis pour les travaux électriques. Ceux-ci doivent être soit accomplis par un entrepreneur enregistré ou inspecté par Service, NL.
Revue du plan d'incendie et de sécurité	*Fire Protection Services Act*	Tous les bâtiments liés au projet	Engineering and Inspections Division, Service NL	Tous les plans de bâtiments commerciaux doivent être munis d'un système de prévention et d'extinction approuvé
Conformité au *Règlement* (un permis peut être requis)	Code national de prévention des incendies Code national du bâtiment Life Safety Code	Structure sur place (temporaire ou permanente)	Service NL	Conformité/approbation est requise pour tous les bâtiments liés au projet
Gouvernement du Canada				
Lettre d'avis ou d'autorisation pour des ouvrages ou	*Loi sur les pêches*	Toutes les activités dans ou près de l'eau qui peuvent soutenir	Pêches et océans Canada	Pêches et océans Canada et le gouvernement du Labrador et

PERMIS/AUTORISATION	LOI/RÈGLEMENT	COMPOSANTE DU PROJET/ACTIVITÉ	DÉPARTEMENT/AGENCE	NOTES
entreprises modifiant l'habitat du poisson		une pêche		Terre-Neuve ont établi des énoncés opérationnels pour diverses activités. Ces documents sont disponibles en ligne (http://www.dfo-mpo.gc.ca/habitat/what-quoi/os-eo/nl/index-eng.asp) et prévoient des mesures de protection de l'environnement qui, si elles sont suivies lors des activités de construction et d'entretien, ne se traduira par aucune infraction de l'article 35 de la *Loi sur les pêches*. Pêches et océans Canada rendra une décision sur le niveau de risque associé à l'activité de projet. S'il est déterminé qu'il peut y avoir un risque faible, une lettre d'avis peut être émise. S'il est déterminé qu'il peut y avoir un risque plus élevé, une autorisation peut être nécessaire.
Permis d'achats et possessions d'explosifs (si requis)	*Loi sur les explosifs*	Achats et possessions d'explosifs	Ressources naturelles Canada	Un permis est requis pour acheter et posséder des explosifs
Permis de transport d'explosifs (Entrepreneur)	*Loi sur les explosifs*	Transport d'explosifs	Ressources naturelles Canada	Un permis est requis pour transporter des explosifs.
Conformité au *Règlement*	*Loi sur les pêches*, Section 36(3), Substances délétères	Tout le ruissellement provenant du site du projet qui est évacué dans des eaux réceptrices	Environnement Canada	Environnement Canada est responsable de l'article 36 (3) de la Loi sur les pêches. Les décharges à l'eau ne doivent pas être délétères.
Conformité au *Règlement*	*Règlement et Loi sur la convention concernant les oiseaux migrateurs*	Toutes les activités qui pourraient résulter de la mortalité des oiseaux migrateurs et des espèces en voie de disparition et des espèces sous l'autorité fédérale	Service canadien de la faune d'Environnement Canada	Interdit de perturber, détruire ou de prendre un nid, un abri à nid ou une boîte d'un oiseau migrateur, et posséder un oiseau migrateur vivant, carcasse, peau, nid ou un œuf d'un oiseau migratoire. Le Service canadien de la faune doit être informé de la mortalité des

PERMIS/AUTORISATION	LOI/RÈGLEMENT	COMPOSANTE DU PROJET/ACTIVITÉ	DÉPARTEMENT/AGENCE	NOTES
				oiseaux migrateurs dans la zone du projet
Politique	Politique fédérale de la conservation des terres humides	Toute perturbation de l'habitat des terres humides	Environnement Canada	Les objectifs de cette politique doivent être considérés où un projet pourrait nuire l'habitat des terres humides

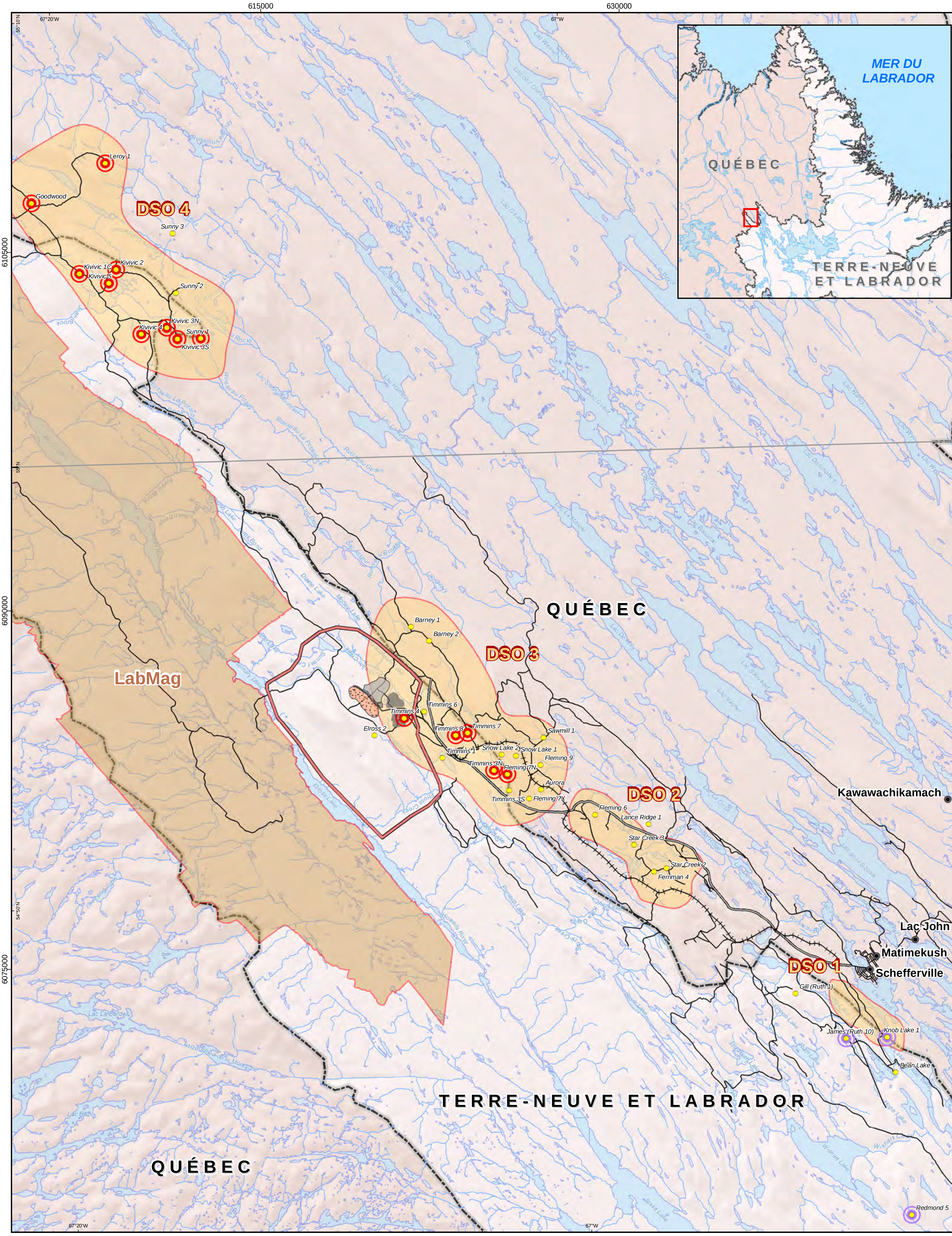
Échéancier de projet

La phase de construction du Projet Howse devrait débuter en 2016, sous réserve des approbations réglementaires et environnementales.

HML planifie de commencer à extraire du minerai de fer au Projet Howse en 2016. Les activités minières du Projet devraient se poursuivre jusqu'en 2027, pour un total de douze ans.

Financement

Le Projet ne dépend pas d'une subvention ou d'un emprunt de fonds de capital provenant d'une agence fédérale, provinciale ou gouvernementale. Il sera financé exclusivement par des investissements privés.



LÉGENDE

Infrastructures et composantes minières

- Gisement - DSO
- Projet LIM
- Projet TSMC
- Fosse proposée - Howse
- Pile de stockage de minerai à basse teneur/mort-terrain proposé
- Installation de concassage et de tamisage proposée
- Halde de stériles proposée
- DSO Howse Aire d'étude locale
- DSO - Autre site
- Taconite - LabMag

Fond de carte

- Ville
- Voie ferrée
- Route
- Cours d'eau
- Lac /plan d'eau
- Frontière provinciale

Figure A

Localisation du site

Projet minier Howse

0 2,5 5 7,5 10

Kilomètres

ÉCHELLE:
1/150 000

UTM 19N Nad 83

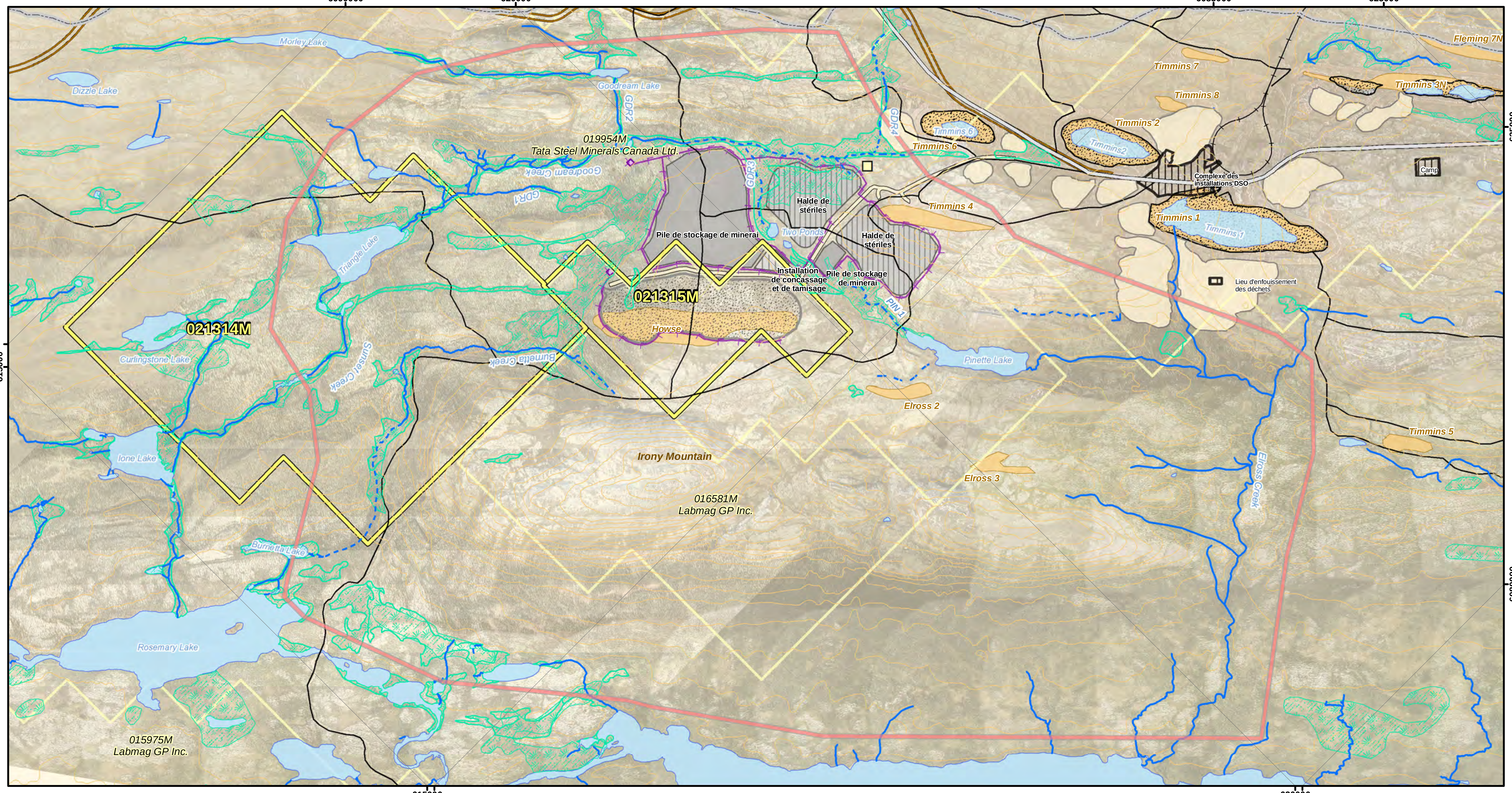
FICHIER, VERSION, DATE, AUTEUR:
GH-0466, 03, 2014-01-14, E.D., J.T.

SOURCES:

Fond de carte
Gouvernement du Canada, BNDT, 1/50 000, 1979
SNC Lavalin, Groupe Hémisphères, Mise à jour de l'hydrologie, 2013.

Infrastructures et composantes minières
New Millennium Capital Corp., Gisements et routes
TATA Steel Minerals Canada Limited/ MET-CHEM,
Conception du plan d'ensemble, 2013

GroupeHemispheres



LÉGENDE

Fond de carte

- Cours d'eau permanent
- Cours d'eau intermittent
- Chenal torrentiel
- Cours d'eau disparraissant
- Source
- Lac /plan d'eau
- Courbe de niveau (50 pi)
- Frontière provinciale
- Route existante
- Route principale
- Milieu humide
- Aire d'étude locale

Infrastructures et composantes minières

- Fosse proposée
- Pile de stockage de minerai à basse teneur/mort-terrain proposé
- Installation de concassage et tamisage proposée
- Halde de stériles proposée
- Bassin de sédimentation proposé
- Chemin d'exploitation minière proposé
- Fossé proposé
- Route potentielle vers DSO 4
- Voie ferrée proposée
- Bassin de sédimentation - 3 Timmins 4
- Titre minier DSO - Howse Labrador Iron Mines Limited (49%)/ Howse Minerals Ltd. (51%)
- Autre titre minier
- Infrastructure ELAIOM (Elross Lake Area Iron Ore Mine)
- Halde de stériles existante
- Fosse existante
- Gisement

*Hydronyms are oriented along the direction of water flow

FICHIER, VERSION, DATE, AUTEUR:
GH-0467-05, 2014-03-26, E.D., J.T.

ÉCHELLE:1/30 000

UTM 19N NAD 83

0 500 1 000 2 000
Mètres

SOURCES:
Fond de carte
Gouvernement du Canada, BNDT, 1/50,000, 1979
Gouvernement de T-N-L et gouvernement du Québec, frontière utilisée pour les titres miniers
SNC Lavalin, Groupe Hémisphères, Mise à jour de l'hydrologie, 2013.

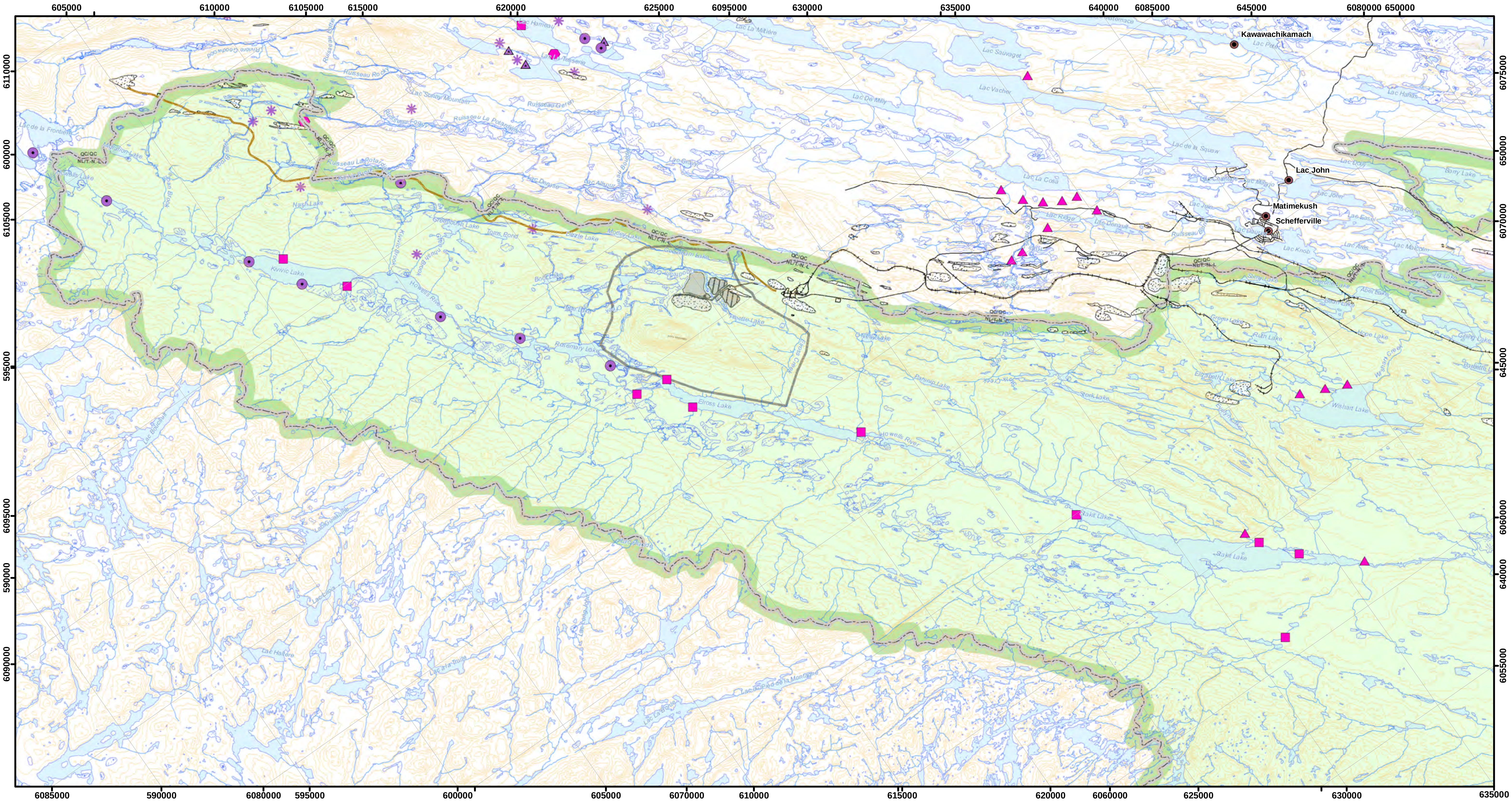
Infrastructures et composantes minières
New Millennium Capital Corp., Gisements et routes
TATA Steel Minerals Canada Limited/ MET-CHEM, Conception du plan d'ensemble, 2013.

Infrastructures du projet Howse et du projet MFED de TSMC

Projet minier Howse

Figure B

GroupeHemispheres



LÉGENDE

Usage récréatif du territoire

- Communauté
- Camp Innu
- Camp Naskapi
- Autre camp
- Outarde camp et site d'observation
- Castor camp et site d'observation
- Site de récolte (Chicouté, airelle, airelle des marécages, bleuet, thé du Labrador)
- Labrador zone petit gibier/ animaux à fourrure
- Labrador zone de gestion de l'ours noir

Infrastructure et composantes du site minier

- Route existante
- Route potentielle vers DSO zone 4
- Voie ferrée proposée
- Gisement
- Fosse proposée
- Pile de stockage de minerai à basse teneur/mort-terrain proposé
- Installation de concassage et tamisage proposée
- Halde de stériles proposée
- Chemin d'exploitation minière

Fond de carte

- Courbe de niveau (15 m)
- Frontière provinciale
- Cours d'eau
- Lac/plan d'eau
- Milieu humide
- Aire d'étude locale

*Les hydronymes sont orientés dans le sens de l'écoulement des eaux.

0 2,5 5 10
Kilomètres

ÉCHELLE: 1/150 000 UTM 19N NAD 83

FICHIER, VERSION, DATE, AUTEUR:
GH-0478-03, 2014-03-26, E.D.

SOURCES:

Fond de carte et composantes d'utilisation du territoire
Gouvernement du Canada, BNDT, 1/50,000, 1979
Gouvernement de T-N-L et gouvernement du Québec,
Atlas d'utilisation du territoire, 2009
Daniel Clement, 2009.

Composantes minières
TATA Steel Minerals Canada Limited/
MET-CHEM, Conception du plan d'ensemble, 2013.
SNC Lavalin, Groupe Hémisphères,
Mise à jour de l'hydrologie, 2013.

Zones de récoltes connues

Projet minier Howse

Figure C

GroupeHemispheres

TABLE OF CONCORDANCE WITH THE PROVINCIAL AND FEDERAL GUIDELINES FOR THE DESCRIPTION OF A DESIGNATED PROJECT

Table of Concordance for the Environmental Assessment Registration under the Newfoundland and Labrador *Environmental Protection Act*, SNL 2002:

SECTION	REQUIREMENT	LOCATION IN PROJECT REGISTRATION
A	Name of Undertaking	▪ Section 1.1
B	Proponent (i) Name of Corporate Body (ii) Address (iii) Chief Executive Officer (iv) Principal Contact Person for purpose of environmental assessment	▪ Section1.2
C	The Undertaking (i) Name of the Undertaking (ii) Purpose/Rationale/Need for the Undertaking	▪ Section 1.1 ▪ Section 2.4
D	Description of the Undertaking (i) Geographical Location (ii) Physical Features (iii) Construction (iv) Operation (v) Occupation (vi) Project Related Documents	▪ Section 2.3 ▪ Section 2.6, 3.0 ▪ Section 2.7 ▪ Section 2.8 ▪ Section 5.6 ▪ Section 1.4
E	Approval of the Undertaking	▪ Section 8.0
F	Schedule	▪ Section 9.0
G	Funding	▪ Section 10.0

Table of Concordance for the *Description of a Designed Project under the Canadian Environmental assessment Act, 2012*:

SECTION	REQUIREMENT	LOCATION IN PROJECT NOTICE
1.0 General Information and Contact(s)		
1.1	Nature of the designated project, and proposed location	▪ Section 1.1 ▪ Section 2.3
1.2	Proponent contact information	▪ Section 1.2
1.3	List of any jurisdictions and/or other parties consulted	▪ Section 6.1
1.4	Other relevant information: 1.4.1 Environmental assessment and/or regulatory requirements for another jurisdiction(s). 1.4.2 Regional environmental study.	▪ Section 1.5 ▪ Section 2.2 ▪ Section 8.0
2.0 Project Information		
2.1	General description of the project	▪ Section 2.1
2.2	Regulations Designating Physical Activities	▪ Section 1.3
2.3	Components and activities 2.3.1 Physical works 2.3.2 Anticipated size / production capacity 2.3.3 For project expansion: percent of increase in size / capacity from the existing project. 2.3.4 Activities description	▪ Section 2.6 ▪ Section 2.7 ▪ Section 2.8 ▪ Section 2.9 ▪ Table 1.2
2.4	Emissions, discharges and waste 2.4.1 Emissions 2.4.2 Discharges 2.4.3 Waste	▪ Section 2.7 ▪ Section 2.8 ▪ Section 2.9
2.5	Construction, operation, and decommissioning and abandonment phases and scheduling. 2.5.1 Anticipated scheduling 2.5.2 Main activities in each phase	▪ Section 2.12 ▪ Section 2.6 to Section 2.9
3.0 Project Location		
3.1	Description of the designated project's location and site map/plan(s)	▪ Section 2.3
3.2	Land and Water Use 3.2.1 Zoning designations. 3.2.2 Current land ownership 3.2.3 Resource management / conservation plans 3.2.4 Historical Land Use 3.2.5 Land status and zoning under the Port Land Use Plan. 3.2.6 Traditional land use (current/past)	▪ Section 2.3 ▪ Section 5.7
4.0 Federal Involvement – Financial Support, Lands and Legislative Requirements		
4.1	Federal financial support	▪ Section 10.0

SECTION	REQUIREMENT	LOCATION IN PROJECT NOTICE
4.2	Federal lands	▪ Section 2.3
4.3	Permits, licences or other authorizations required.	▪ Section 8.0
5.0 Environmental Effects		
5.1	Physical and biological setting	▪ Section 3.0 ▪ Section 4.0
5.2	Changes that may be caused to: (a) fish and fish habitat, (b) aquatic species, and, (c) migratory birds.	▪ Section 7.0
5.3	Changes to the environment that may occur	▪ Section 7.0
5.4	Effects on Aboriginal peoples of any changes to the environment that may be caused	▪ Section 7.10
6.0 Proponent Engagement and Consultation with Aboriginal Groups		
6.1	Aboriginal groups that may be interested in, or potentially affected by the Project	▪ Section 6.1.2
6.2	A description of the engagement or consultation activities carried out to date with Aboriginal groups	▪ Section 6.2
6.3	Overview of key comments and concerns expressed by Aboriginal groups	▪ Section 6.1
6.4	Overview of information on current use of lands and resources for traditional purposes	▪ Section 5.7
6.5	Consultation and information-gathering plan	▪ Section 6.2
7.0 Consultation with the Public and Other Parties		
7.1	Stakeholders information	▪ Section 6.1 ▪ Section 6.2
7.2	Overview of key comments and concerns expressed by stakeholders	
7.3	Overview of any ongoing or proposed stakeholder consultation activities.	
7.4	Consultations description	
8.0 Executive Summary		

1 INTRODUCTION

1.1 Name of the Undertaking

The name of the undertaking is "Direct Shipping Ore – Howse Property".

1.2 The Proponent

In order to acquire a 51% share of the Howse Property, Tata Steel Mineral Canada Ltd. (TSMC) created Howse Minerals Limited (HML), a wholly-owned subsidiary based in St. John's, Newfoundland and Labrador. HML has acquired a 51% participating interest in the mineral licenses comprising the Howse property and is responsible to manage and operate the Howse Property.

An unincorporated Joint Venture was formed in August 2013 between Labrador Iron Mines Ltd (LIM), TSMC, HML and Labrador Iron Mines Holdings Limited for the purpose of developing the Howse Property. HML was appointed to be the Operator and the legal owner of the Howse Property. Therefore, HML is considered as the proponent for this undertaking.

TSMC is a joint venture between Tata Steel Ltd. and New Millennium Iron Corp. (NML) that was established in October 2010. Tata Steel Ltd. owns 80% of the company shares while NML owns the remaining 20%. TSMC is part of Tata Steel Group, which is a Fortune 500 company and is among the top 10 producers of steel in the world. The Tata Steel Group has over 81,000 employees spread over five continents. TSMC is developing iron ore deposits in Quebec and Newfoundland & Labrador in Canada. Tata Steel Ltd. is part of Tata Group.

LIM is Canada's newest and only independently owned iron ore producer. The Company focuses on the development and production of its 20 direct shipping iron ore deposits located in the historic Schefferville area of the Labrador Trough.

Name of Corporate Body:	Howse Minerals Ltd.
Address:	215 Water Street, Atlantic Place, Suite 809
	St. John's, Newfoundland A1C 6M9
Telephone:	709-722-5714
Fax:	709-722-4298
Chief Executive Officer:	Rajesh Sharma, CEO & Managing Director
Email:	rsharma@tatasteelcanada.com

Name:	Loic Didillon, Manager – Environment and Permitting, Tata Steel Minerals Canada
Address:	1000 Sherbrooke West, Suite 1120
	Montreal, Quebec H3A 3G4
Telephone:	514-764-6705
Fax:	514-764-6725
Project Director:	Loic Didillon
Email:	loic.didillon@tatasteelcanada.com

1.3 Environmental Assessment Processes and Requirements

In accordance with the Newfoundland and Labrador *Environmental Protection Act* (EPA), SNL 2002 and *Environmental Assessment Regulations, 2003*, "[...] anyone who plans a project that could have a significant impact on the natural, social or economic environment" is required to submit a Project Registration to the Department of Environment and Conservation for examination. This process consists of up to five steps: 1) registration and review, 2) Minister's decision and, if required, 3) preparation of guidelines for an Environmental Preview Report (EPR) or Environmental Impact Statement (EIS), 4) proponent preparation of EPR or EIS and EPR/EIS review, and 5) Minister's decision. There are definitive timelines associated with each of the five steps.

At the federal level, the Project is a "designated project" in accordance with paragraph 16(a) of the *Regulations Designating Physical Activities* under the Canadian Environmental Assessment Act, 2012 (CEAA 2012) which describes the following activity: «the construction, operation, decommissioning and abandonment of a new metal mine, other than a rare earth element mine or gold mine, with an ore production capacity of 3,000 t/day or more". Therefore, the proponent must submit a Project Description to the Canadian Environmental Assessment Agency, referred as "the Agency" throughout this document for review. The Agency will consider this project description, the potential that the project may cause adverse environmental effects, and comments from the public received during a 20-day comment period in deciding whether an environmental assessment of the Project is required under CEAA 2012.

Three federal agencies are designated as "responsible authorities" the Agency, the National Energy Board (NEB) and the Canadian Nuclear Safety Commission (CNSC). In this project, the Agency will be the designated responsible authority.

The federal EA process officially begins with the proponent submitting a Project Description to the Agency (or to the NEB or the CNSC, as applicable) in accordance with the Guide issued by the Agency in July 2012. The Agency then has 45 days, including a 20-day public comment period, to decide whether an EA is required. Additionally, the Minister of Environment may refer a project to a review panel and hold public hearings within 60 days after the start of an EA.

The process is subject to strict timelines: in the case of CEAA EAs, the Minister must render a decision within 365 days of the initiation of an EA, and review panels must complete their assessment within 24 months. Exceptions can be made under certain conditions: the Minister can extend these timelines by three months, and the federal cabinet can extend them further. These timelines apply solely to the functions of the Agency and the review panels, and do not factor in the time taken by the proponent to discharge its responsibilities.

A variety of forums for public participation exists for both CEAA 2012 and Newfoundland and Labrador EAs, including an opportunity for the public to comment on a Project Registration/Project Description during the initial review period, to suggest topics to be addressed during the environmental assessment, to comment on a draft EA report and, in the case of review panels, to participate in public hearings. Public participation is achieved through the Canadian Environmental Registry website, as well as the Department of Environment and Conservation website, where key project information and documents are posted as the process unfolds.

CEAA 2012 contains specific references to the inclusion of Aboriginal peoples in the EA process through cooperation and communication and defines environmental effects as effects that specifically cause changes to Aboriginal health and socioeconomic conditions, physical and cultural heritage, current use of land and resources for traditional purposes, and structures, sites or items of historical, archeological, palæontological or architectural significance. Aboriginal consultations will also be required by the provincial government as per the Government of Newfoundland and Labrador's Aboriginal Consultation Policy on Land and Resource Development Decisions.

A regional environmental study as per the Agency's definition of "a focused assessment of the development potential of an area, which examines the cumulative effects of the forecasted development scenarios" has not been or is not being carried out in the region where the Project will be located.

1.4 Project Related Documents

There have been several Environmental Studies prepared for other related projects in the area. These studies were reviewed during the preparation of this document. Please refer to the bibliography for additional information. The following reports are currently being completed for the proposed DSO – Howse Property undertaking, hereinafter referred to as the "Project":

- Terrestrial ecosystem mapping, Howse Property study area
- Howse Property Aquatic Survey
- Hydrological Campaign 2013
- 2013 / 2014 Hydrogeological studies

1.5 Proximity to Other Projects

The Project is located in the vicinity of other Direct Shipping Ore (DSO) projects proposed by TSMC and LIM (Figure 1.1and Table 1.1).

Table 1.1 Other DSO Projects in the Area

PROJECT	PROPONENT	DEPOSITS	PROVINCE	STATUS	ENVIRONMENTAL ASSESSMENT
DSO 1	TSMC	Gill	Labrador	-	n/a
DSO 2	TSMC	Star Creek 2,3 Ferriman 6 Sawmill 1 Lance Ridge 1 Fleming 6 Fleming 7X	Quebec	Exploration is planned between 2014 and 2016 to validate historical records. As per historical records, iron grade for DSO2 material is not in-line with our already established DSO grade production schedule. Therefore, all DSO2 material will be exploited after the plan stabilization. All DSO2 deposits are very small. Hence, it is not economically viable to start exploitation at this moment. Exploitation of DSO 2 is not in TSMC's current plans.	n/a
DSO 3 (Project 1a) Also known as (ELAIOM project)	TSMC	Timmins 1,3N,3S, 4,6, 7,8 Barney 1 Fleming 7N	Labrador	Timmins 1: past IOC mine, now a fish habitat Timmins 3S: past IOC mine, not planned to be mined Timmins 6: past IOC mine, not planned to be mined. Timmins 6 is partially on TSMC property and partially on LIM property Operational: Timmins 4: 2012 to 2014 Fleming7N: planned for 2013 to 2016 Timmins 7: planned for 2014 to 2015 Timmins 3N: This pit's schedule is dependant on the outcome of the Howse project. Currently, it is planned for 2015 to 2017	Provincial Environmental Impact Statement completed

PROJECT	PROPONENT	DEPOSITS	PROVINCE	STATUS	ENVIRONMENTAL ASSESSMENT
				which would be the earliest possible time. If Howse Property project and the road to DSO4 come together this will deposit will likely only be mined around 2024.	
DSO 3 (Project 1b)	TSMC	Ferriman 4	Quebec	Proposed Exploration done in 2008. Ferriman 4's potential is very small. Hence, it is not in TSMC's current plans to develop it.	n/a
DSO 4 (2a)	TSMC	Goodwood Sunny 1,2 Kivivic 3S Leroy 1	Quebec (N of 55◦N)	Construction and development planned for 2016 (depending on the road construction access)	Provincial Environmental Impact Statement completed
DSO 4 (2b)	TSMC	Kivivic 1C,2,3N,4,5 Timmins 8	Labrador	Proposed	Provincial and Federal Environmental Impact Statement not required
Stage 1	LIM	James Redmond 2B & 5 Knob Lake 1	Labrador	Operational	Provincial Environmental Impact Statement completed
Stage 2	LIM	Houston 1 & 2	Labrador	Proposed	Provincial and Federal Impact Statement not required
Stage 2	LIM	Malcom 1	Quebec	-	n/a
Stage 4 & 5	LIM	Sawyer Lake Astray Lake Kivivic 1a, 1b	Labrador	Proposed	n/a
Taconite (KéMag / LabMag)	NML (TSMC partner with NML for feasibility study) and other potential partners if project goes ahead.	KéMag/ LabMag	KéMag (Québec) LabMag (Labrador)	Hypothetical	n/a

These projects are independent from each other. However it is planned that the TSMC projects listed in Table 1.1 will utilize the same TSMC's rail loop loading area to ship the iron ore by train. .Also, according to the grade material extracted from the different pits, the DSO plant complex could be used for all DSO projects listed in Table 1.1, as long as the usage of the plant remains in the pre-approved limits. Also, if the Taconite project would go ahead, the only potential link with other projects could be the use of the road from DSO3 to DSO4.

Due to delay in access road construction leading to DSO 4, TSMC is currently planning on working to develop DSO 3 and Howse. Although it is possible that some of the ore from DSO 1 and DSO 2 might be using the different infrastructures at the TSMC DSO Project, it is currently impossible to provide more details on their reliance on these infrastructures. It is also worthy to note that it is not in TSMC or HML's current plans to develop any other pits then those listed in Table 1.1.

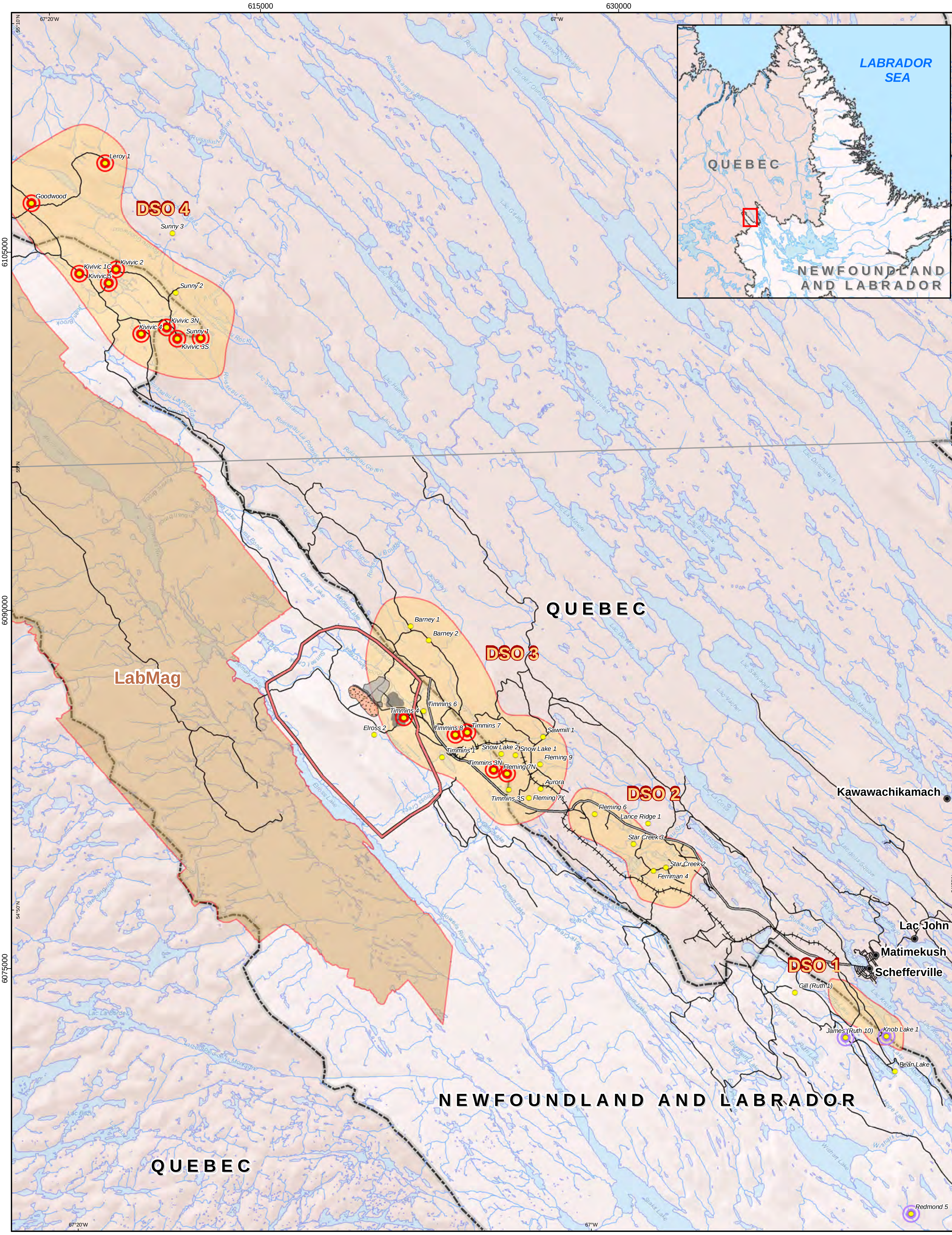
TSMC's DSO 3 Project 1a is also known as Elross Lake Area Iron Ore Mine (ELAIOM). Groupe Hémisphères, the environmental consulting firm who prepared this project description was also actively involved with New Millennium Limited (NML) and TSMC in the preparation of the TSMC's DSO Project 1a (ELAIOM) Project Description, Project Registration and EIS.

Table 1.2 lists the annual production rates for the run-of-mine (ROM) for Howse Property along with TSMC's other DSO projects. The production rates, expressed in million tonnes (Mt) per year, are estimated at 4.2 Mt based on a twelve month operation for the DSO Project and approximately 2.2 Mt based on a seven month operation for Howse.

Table 1.2 Anticipated Production Rates for Howse Property and TSMC's DSO Project

PROJECT / YEAR	2012 (Mt)	2013 (Mt)	2014 (Mt)	2015 (Mt)	2016 (Mt)	2017 (Mt)	2018 (Mt)	2019 (Mt)	2020 (Mt)	2021 (Mt)	2022 (Mt)	2023 (Mt)	2024 (Mt)	2025 (Mt)	2026 (Mt)	2027 (Mt)	TOTAL
Howse Property	0	0	0	0	1.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	7.2*	2.2	2.2	2.2	30.5
DSO 3 (1a)	0.3	1.1	2.6	4.7	2.6	0	0	0	0	0	0	0	0	0	0	0	11.3
DSO 4 (2a)	0	0	0	0	0	0	5.5	5.5	4.7	4.5	4.5	4.7	0.5	0	0	0	29.9
DSO 4 (2b)	0	0	0	1.7	0	3.0	3.2	2.3	0.4	0	0	0	0	0	0	0	10.6
Total	0.3	1.1	2.6	6.4	3.9	5.2	10.9	10.0	7.3	6.7	6.7	6.9	7.7	2.2	2.2	2.2	82.3

*The production from Howse Property in 2024 comprises 2.2 Mt of ROM ore at 62% Fe which will be processed at the crushing and screening facility and 5 Mt of low-grade ROM Ore which will be processed at the DSO processing plant.



LEGEND

Infrastructure And Mining Components

- DSO - Deposit
- LIM Project
- TSMC Project
- Proposed Howse Pit
- Proposed Low Grade/Overburden Stockpile
- Proposed Crushing/Screening Facility
- Proposed Waste Rock Dump
- DSO Howse Local study area
- DSO - Other Site
- Taconite - LabMag

Basemap

- Town
- Railroad
- Road
- Watercourse
- Waterbody
- Provincial Boundary

Figure 1.1

Location

DSO Howse Property

0 2,5 5 7,5 10

Kilometers

N

SCALE:
1:150 000

UTM 19N Nad 83

FILE, VERSION, DATE, AUTHOR:
GH-0466, 03, 2014-01-14, E.D., J.T.

SOURCES:

Map base
Government of Canada, NTDB, 1:50,000, 1979
SNC Lavalin, Groupe Hémisphères, Hydrology update, 2013.

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/ MET-CHEM, Howse Deposit Design for General Layout., 2013

GroupeHemispheres

1.6 Purpose and Organization of the EA Registration

According to Section 32(2) of the 2003 *Environmental Assessment Regulations*:

> *An undertaking that will be engaged in the mining, beneficiating and preparing of a mineral as defined in the Mineral Act whether or not these operations are to be performed in conjunction with a mine or at mills that will be operated separately shall be registered.*

This document, prepared by Groupe Hémisphères, is being submitted to the Department of Environment and Conservation in accordance with the Newfoundland and Labrador EPA.

This document is also being submitted as a Project Description pursuant to CEAA 2012 and has been organized in such way that the information required for the provincial and federal government can easily be found. A Table of Concordance located at the beginning of this document lists the provincial and federal requirements and the corresponding sections where the relevant information can be found. A list of additional approvals that may be required under the provincial and federal governments appears in Appendix II.

2 THE UNDERTAKING

The following section defines the Project components and phases and outlines its rationale.

2.1 Nature of the Undertaking

2.1.1 The Undertaking

HML is planning on developing the iron ore deposit at the Howse Property with the support of adjacent mining infrastructures. The deposit is located in Newfoundland and Labrador along the Labrador Trough, between Irony Mountain, Pinette Lake and Timmins 4 (TSMC current site of operation). An existing road from past mining operations by IOC (1.3 km) will be used and 2 km of new road will need to be built the Howse Property to the existing road network. HML proposes to use a conventional open pit drill and blast operation mining method. The extracted iron ore will be crushed and screened, hauled by truck to the TSMC's DSO Project rail loop loading area (less than 5 km from the Project), which is currently under construction, and then shipped by train to Sept-Îles. Therefore, little additional infrastructure will need to be built.

Pit development is expected to be completed in 2016 to allow for ore production to also begin in 2016.

HML will ensure that all permits and authorizations from appropriate regulatory agencies be obtained prior to the start of construction and operation in order to comply with laws and regulations from both governments.

2.1.2 Capital Cost

The capital cost is not expected to exceed $100 Million.

2.1.3 Related Projects

HML does not have other related projects. However, since HML is a division of TSMC, TSMC DSO Project Phase 1 and 2 (1a, 2a, 2b) is considered a related project. Details on the TSMC infrastructures that will be used for Howse Property are provided in Section 2.6.7.

2.2 Previous Environmental Assessment

The local study area (LSA) for the Howse Property project is partly situated within the area previously assessed for the TSMC's DSO Project phase 1 (ELAIOM) (Figure 1.1) for which an EIS has been submitted and accepted. It is important to mention that the following deposits identified on Figure 1.1 are not the property of LIM or TSMC: Snow Lake 1, Snow Lake 2, Sunny 3, Barney 2, Elross 2, Fleming 9, Aurora, Ferriman 6 and Bean Lake.

Environmental Assessments have been prepared for other projects in the vicinity of the proposed undertaking and the most relevant are listed in Table 2.1.

Table 2.1 List of Previous Environmental Assessments

PROJECT	OWNER	LOCATION	ENVIRONMENTAL ASSESSMENT PROCESS	DATES
Elross Lake Area Iron Ore Mine (ELAIOM)	New Millennium Capital Corporation, now TSMC	Western Labrador, 10 km northwest of Schefferville, Quebec	Project Registration	Registered May 5, 2008
			Provincial Environmental Impact Statement required	EIS submitted January 6, 2010
			Federal Environmental Impact Statement not required	Released January 5, 2011
Joyce Lake Direct Shipping Iron Ore Project	Labec Century Iron Ore	Western Labrador, 20 km northeast of Schefferville, Quebec	Project Registration	Registered on October 15, 2012
			Provincial Environmental Impact Statement required	EIS ongoing
Joan Lake Direct Shipping Ore Project (DSO 2b)	New Millennium Capital Corp., now TSMC	Western Labrador, 45 km northwest of Schefferville, Quebec	Project Registration	Registered January 20, 2010
			Provincial and Federal Environmental Impact Statement not required	Released on March 24, 2011
DSO Project 2a (Goodwood, Leroy 1, Sunny 1 and Kivivic 3S Deposits	New Millennium Capital Corp., now TSMC	Northern Quebec, 50 km northwest of Schefferville, Quebec	Environmental Impact Statement submitted to the Government of Québec Federal Environmental Impact Statement not required	Certificat d'autorisation (authorization) delivered on January 11, 2013 by Government of Québec
Schefferville Iron Ore Mine (James and Redmond Properties)	Labrador Iron Mines Ltd.	Western Labrador, near Schefferville, Quebec	Project Registration	Registered May 5, 2008
			Provincial Environmental Impact Statement required	EIS submitted December 21, 2008
			Federal Environmental Impact Statement not required	Revised EIS submitted August 25, 2009 Released February 12, 2010

2.3 Geographical Location

Howse Property is located 25 km from Schefferville. Figure 2.1 shows the geographical location of the Howse Property in relation to the TSMC's DSO Project complex and other existing infrastructures. The centre of the pit is located at 67°8'19.07"W, 54°54'31.18"N. The property is completely located in the Province of Newfoundland and Labrador. The mineral rights are registered to LIM (49%) and HML (51%) in the form of two map-staked licences: 021314M and 021315M, as listed in Table 2.2, which replace licence 0201430M.

Table 2.2 Mineral Licences

LICENCE	CLAIMS	AREA (HA)	ISSUANCE DATE	RENEWAL DATE	REPORT DUE DATE
021314M	32	797	Dec. 16, 2004	Dec. 16, 2014	Feb. 14, 2014
021315M	7	181	Dec. 16, 2004	Dec. 16, 2014	Feb. 14, 2014

2.3.1 Land zoning and land use plans

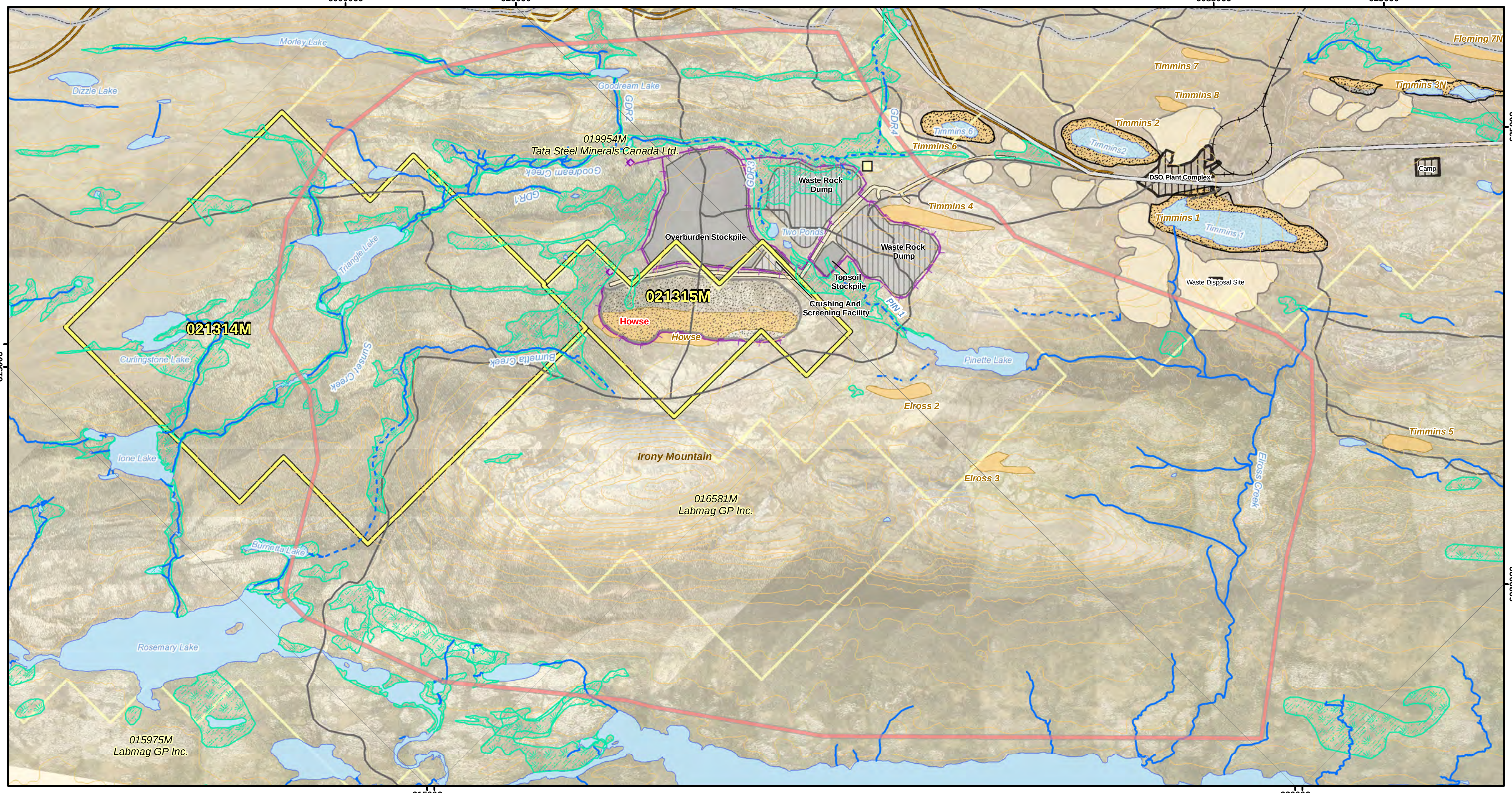
There is no zoning that applies to the Project area. Also, the Project area lies outside of areas for which there is a land use plan. As mentioned in section 2.3 above, the Property is registered to LIM (49%) and HML (51%).

2.3.2 Proximity to Federal Lands

The Howse Property is located on provincial Crown land. The distance, as the crow flies, of the Project to federal lands is shown in Table 2.3.

Table 2.3 Distance to Nearest Federal Lands

	FEDERAL LAND	APPROXIMATE DISTANCE FROM HOWSE PROPERTY (km)
Quebec	Schefferville Airport	24
	Matimekush (Aboriginal community)	24
	Lac John (Aboriginal community)	25
	Kawachikamach (Aboriginal community)	25
	3 wing Bagotville (Military base)	780
Labrador	Labrador City Airport	219
	Wabush Airport	222
	Sheshatshiu (Aboriginal community)	479
	Natuashish (Aboriginal community)	404
	5 wing Goose Bay (Military base)	472



LEGEND

Basemap

- Permanent Watercourse
- Intermittent Watercourse
- Storm Run-off
- Disappearing Stream
- Artesian Spring
- Waterbody
- Contour Line (50 ft)
- Provincial Border
- Existing Road
- Main Access Road
- Wetland
- Local Study Area

Infrastructure And Mining Components

- Proposed Howse Pit
- Proposed Low Grade/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Sedimentation Pond
- Proposed Mine Haul Road
- Proposed Ditch
- Potential Road To DSO Area 4
- Proposed Railroad
- Timmins 4 Sedimentation Pond-3
- DSO Howse - Claims Labrador Iron Mines Limited(49%)/ Howse Minerals Ltd.(51%)
- Other Claim
- Elross Lake Area Iron Ore Mine (ELAIOM) Plant Infrastructure footprint
- Existing Dump
- Existing Pit
- Deposit

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0467-05, 2014-03-26, E.D., J.T.

SCALE: 1:30 000

UTM 19N NAD 83

0 500 1 000 2 000

Meters

SOURCES:
Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Boundary used for claims
SNC Lavalin, Groupe Hémisphères, Hydrology update, 2013

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/ MET-CHEM Howse
Deposit Design for General Layout, 2013

Howse Property And TSMC DSO Project Infrastructure

DSO Howse Property

Figure 2.1

GroupeHemispheres

2.4 Purpose/Rationale/Need for the Undertaking

As explained in Section 1, HML and TSMC are part of the Tata Steel Group which is one of the top ten steel producers in the world (TSMC, 2013a). The Howse Property Project was not in the initial plans of TSMC. However, due to a delay in the construction of the haul road to the DSO 4 Project 2a (Goodwood and Sunny deposits) and DSO 4 Project 2b (Kivivic deposits), the exploitation of these deposits is postponed. This situation creates uncertainty in the ore supply of TSMC's DSO project. By developing the Howse Property, the proponent is aiming to secure a constant, high-quality iron ore supply at a fair market price to Tata Europe or India and Asia.

According to the proponent, the Project can be brought into production in a relatively short period of time and at a low capital cost, as the Project requires few new installations and as some of the required infrastructures (e.g. the railway, access road, the camp, mining equipment and explosive storage area) are already in place at the nearby TSMC's DSO Project complex, which is currently under construction.. Therefore, the Howse Property commissioning could be done in a relatively short period of time as it will use the TSMC's DSO Project infrastructures, and could therefore solve the issue of the haul road construction delay.

2.5 Alternatives to the Project

The decision to develop the Howse Property is motivated by the delays in the construction of the haul road leading to DSO 4 project and the proximity of existing infrastructures and the availability of quality iron ore at this location. Consequently, there are no viable alternatives to the Project at the macro scale.

The current project is the result of a joint venture to optimize the operations of the TSMC's DSO Project plant complex currently under construction that will be used for nearby TSMC open pit mining operations. Without this joint venture, the development of the Howse Property was planned for 2017 by LIM. The LIM alternative would have entailed the construction of a new processing plant at Howse, or trucking the ore 20 km to LIM's Silver Yards processing plant. This joint venture thus optimizes the use of existing facilities, reduces the requirement for new infrastructure and the upgrading of haul roads, and it substantially reduces haulage costs and environmental footprint.

Given that the ability to develop a mining operation is essentially determined by the location of the ore deposits, the only alternative to the Project is the "no-build" scenario, which would reflect a loss of opportunity on several levels:

- Given global demand, international investments may move elsewhere;
- Locally and regionally, it would preclude the economic benefits associated with operating expenditures, taxation revenues to governments, infrastructure development and job creation;
- Local people and First Nations would lose the opportunity to participate in the Project, with its corresponding financial and social benefits; and
- Positive effects identified would be avoided if the Project is not built.

2.5.1 Alternative Methods of Carrying Out the Project

The alternative methods of carrying out the Project include the waste rock dump and stockpile locations, the source, treatment and disposal of wastewater, as well as the use of explosives.

2.5.1.1 Open Pit

The estimated mineral resources at the Howse Property are based on historic data and reports prepared by the previous operator: the Iron Ore Company of Canada (IOC). The Howse Property was part of the IOC's estimated mineral resources and reserves published in its DSO Reserve Book prepared in 2003. IOC anticipated mining the deposit at the Howse Property in the future. However, due to the closure of IOC mine operations in 1983, mining activities were not conducted at the Howse Property. There is no alternative position to the open pit as it is dictated by the location of the ore body.

2.5.1.2 Waste Rock Dump and Stockpiles

In the vicinity of the mine site, the principal alternatives available for consideration in terms of environmental impacts are the placement of the waste rock dump and stockpiles (overburden and topsoil). A prime consideration in the placement of these facilities is to locate them in areas which meet the following criteria:

- Location within a 1 km perimeter of the mine site;
- Low mineral potential;
- Surface availability;
- Operating costs and maintenance;
- Environmental considerations (e.g. the presence of avifauna with sensitive species, minimizing the effects on water bodies and wetlands); and
- Location must be agreed upon with First Nation communities.

Some areas could not be considered for waste rock or overburden storage due to the topography and presence of sensitive environments, i.e. Irony Mountain area, wetlands and Goodream Creek. After a number of iterations comparing dump and stockpiles location, size, shape and height, the final layout was selected in order to accommodate aboriginal rights or interests, to minimize the visual impact and the environmental impact on wetlands, water quality and fish habitat. The footprint of the proposed infrastructures is discussed in Section 2.8.12.

In order to reduce the footprint at the Howse Property, the low grade material will be stockpiled at the DSO plant complex. The initial plan was to stockpile it in the vicinity of the waste rock dump.

2.5.1.3 Source of Wastewater Disposal

A ditch will be established around the perimeter of the pit to intercept water before it infiltrates the mine. This water will be discharged into a sedimentation pond near the pit. The goal is to avoid contact between uncontaminated runoff water and surface water affected by mining operations.

Runoff water that comes into contact with waste rock, stockpiled overburden or topsoil will be collected by a ditch network and discharged into a sedimentation pond located north of the overburden stockpile. The water collected in the sedimentation pond will be tested prior to being discharged into the environment (mine effluent); pH and discharge rates will be measured at this location.

Any water accumulating in the open pit and from the dewatering wells will be kept separate from the runoff water and will be pumped into the existing Timmins 4 Sedimentation Pond-3.

The ditch network design was modified several times to reflect the different dump and stockpile locations, sizes, shapes and heights alternatives.

2.5.1.4 Use of Explosives

After the evaluation of various scenarios, the retained solution is to have one explosive and storage facility for all of the mining operations planned in the area near the TSMC's DSO Project complex. This approach will avoid additional permit requirements.

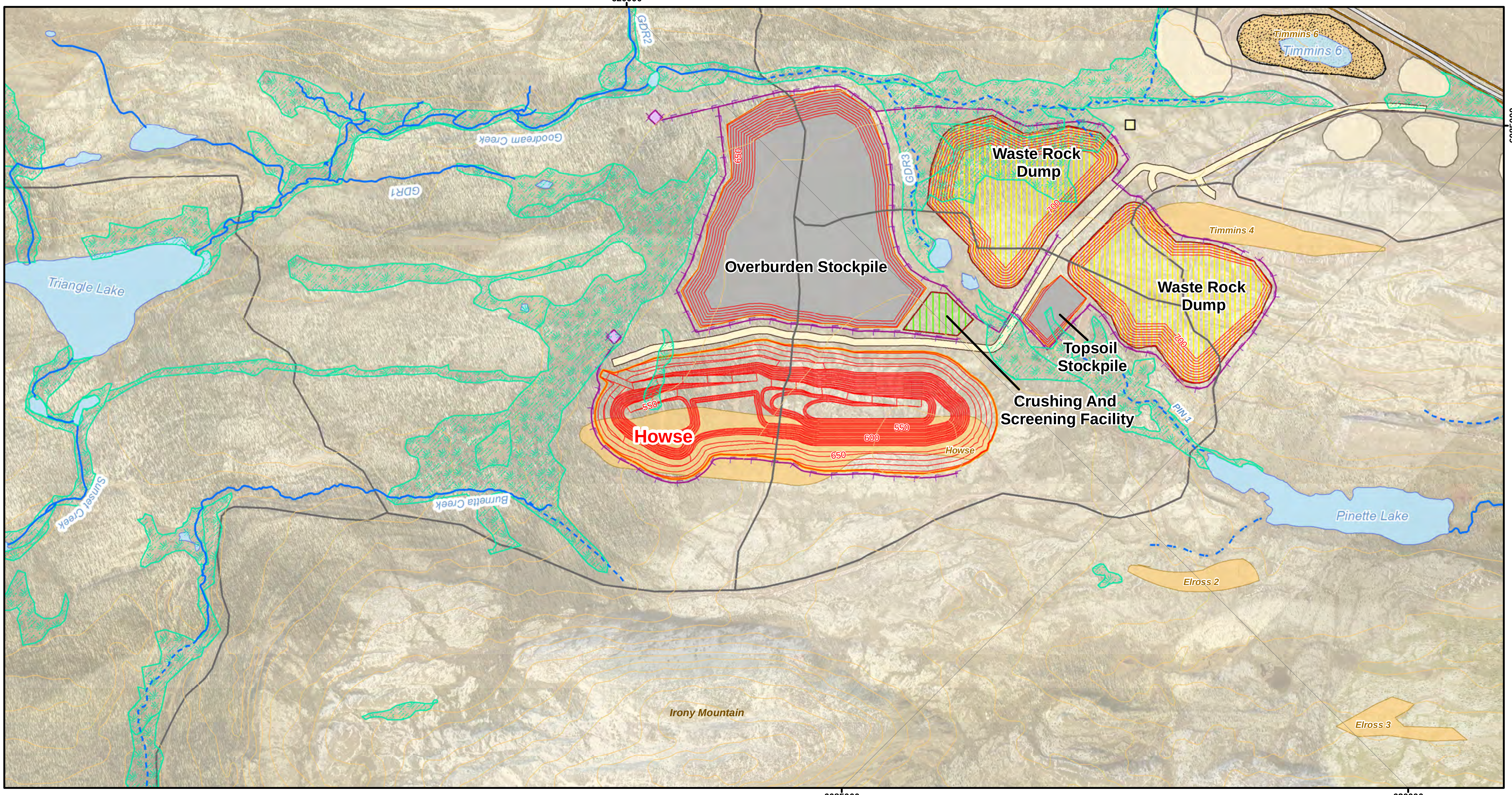
Considering the soft nature of the iron formation, only one blast is expected per week, which is another reason why a second explosive storage facility near the Howse Property is unnecessary.

2.6 Project Components and Layout

Figure 2.2 shows the major physical features of the Project. The new physical works associated with the development of the Howse Property include:

- Open pit;
- Stockpiles (peat/topsoil, overburden and low grade material);
- Waste rock dump;
- Crushing and screening facility;
- Access and haul road; and
- Water management facilities and general site drainage works.

Details of Project components are provided in sections 2.6.1 to 2.6.7.



LEGEND

Basemap

- Permanent Watercourse
- Intermittent Watercourse
- Storm Run-off
- Disappearing Stream
- Artesian Spring
- Waterbody
- Contour Line (50 ft)
- Provincial Border
- Existing Road
- Main Access Road
- Wetland

Infrastructure And Mining Components

- Proposed Howse Pit
- Proposed Topsoil/Overburden Stockpile
- Proposed Crushing/Screening Facility
- Proposed Waste Rock Dump
- Proposed Mine Haul Road
- Proposed Sedimentation Pond
- Proposed Infrastructure Contour Line (10m)
- Proposed Ditch
- Potential Road To DSO Area 4
- Timmins 4 Sedimentation Pond-3
- Existing Dump
- Existing Pit
- Deposit

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0467-05, 2014-03-26, E.D., J.T.

SCALE: 1:15 000

UTM 19N NAD 83

0 500 1 000
Meters

SOURCES:
Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Boundary used for claims
SNC Lavalin, Groupe Hémisphères, Hydrology update, 2013

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/ MET-CHEM Howse
Deposit Design for General Layout, 2013

HML Infrastructure And Layout

DSO Howse Property

Figure 2.2

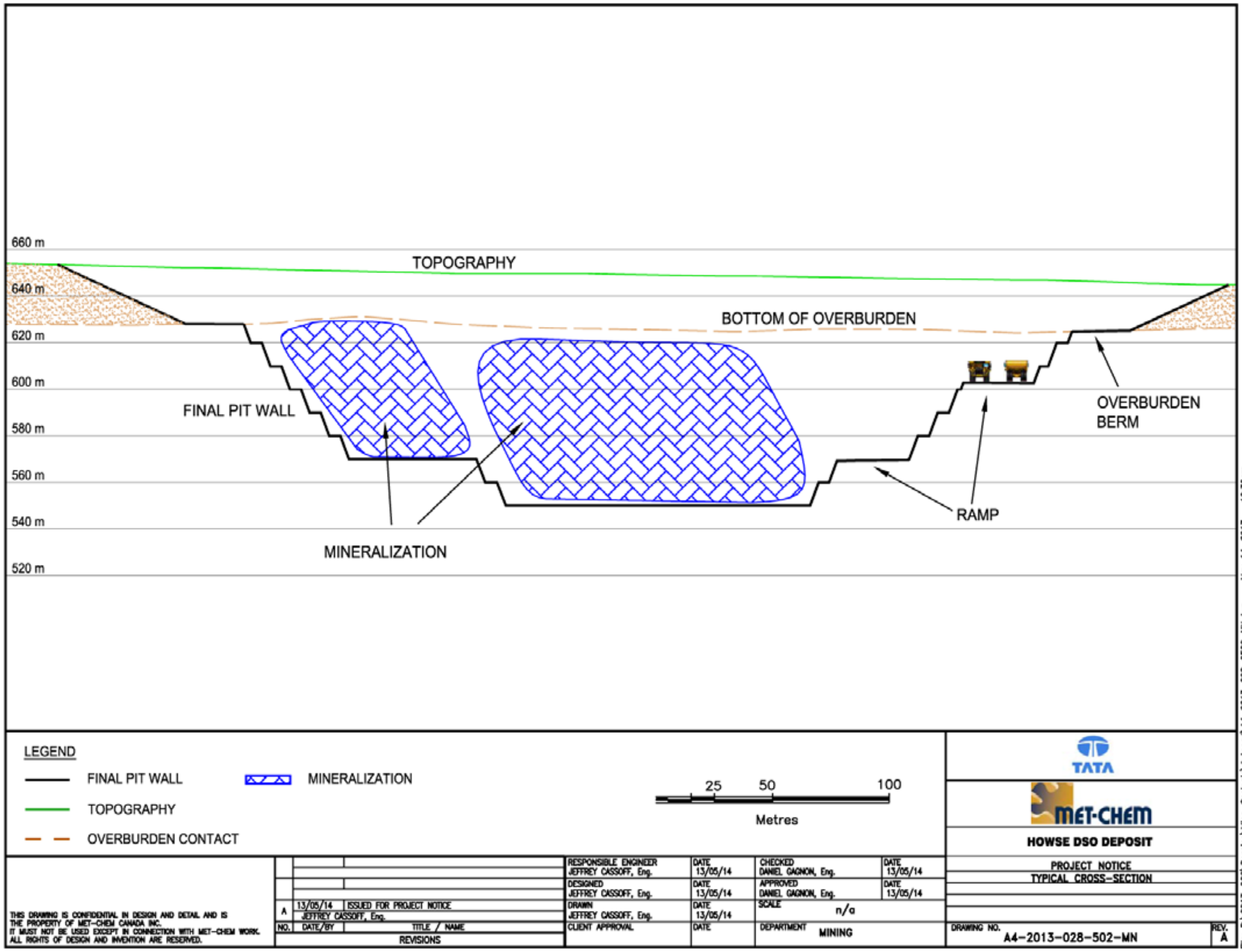
GroupeHemispheres

2.6.1 Open Pit

The final dimensions for the proposed open pit are approximately 1,600 m long and 450 m wide at the top, with a maximum depth of 160 m. The anticipated footprint of the pit is approximately 72 ha. Material from the pit will be drilled and blasted and subsequently extracted using hydraulic excavators and haul trucks. The optimal pit for Howse is expected to contain 25 Mt of high-grade iron ore (@62% Fe), 39 Mt of overburden, 39 Mt of waste rock and 5 Mt of low-grade material (MetChem, 2013). Depending on the final mine design and market value of the ore, the mine's service life is estimated at 12 years. The deposit has a strip ratio of 3.3: 1 (calculated based on high-grade ore only).

The high grade iron ore will be crushed and screened in a dry crushing and screening facility adjacent to the Howse pit at a rate of 2.2 Mt per year. The finished product will be transported to the TSMC loading area at Timmins yard (about 4 km) and loaded onto the rail cars through the DSO quick-loading system. The incidental low-grade ore, generated by the excavation of high-grade ore, will be stockpiled near the Howse deposit and will be processed through the DSO processing plant (located about 4 km from Howse) in 2024, after the iron ore from Area 1a, 2a and 2b is exhausted. The DSO processing plant will therefore never exceed its processing capacity.

The mine design meets industry standards and fulfills applicable provincial and federal legislation. For safety, environmental and economic reasons, the pit walls have been designed at a 25°slope throughout the overburden layer and at a 50° slope through the iron deposit. As shown in Figure 2.3, the overburden depth varies between 10 m and 40 m with an average thickness of 25 m. For stability, 10 m high benches will be built.



Source: Met-Chem (2013)

Figure 2.3 Typical Cross-Section Stockpiles and Waste Rock Dump

In order to comply with mining regulations, organic material and topsoil within the pit limits and any disturbed area (waste rock dump, overburden stockpile, crushing and screening facility, and haul road) must be stripped and stockpiled for future reclamation. This material will be placed in stockpiles around the property and properly stored (see location at Figure 2.2).

A small amount of organic and topsoil may also be present at the Howse Property site. This material will be stockpiled separately, as required.

The low grade material extracted at the Howse Property will be stockpiled at the TSMC's DSO Project complex, as mentioned in Section 2.5.1.2.

The overburden, consisting of surficial soil deposits and loose rocks, will be piled in a common dump to ensure stability. The proposed location and footprint of the dump and stockpiles are shown in Figure 2.2

All of the waste rock disposal area and stockpiles will have a perimeter ditch to capture water runoff. The dumps and the stockpiles (overburden and low grade iron ore) will be designed within the claims but outside of the ore boundary. As detailed in Section 3.9, acid rock drainage issues are not expected, but any material that could potentially generate acid will be stockpiled in a separate location. The design of this pile will include measures to prevent the infiltration of contaminants in the groundwater. A network for collecting seeping wastewater will be designed to direct the water for appropriate treatment before it is discharged into the environment.

Some of the waste rock and overburden will likely be salvaged for road construction, proportionally reducing the corresponding dump/stockpile footprints. This material will have initially been tested to determine its acid generation potential. Overburden and topsoil will also be placed over reclaimed areas to help with revegetation.

At the final stage, the maximum height of the stockpiles is 55 m for the overburden, 50 m for the waste rock dump and 15 m for topsoil.

2.6.2 Crushing and Screening Facility

The ROM ore from the Howse Property pit will be hauled by truck to an on-site crushing and screening facility to produce a final product consisting of 15% lumps and 85% sinter fines (Figure 2.4). The facility will be built on a pad that is 100 m wide by 150 m long with a peripheral ditch to collect runoff water.

Power for the crushing and screening facility will be provided by diesel generators.

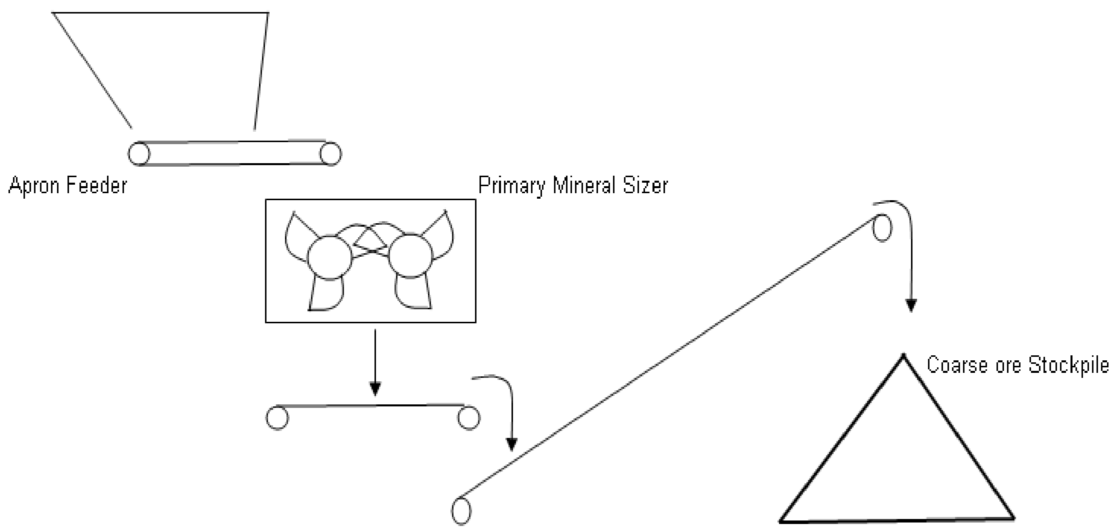


Figure 2.4 Crushing and Screening Facility Flowchart

2.6.3 Access and Haul Road

The final access and haul road configuration will take environmental, economic and safety factors into account. As stated earlier, the material used for the road construction will initially be tested to determine its acid generation potential. Only materials showing no acid generation potential or metal leachate potential will be used.

Temporary ramps will be required in order to maintain accessible benches in the advancing wall. These ramps will either be cut with shovels or backfilled with waste rock. The ramps will be built with a maximum grade of 8%.

The road outside of the pit will have longitudinal ditches to collect the surface water runoff from the road and to convey the water affected by mining operations to a settling pond.

The existing old road from past mining activities of IOC will be used (1.3 km) and an additional 2 km of road will need to be built in order to connect the deposit at the Howse Property to the existing road near the Timmins 4 deposit, as shown in Figure 2.2. The road, which will be shared by mining trucks and light vehicles, will be designed for 64-tonne haul trucks. For double lane traffic, industry practice indicates the running surface width to be a minimum of three times the width of the largest truck. The overall width of a 64-tonne haul truck is 7.62 m which results in a running surface of 23 m (Figure 2.5). The overall width of the haul road must account for safety berms and ditches.

The safety berm height will be a minimum of one half the height of the largest truck tire. The diameter of a 64-tonne haul truck's tire is 3.4 m. The safety berm slopes are 1.7 m high and 3.4 m wide with 45° angles (triangular shape). The maximum road grade will be 8% and the design will include a crown of 1% (minimum). The berms will be interrupted every 25 m in length to allow for water to run off into the ditches.

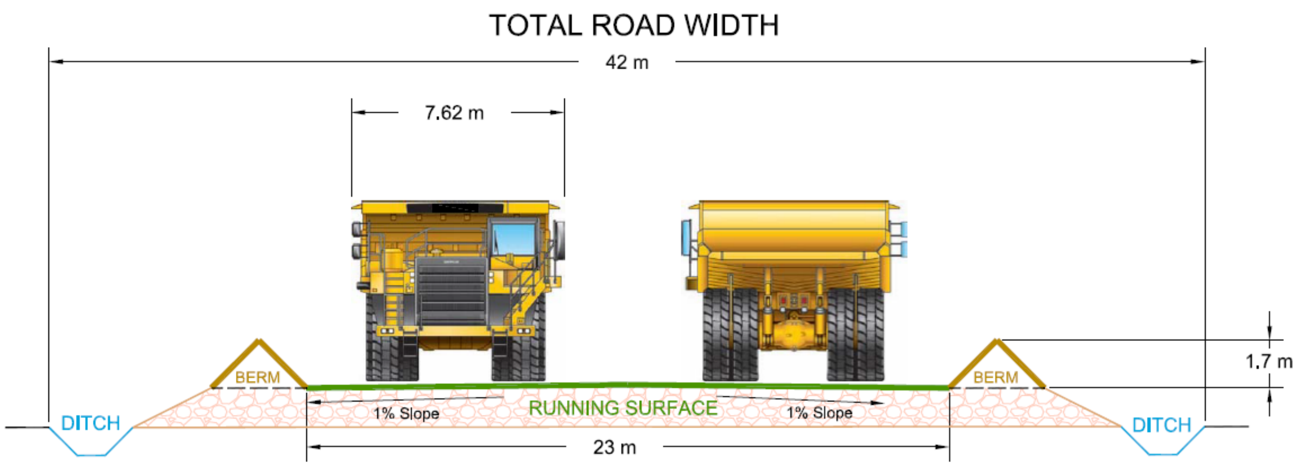


Figure 2.5 Typical Road Cross-Section

2.6.4 Water Management Facilities and General Site Drainage Works

Peripheral wells will be installed at the pit perimeter to lower the water table below the elevation of the mining operation. The number of wells as well as the location, schedule and pumping capacity will be determined based on the results of ongoing hydrogeological investigations. Water will be pumped into Timmins 4 – Sedimentation Pond-3.

Water that accumulates within the active pit limits as a result of rainfall and snow melt will be collected in sumps that will be established on the pit floor. A system of pumps and hoses will be installed in these sumps to pump the water to Timmins 4 – Sedimentation Pond-3. The number of pumps will be increased as the pit grows. In winter, most of the water in the pit will freeze and pumping will be suspended. The electricity required to run the peripheral and sump pumps will be provided by generators.

Drainage ditches will also be dug around the toe of the dump/stockpiles and along the roads, as mentioned above, and will be connected to sedimentation ponds and tested before being released into Goodream Creek, downslope from the overburden stockpile.

2.6.5 Diesel, Light Fuel Oil and Gasoline

Fuel for the crushing and screening facility generators and pumps will be stored at the approved TSMC's DSO Project complex facilities, which are currently under construction. Refueling will be done according to standard practices on Howse Property Project site by fuel truck equipped with fuel spill kits. All of the mining equipment dedicated to the Howse operations (excavators, haul trucks, production drill, dozer and grader) will be diesel-powered and will be refuelled at the approved TSMC's DSO Project facility.

2.6.6 Existing Facilities

The Proponent will use the approved facilities at TSMC's DSO Project plant complex, which are currently under construction. Major infrastructures at this complex include:

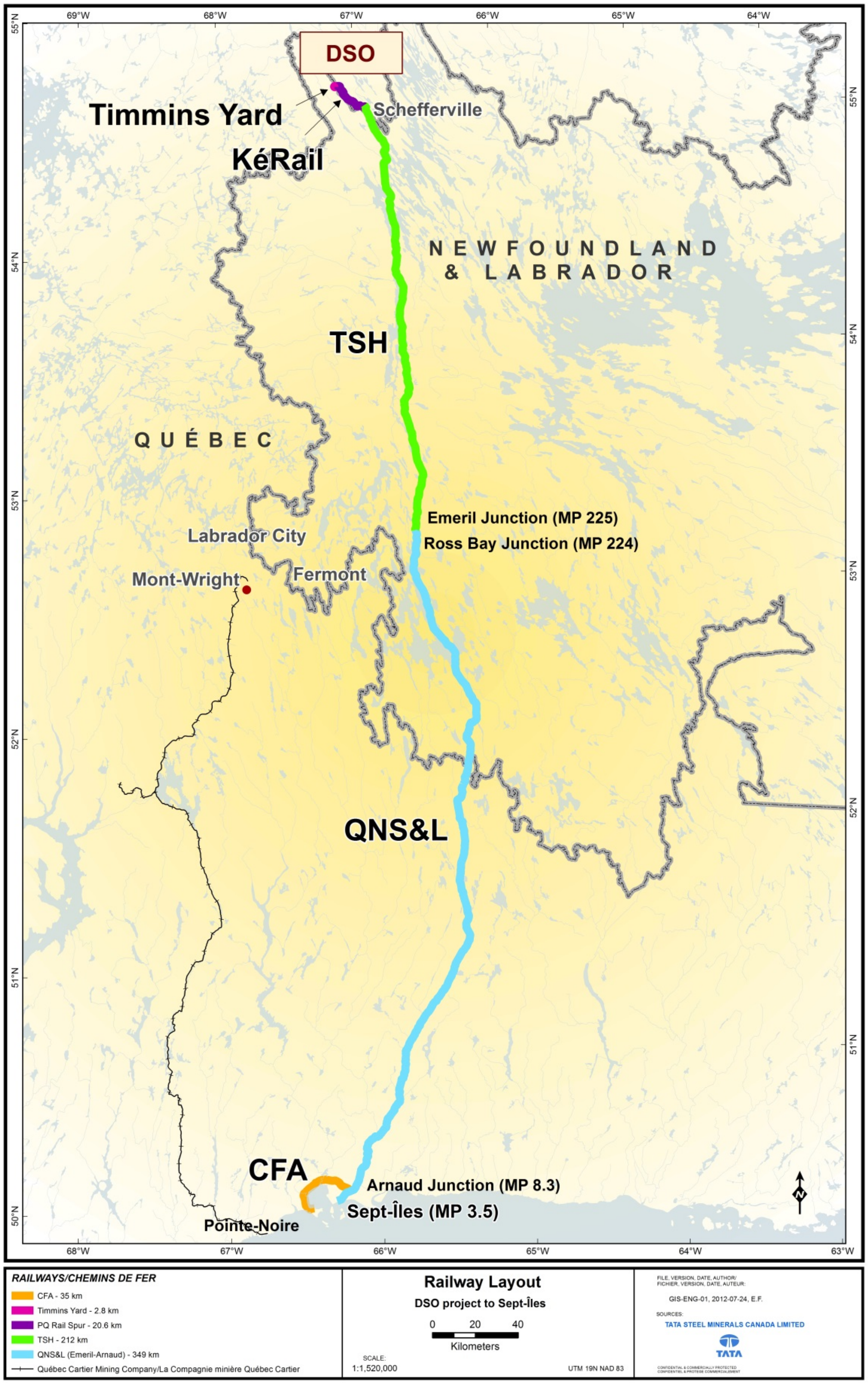
- Processing plant;
- Covered piles of processed ore;
- Rail loop loading system;
- Existing railway track from former IOC operations;

- Camp to accommodate the workers;
- Offices;
- Warehouse;
- Workshops;
- Garages;
- Laboratory;
- Landfill; and
- Wastewater treatment facilities.

Apart from a stockpile of low-grade material on DSO site and some increase in dust due to the increase in vehicle traffic, the Howse Property Project is not likely to add any pressure on the DSO Project plant complex activities management. No tailings or process water will be generated from the Howse Property Project. The capacity of the worker's camp will never exceed its limit of 150 workers, therefore, no increase in domestic waste is expected from the Howse Property Project.

The iron ore extracted at the Howse Property will be hauled by truck to the crushing and screening facility located adjacent to the mine. The products comprising lumps and fines will be hauled by truck from the crushing and screening facility to the TSMC rail loop loading area (located at the TSMC DSO project site). The ore will then be transported by train to Sept-Îles and then by ship to markets in Europe, India and Asia. On average, one train per day (seven trains per week) will depart from the TSMC loading facility for a period of 7 months (April to November; when iron ore is extracted simultaneously at the Howse Property and at the TSMC DSO Project). For the rest of the year when iron ore is extracted only at DSO 3, one train every other day (three to four trains per week) will depart from the TSMC loading facility. There are five different companies operating the rail lines between TSMC loading facility and Sept-Îles (Figure 2.6):

- KeRail: From TSMC loading facility to French Mine (Qc / NL border)
- WLR2013 : from French mine to TSH
- TSH Rail: From TSH Junction to Emeril
- QNSL Rail: From Emeril to Arnaud Junction
- CFA Rail: From Arnaud Junction to Pointe Noire (Port of Sept-Iles)



Source: Tata Steel Minerals Canada Ltd. (2014)

Figure 2.6 Train Companies from DSO to Sept-Îles

A multi-user ore loading dock is currently under construction at the Port of Sept-Iles. Ore railed from the Howse Property will be unloaded and stockpiled at Pointe Noire ore handling facilities. Ore would then be reclaimed and conveyed to the multi user dock and ship-loaded. It is expected that during the operating phase of the Howse Property Project (2016 to 2027) an increase of 10 to 15 Cape-size vessels per year will load at the multi-user dock. Tata Steel and its joint venture partner New Millennium Iron Corp. have jointly contributed $50 million for the construction of the new multi-user port, scheduled to open in June 2014.

2.7 Construction Phase

The construction phase is expected to take place in 2016 and involves the following activities:

- Pit development
- Construction of access and haul road
- Construction of crushing and screening facility
- Restoration of work areas (on-going restoration)
- Transportation and traffic

Restoration of work areas involves an on-going restoration of the site. For example, if a road is built to access a certain area of the Project for a limited amount of time, it will be restored as soon as the work is done in this area.

HML will ensure that all permits and authorizations from appropriate regulatory agencies be obtained prior to the start of construction in order to comply with laws and regulations from both governments.

2.7.1 Pit Development

Pit development includes: vegetation clearing, stripping and grubbing the open pit area, waste rock dump, stockpiles area, the crushing and screening facility area, and along the upgraded access and haul road. As required, equipment will be used to push the resulting debris into piles the location of which will be determined at that time. All timber material will be piled and made available for removal. Erosion and sediment control measures will be installed and maintained as required for the duration of the Project to reduce the amount of sediment discharged into the water bodies.

Part of the overburden and waste rock at the open pit area will be removed/blasted during the pit development. This material will be used in the preparation of the road access and pad for the crushing and screening facility.

2.7.2 Construction of Access and Haul Road

Construction will not occur during snowmelt. The stripping of vegetation will occur outside the breeding season of migratory birds. In the event that a permanent watercourse crossing cannot be avoided, a properly sized culvert will be installed in such a way that connectivity, fish passage and fish habitat will be preserved. This will be achieved by installing an arched culvert anchored at the high watermark or a clear-span bridge on fish-bearing streams.

2.7.3 Construction of Crushing and Screening Facility

The crushing and screening facility will be located at least 100 m away from any watercourse or water body. If possible, it will be built in an area previously disturbed by exploration or road construction. Mobile toilets will be installed nearby and their content will be transferred to the existing wastewater treatment unit at the TSMC’s DSO Project work camp.

The electricity required to run the facility will be provided by generators.

The crusher and mobile equipment operators will be in cabins equipped with high-efficiency particulate absorption (HEPA) air filters in order to ensure there is no exposure to airborne silica particles. Dust emissions will be controlled through the application of water mists/sprays at material transfer points. Stockpiles will be wetted down with water sprays as required. Employees working outside of equipment enclosures will be equipped with appropriate dust masks. There will be no brushing or cleaning of the ore.

The final product will be stockpiled on site, near the crusher prior to being hauled away by truck to the TSMC rail loop loading area.

2.7.4 Restoration of Temporary Work Areas

Whenever possible, temporary work sites will be restored to pre-construction conditions. Compensation will be determined with authority and First Nation communities.

2.7.5 Transportation and Traffic

Workers will commute on a daily basis from the workers' camp near Timmins 1. The haul and access road will be used to transport all the equipment, fuel and personnel. An average of 70 trips will be made on a daily basis by trucks and other light vehicles, causing moderate levels of noise and atmospheric pollution.

2.7.6 Accidents and Malfunctions

The potential for accidents during the construction phase will be modest. It will stem from the transportation of fuel and the use of heavy equipment. Little blasting should be required during this phase. The use of personal protective equipment (PPE) and the implementation of safe working procedures will reduce the risk of an accident.. Spill kits will be readily available in case of an emergency.

2.7.7 Standard Environmental Management Procedures

The Proponent is familiar with the industry's Best Management Practices and Standard Environmental Management Procedures (please refer to sections 7.1 through 7.3 for more information) and will develop an Environmental Protection Plan (EPP) (TSMC 2013b) for Construction and Operation specific to the Project.

Throughout the entire Project, compliance monitoring will be done to ensure that requirements stemming from applicable legislation, permits and/or approvals are fulfilled, and the EPP will be reviewed and updated on an ongoing basis.

HLM will apply the environmental management practices developed by TSMC for their other properties to the Howse Property Project. These practices cover any chemical spills, including fuel spills, which may occur during construction activities. Other spills are related to the release of particles in water (suspended solids) and dust.

A specific health and safety program will be developed by HML for their subcontractors. This program will include specific environmental management procedures relating to subcontractor activities.

2.7.8 Potential Sources of Pollutants

Potential sources of pollutants during the construction period include noise, vibration, dust, suspended solids and exhaust gases from heavy machinery and other vehicles. Although limited during the construction phase, blasting operations also have the potential to produce dust emissions. Mobile toilets will be installed at the work sites, and sewage will be transferred to the existing treatment unit at the TSMC work camp. All repairs and maintenance of vehicles will be carried out at the TSMC's DSO processing complex near Timmins 1.

Potential greenhouse gas emissions associated with the construction phase are from the usage of heavy machinery, and light vehicle traffic.

2.8 Operation and Maintenance Phase

The pit is expected to be fully operational by 2016 and run for 12 years. Once mining activities start at the Howse Property, 56 people, split into 4 crews of 14 operators, will be required to operate the mine. Other workers such as foremen, engineers and geologists will be dividing their time between the TSMC's DSO Project and Howse.

HML will ensure that all permits and authorizations from appropriate regulatory agencies be obtained prior to the start of operation in order to comply with laws and regulations from both governments.

2.8.1 Removal and Storage of Overburden and Waste Rock Management

The quantity of overburden to be stripped at the Howse Property will be substantial. It will be placed in a separate pile from the waste rock and will be re-used when restoring the site (Figure 2.2).

This activity will be a source of noise, suspended solids, dust and atmospheric pollution. Proper management of surface water runoff is important to prevent suspended solids from migrating into the water bodies.

During the development of the pit, which is expected to be operational for 12 years, overburden and waste rock will be removed/blasted on an annual basis in order to maintain the ore production throughout the mine's service life. This material will also be used for temporary road access and any other site work at the Howse Property or at the TSMC's DSO Project complex.

2.8.2 Mining

Iron ore will be extracted by conventional open-pit mining techniques:

- Rotary, diesel-driven drills will drill 160 mm diameter holes for blasting;
- Blasting will take place using a bulk emulsion;
- 64-tonne-capacity trucks, loaded by hydraulic excavator fitted with a 6 m^3 bucket, will transport iron ore to the crushing and screening facility;
- One tracked bulldozer and one road grader will maintain roads and assist each front-end loader.

Given the softness of the ore found at the Howse Property, it is estimated that only 50% of the material will require blasting. Explosive consumption is estimated at about 2,200 kg per week. It is proposed that the entire drilling and blasting operation be outsourced to an explosives supplier, and explosive manufacturing will be outside the mining lease.

Ammonium nitrate residue generated by blasting has the potential to contaminate surface waters and groundwater. Ore extraction also has the potential to generate noise, dust and suspended solids.

2.8.3 Mineral Processing

In light of the high quality of the resource at the Howse Property, the ROM will only go through a primary treatment. This primary treatment consists of crushing and screening, and includes partial drying to produce a final product containing 15% lumps and 85% sinter fines. It is estimated that 5 to 20% of the ROM contains a lower iron grade and will require further treatment at the TSMC DSO plant complex. This plant is currently under construction but, once completed, will be fully utilized for the next 15 years. TSMC will have to stockpile the lower grade material until it can be processed. Due to the small quantity of material to be processed, building a new process plant was deemed uneconomical and unnecessary.

2.8.4 Dewatering

Dewatering will be carried out as required by means of diesel-powered pumps, since the Howse Property will not be supplied with electricity. The water will be pumped to the Timmins 4 Sedimentation Pond-3 (Figure 2.2) through flexible hoses lying on the surface of the ground.

Based on experience in the area, the water pumped from the water table (peripheral wells) is virtually free of any suspended particles or other pollutants. In accordance with provincial requirements, water from the peripheral wells will be discharged into the sedimentation pond collecting water from other sources.

To keep pipes from freezing in winter, water will be continuously pumped into the sedimentation pond. If necessary, petroleum products will be removed and suspended particles will be allowed to settle out before the water is discharged into the environment.

Before any pit dewatering occurs on the Howse Property Project, appropriate authorization/permits from the Water Resources Management Division of the Department of Environment and Conservation of the GNL will have to be obtained.

2.8.5 Transportation of Ore and Other Traffic

One excavator and three haul trucks will be required during the construction phase and three excavators and 10 haul trucks during the production phase.

Truck movement during the construction phase is anticipated to be 3.2 one-way trips per hour. Considering other vehicles, total traffic could go up to 4 one-way trips per hour. During the production phase, truck movement is expected to be 12 one-way trips per hour and could go up to a total of 16 one-way trips per hour when other vehicles are considered.

2.8.6 Solid Waste Disposal

Domestic solid waste generated from the operation of the mine will be disposed of at the TSMC-approved landfill. Although potential environmental effects are associated with the production and management of these wastes, these are likely to be minimal or non-existent since they will be disposed of at the TSMC DSO Project facilities which have the planned and approved capacity to treat these wastes.

2.8.7 Hazardous Waste Management

Hazardous waste, including used oil, will be labelled and stored at the TSMC's DSO Project complex in an appropriate receptacle, with adequate separation where necessary, and will be disposed of as per TSMC's hazardous waste management program and policies. Although potential environmental effects are associated with the production and management of these wastes, these are likely to be minimal or non-existent since they will be disposed of at the TSMC DSO Project facilities which have the planned and approved capacity to treat these wastes.

2.8.8 Explosive Waste

The emulsion used for blasting, which is a solution consisting mainly of water and ammonium nitrate will be the only explosive waste found on-site. The emulsion will be made by a third-party outside of the TSMC Property and delivered on-site by truck at the explosive storage area on an as-needed basis. Residue waste such as boxes will be burned at the TSMC's DSO Project complex as per federal regulations.

2.8.9 Treatment of Sanitary Wastewater

Mobile toilets will be installed near the facility during the construction phase and will remain in place until the decommissioning of the mine. Sewage will be transferred to the existing wastewater treatment unit at the TSMC work camp. Although potential environmental effects are associated with the production and management of these wastes, these are likely to be minimal or non-existent since they will be disposed of at the TSMC DSO Project facilities which have the planned and approved capacity to treat these wastes.

2.8.10 Accidents and Malfunctions

During the operation and maintenance phase, the potential for accidents will stem from the transportation of fuel, explosives and overburden/waste rock/ore, the use of heavy equipment and explosives, blasting operations and mine wall stability issues. The implementation of the EPP, use of safety equipment and observation of safe working procedures will greatly reduce the risk of accidents having environmental effects.

A protocol for mining and blasting operations has been developed by TSMC for its other mining operations in Labrador and will also be adopted by HML for the Howse Property Project. This protocol will be followed at all times to reduce the risk of accidents.

Measures will be taken to mitigate the risk of accidents related to pit wall stability. Horizontal holes will be drilled to drain confined groundwater exerting pressure on the pit walls. In some circumstances, a berm could be built on every second bench to provide further stability.

Furthermore, the final pit wall slope will be designed according to the recommendations of an ongoing geotechnical study.

Lastly, the final pit wall will be independently drilled and blasted to carve out clean and precise pit edges. Once mining operations cease, the measures put in place to prevent access to the pit will render the risk of accidents occurring in the pit negligible.

Apart from the precautions described above, the stability of the pit walls will be monitored with instruments that accurately measure any wall movement.

2.8.11 Site Restoration

Progressive rehabilitation of disturbed sites (piles, open pit and haul road) will be undertaken where possible.

The closure plan will consist of vegetation and stabilization of disturbed areas. The top, horizontal benches and slopes of the waste rock dump will be revegetated. Access to the open pits by humans and wildlife will be restricted via a barrier, while the access ramps and benches will be vegetated. A research program conducted by Université Laval is ongoing in the vicinity of the project, with the participation of TSMC. The result of this research will improve the revegetation program's effectiveness.

The ditch network will be minimal to avoid long-term maintenance. The goal will be to minimize slope erosion to prevent suspended particles from getting into the surface runoff and into the environment.

Any demolition debris and residues will be recycled or disposed of at the TSMC's DSO Project authorized landfill site.

Restoration will generate modest levels of noise and atmospheric pollution for a short period of time.

2.8.12 Anticipated Size and Production Capacity

In the final stage, the area affected by the proposed Project is estimated as follow (Table 2.4)

Table 2.4 Estimated Footprint for the Howse Property

INFRASTRUCTURE	FOOTPRINT (HA)
Open Pit	72
Overburden Stockpile	66
Waste Rock Dump	67
Topsoil Stockpile	4
Crushing and Screening Facility	3
Access/Haul Road	12
Total	**224**

Once in operation, iron ore will be extracted 24 hours a day, seven to eight month per year, depending on weather conditions, and produce 1.3 Mt of ROM per year during the first year and 2.2 Mt per year in subsequent years until the end of the mine's service life in 2027. The maximum planned production is 10,000 tonnes/day, which will be reached in 2017. The incidental low-grade ore (approximately 5 Mt), generated by the excavation of high-grade ore, will be stockpiled near the Howse deposit and will be processed through the DSO processing plant (located about 4 km from Howse) in 2024, after the iron ore from Area 1a, 2a and 2b is exhausted. The DSO processing plant will therefore never exceed its processing capacity.

In comparison, TSMC's DSO Project will produce a maximum of 11,667 tonnes/day throughout the year with the following estimated footprint at the final stage (Table 2.5):

Table 2.5 Estimated Footprint for the TSMC' DSO Project

PROJECT	1A	2A	2B	TOTAL
Infrastructure	**Footprint (ha)**	**Footprint (ha)**	**Footprint (ha)**	**Footprint (ha)**
Open Pit	33	43	31	107
Overburden Stockpile	10	15	12	38
Waste Rock Dump	36	37	52	125

Topsoil Stockpile	2	2	2	6
Primary Sizer and Plant Site	2	0	0	2
Access/Haul Road	128			128
Low Grade Material	4	0	0	4
Camp Site	6	0	0	6
			Total	**416**

2.8.13 Standard Environmental Management Procedures

As stated in Section 2.7.7 the Proponent will develop an EPP. The applicable standard environmental procedure for the operation and maintenance phase will include:

- storage, handling and transfer of fuel;
- storage, handling and transfer of hazardous materials;
- blasting and drilling;
- dewatering of work areas;
- solid waste disposal;
- dust control;
- noise control;
- pumps and generators;
- equipment and vehicle use and maintenance;
- vehicular traffic;
- road maintenance;
- quarrying and removal of aggregate;
- waste rock piles;
- laydown and storage areas;
- erosion protection;
- vegetation and wildlife control;
- protected species control;
- trenching; and
- excavation, embankments and grading.

2.8.14 Potential Sources of Pollutants

The potential sources of pollutants during the operation phase are noise, vibration, suspended solids, and dust and exhaust gases from heavy machinery, vehicles, blasting and loading/unloading and transportation (haul trucks, train and boat) activities. Dewatering may also be a source of pollutants, although petroleum products will be removed and suspended particles will be allowed to settle out before the water is discharged into the environment.

Potential greenhouse gas emissions associated with the operations phase are from the usage of heavy machinery, generators for dewatering, drilling and operating the crushing facility and light vehicle traffic.

The spill of chemical products, including fuel, is also a potential source of pollutants.

2.9 Decommissioning and Rehabilitation

As per the Government of Newfoundland and Labrador's *Mining Act*, 1999, and commitments undertaken under the IBA's, the proponent of a mining project shall submit a rehabilitation and closure plan and provide financial assurance to cover the costs associated with completing the work set out in the plan.

The rehabilitation and closure plan will be developed to achieve the following objectives:

- Provide a balanced and maintenance-free environment for existing fish and wildlife;
- Create a landscape compatible with surrounding areas while taking into account that previous disturbances caused by former IOC mining operations occurred in the vicinity of the site prior to TSMC's developments;
- Keep potential sources of pollution, fire hazards and public liability at an acceptable level and develop mitigation measures, if required; and
- Provide a safe environment for long-term public access.

As stated in Section 2.8.10, the site will progressively be rehabilitated prior to the mine closure.

2.9.1 Transportation and Traffic

As stated above, access to the pit will be limited and therefore no additional environmental impact is anticipated. At the end of mining operations, only maintenance work, if any, will be performed on site.

2.9.2 Site Restoration

The crushing and screening facility will be dismantled and removed. Its footprint will be also revegetated. The sedimentations ponds will be in operation until water quality is within regulatory limits.

Techniques developed and used during mining operations will serve to restore the pits and the different piles during decommissioning.

The characterization of potentially contaminated sites will nonetheless be undertaken in the vicinity of the complex when the mine closes. .

2.9.3 Demobilization of Crushing and Screening Facility and Heavy Machinery

Once the mine ceases to operate, the crushing and screening facility will be dismantled and removed from the site. Heavy Machinery will be demobilized from the Howse Property.

2.9.4 Accidents and Malfunctions

There are no noteworthy risks during decommissioning, except the use of heavy equipment and the transportation of dismantled equipment.

2.9.5 Potential Sources of Pollutants

The potential sources of pollutants during the decommissioning and rehabilitation phase are noise, suspended solids, dust and exhaust gases from heavy machinery and other vehicles. Former spills and other mining activities could require soil rehabilitation in some locations.

Potential greenhouse gas emissions associated with the decommissioning phase are from the usage of heavy machinery and light vehicle traffic.

All vehicle repair and maintenance work will be carried out at the TSMC's DSO processing complex near Timmins 1.

2.10 Effects of the Environment on the Project

Environmental factors such as the topographic features of the site, climatic conditions, the presence of watercourses, and hydrogeological conditions may affect the Project. The effects may vary from minor facility improvements to catastrophic failure. Substantial construction delays, long-term interruptions of mining operations, infrastructure damage that could compromise public safety, and damage that would not be economically and technically feasible to repair are some examples of the impact that environment factors could have on the Project.

Federal and provincial standards will be used as mitigation tools in the designing stage to prevent the environment from affecting the Project. For example, the National Building Code of Canada provides design criteria for dealing with wind, snow, waves, ice loading and drainage, which are important given the extreme environmental conditions the Project may face throughout its service life. The General Guidance for Practitioners prepared by the Agency (2003) will also be reviewed and taken into account in the design of mitigation measures for adverse effects on the public and the environment due to climate change. The design will also consider the possibility of the permafrost melting, an increase in the wind strength and frequency, extreme snow and ice events, extreme precipitation and sudden snow melt and an overall increase in precipitation.

Strong winds could prevent ore haulage during some short periods of time. Road maintenance will be a key focus in winter and when the temperature is close to freezing, in order to maintain a high standard of safety during mining operations. Weather forecasts will therefore be monitored during all phases of the Project. Work will be suspended if adverse weather conditions compromise safe operation. Erosion and sediment control devices will be inspected on a regular basis and particularly after extreme precipitation events.

Proper management of surface runoff water will be a key focus, in order to maintain high quality standards at the mine effluent. The Proponent, by implementing these mitigation measures, can effectively address the potential effects of the environment on the Project.

2.11 Project Schedule

2.11.1 Approximate Total Construction Period and Proposed Start Date

Construction of the access and haul road is scheduled to begin in 2016, followed immediately by the pit development and the beginning of the overburden removal. The duration of the construction phase will be roughly seven to ten months based on a 12-hour shift.

2.11.2 Operation

Commissioning of the mine is scheduled for 2016. Mining activities at the Howse Property are expected to go on until 2027. The mine will be operational year-round, however the ore will be extracted, crushed and screened, and shipped by train only from April to Mid-October or November, weather depending. For the remaining months, crews will be working on restoring the overburden and waste rock stockpiles/dump.

The mine is planned to be operational from 2016 to 2027, for a total of 12 years.

2.11.3 Decommissioning and Rehabilitation

The decommissioning and rehabilitation phase will begin before the closure of the mine (progressive rehabilitation). A detailed rehabilitation and closure plan will be prepared and approved, as described in Section 2.9.

3 DESCRIPTION OF THE PHYSICAL ENVIRONMENT

3.1 Climate

The climate of central Ungava has been classified as humid micro-thermal under the Koppen-Gieger system (Pollard, 2005). The growing season is very short and precipitation is moderate. According to Rollings (1997), the mean annual precipitation varies greatly across Labrador, ranging from 600 mm to 1,400 mm, with the lower end of the precipitation range occurring in north-west Labrador, probably due to the drier air associated with predominately westerly winds. However, the distribution of precipitation in Labrador is fairly uniform throughout the year.

The following analyses (Table 3.1) are based on the 1981–2010 monthly climate normals from the Schefferville A weather station (No. 7117825), which also contains evaporation data from the Churchill Falls weather station (No. 8501132).

Table 3.1 1981–2010 Climate Normals from the Schefferville A Weather Station

PARAMETERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Monthly average record*													
Daily Average Temperature (°C)	-24.5	-22.8	-15.9	-7.2	1.0	8.2	12.2	11.4	5.9	-1.4	-9.8	-20.5	-5.3
Total Precipitation (mm)	49.7	29.7	49.8	56.4	50.3	75.2	96.2	82.5	114.6	74.7	63.5	48.1	790.8
Rainfall (mm)	0.3	0.3	1.4	9.0	26.1	69.5	96.1	81.9	103.0	24.5	4.5	0.7	417.3
Snowfall (cm)	53.7	33.3	54.7	50.5	22.4	5.8	0.2	0.4	11.1	50.8	62.8	53.0	398.4
Average Snow Depth (cm)	58.2	57.9	62.0	59.7	14.4	0.1	0.0	0.0	0.1	5.6	21.0	44.6	27.0
Evaporation (mm/d)						3.3	3.4	2.7					
Wind Speed (km/h)	15.4	15.2	16.3	16.0	15.1	15.5	14.0	14.6	16.3	16.4	16.3	15.1	15.5
Most Frequent Direction	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW
Extreme Statistics*													
Extreme Maximum Temp. (°C)	5.1	5.1	9.4	13.1	28.3	**34.3**	31.7	28.7	26.7	20.6	9.8	5.0	34.3
Extreme Minimum Temp. (°C)	-48.3	**-50.6**	-45.0	-36.1	-23.3	-7.8	0	-3.3	-9.4	-19.4	-35.6	-47.2	-50.6
Extreme Daily Precipitation (mm)	29.0	29.0	36.8	32.8	33.8	51.3	**54.4**	48.5	49.0	41.2	35.8	24.6	54.4
Extreme Daily Rainfall (mm)	24.6	2.8	10.6	23.4	29.5	51.3	**54.4**	48.5	45.2	34.3	34.8	5.8	54.4
Extreme Daily Snowfall (cm)	30.6	29.0	**36.4**	30.2	33.2	23.7	9.0	23.9	28.4	35.6	29.0	25.4	36.4
Extreme Snow Depth (cm)	163	188	**190**	163	132	38	0	18	18	53	89	115	190
Maximum Hourly Speed (km/h)	85	**97**	83	77	66	97	65	61	80	89	84	80	97
Maximum Gust Speed (km/h)	134	148	148	130	101	126	103	117	137	137	142	**153**	153

* Most of the averages are calculated using data from 1981 to 1993, except for the wind, which is calculated using data between 1981 and 2009. Some records were missing, but no less than 98.9% of possible observations are available.
** The extremes were found between 1949 and 1993 for the temperature and precipitation. Wind extremes are from 1953 to 2009.

3.1.1 Temperature

Long-term records indicate a mean annual air temperature of -5.3°C for the Schefferville town site at 522 m asl, but tundra ridge areas have been documented as having a mean annual air temperature as low as -7°C (Pollard, 2005). The seasonal pattern of air temperature is typically continental and is characterized by dramatic extremes, with minima as low as -50.6°C and maxima above 34.3°C. On average, the first day of frost is September 11 and the last is June 13, yielding 92 frost-free days per year (Cournoyer *et al.*, 2007).

3.1.2 Precipitation

3.1.2.1 Amount

Based on long-term data, the annual precipitation is 791 mm (Table 3.1). Its monthly distribution is roughly skewed, with a peak in summer. The Project area, like others along the western boundary, is among the driest in Labrador. A little more than half of precipitation falls as snow, the average maximum thickness of which is 71 cm in March. There are 216 days with precipitation in one form or another.

3.1.2.2 Variation of the Snow Cover

Two recent surveys of the snow cover in the Howells River Valley reveal some variations that depend on the type of biotope (Gartner Lee Limited 2006; SNC-Lavalin, 2013). Results indicate that snow depth is greater but less dense in forest and scrublands than in wetlands and tundra. On average (± standard deviation), the snow thickness was 50.1 (±31.4) cm in March 2012, the water equivalent was 11.0 (±9.1) cm and the density was 22.4 (±7.3) %.

3.1.2.3 Chemistry

Few atmospheric substances are monitored regularly or nationally, except for acid precipitation in eastern Canada. The spatial distribution of SO_2 or NO between 1990 and 2000 shows that this form of pollution is not an issue in the region (Environment Canada, 2004).

3.1.3 Wind

Wind speed, with a mean value of 15.5 km/h, varies little from month to month. The wind direction is almost always north-west. Extreme statistics from data collected between 1953 and 2009 show a maximum gusts speed of 153 km/h in December, while a sustained wind speed of 97 km/h was recorded for one hour in June.

3.2 Climate Change

The results from the second version of the Canadian Centre for Climate Modelling and Analysis (CCCMA) Coupled Global Climate Model, or CGCM2, show that the region of Schefferville should experience a 1 to 2°C rise in temperature from 1975 to 1995, and from 2040 to 2060. With regard to precipitation, the tendency indicates a yearly increase of 90 mm over the same period. Climate change is affecting the ice-free period in the northern part of Nunavik but it is not the case around Schefferville according to the Kawawachikamach Innu community (Tremblay *et al.*, 2006).

3.3 Air Quality and Noise

3.3.1 Ambient Dust Level

Since particulate matter may constitute a form of pollution that is generated by mine site activities, data on total particulate matter and fine particulate smaller than 2.5 µm in diameter (PM 2.5) are recorded in this section. Data on heavy metal concentrations (lead, arsenic, cadmium, beryllium, mercury, nickel, vanadium, chromium and zinc) found in the total particulate matter are also listed.

Baseline data on the ambient air quality were collected when ambient levels were assessed at the Howells River site prior to the implementation of the LabMag Iron Ore Project (LIOP) in 2006. The ambient air sampling site that was selected at that time is located at the following latitude and longitude: 54°53′N and 67°11′W (UTM coordinates 19N NAD83, 616 500m E, 6 083 400m N). The sampling site thus lies approximately 4 km south-west of Howse Property.

Given the short distance between the sites, the similarity of their characteristics and the low level of human activity at the Howells River site when the measurements were taken in 2006, the measurements in question can be considered as representative of the entire LSA.

The sampling and analysis methodologies used at the Howells River site in 2006 as well as the duration and frequency of sampling are shown in Table 3.2. The equipment was calibrated prior to sampling with a calibrator according to standard methodologies.

Table 3.2. Total Particulate Matter and Metal Sampling Methodology

SOURCE	SAMPLING AND ANALYSIS METHODOLOGY	DURATION AND FREQUENCY
Metals and total particulate matter	Environment Canada EPS 1-AP-73-2 method with a high-volume air sampler Model TISCH TE-5000 with quartz filters and dust gravimetric weighing. Atomic absorption for metals.	10 samples taken over 24-hour periods between August 29 and October 20, 2006
PM 2.5	TEOM 1400A Monitor (Tapered Element Oscillation Microbalance)	29 samples taken over 24-hour periods between September 1 and October 20, 2006

Table 3.3 shows the maximum and average daily concentrations calculated from the sampling parameters. The detailed results are provided in Consulair (2008).

The results listed in Table 3.3 show that relatively low particulate concentrations are found in the natural environment. Indeed, average daily concentrations of 7 $\mu g/m^3$ and 36 $\mu g/m^3$ were measured in the ambient air for PM 2.5 and total particulates respectively. These values are 30% of the ambient air standards for PM 2.5 and total particulates in the Province of Newfoundland and Labrador.

With respect to metals, all concentrations measured are below the standard.

Table 3.3. Sampling Results of the Ambient Air Survey

MEASURED PARAMETER	SAMPLE SIZE	DAILY MAXIMUM			DAILY AVERAGE		
		Concentration	Standard[1]	% of Standard	Concentration	Standard[1]	% of Standard
		$\mu g/m^3$	$\mu g/m^3$	-	$\mu g/m^3$	$\mu g/m^3$	-
Total particulates	10	35.9	120	30%	7.9	60	13%
Arsenic	10	0.00083	0.3	0.3%	0.00023	-	-
Beryllium	10	0.000023	-	-	0.000017	-	-

MEASURED PARAMETER	SAMPLE SIZE	DAILY MAXIMUM			DAILY AVERAGE		
		Concentration	Standard[1]	% of Standard	Concentration	Standard[1]	% of Standard
		µg/m³	µg/m³	-	µg/m³	µg/m³	-
Cadmium	10	0.00014	2	0.007%	0.000082	-	-
Chromium	10	0.0053	-	-	0.0027	-	-
Mercury	10	0.00016	20	0.0008%	0.000093	-	-
Nickel	10	0.32	2	16%	0.035	-	-
Lead	10	0.0034	2	0.2%	0.0017	-	-
Vanadium	10	0.0012	2	0.1%	0.00074	-	-
Zinc	10	0.057	120	0.05%	0.020	-	-
PM2.5	29	7	25	28%	4	-	-

Source: Consulair (2008)

When a given contaminant was not detected in the analysis, a concentration equal to half of the reported detection limit was used.

[1] *Air Pollution Control Regulations*, Newfoundland and Labrador Regulation 39/04

3.3.2 Ambient Noise Level

The ambient noise level measurements taken by Tecsult in 2006 (Tecsult, 2006) within the framework of the LIOP at the Howells River site are used to describe the ambient noise levels prior to the implementation of the Project (see table 3.4 for site locations). The measurements taken at the Howells River site were collected at three stations, two of which can be considered as representative of the LSA, since they are also within the MSF and the High Subarctic Tundra (HST) zones. Since the third station was located near a river, the noise level measurements obtained there are not considered to be representative of the background noise level of the LSA, where there are only smaller watercourses. This station is not included in the current discussion.

At the Howells River site, noise was measured using a Type-2 sound level meter (TES-1358), as prescribed in Publication 651 Electroacoustics – Sound Level Meters (1979) of the International Electrotechnical Commission. The TES-1358 sound level meter measures the acoustic pressure levels (in decibels) every second. It was calibrated on May 4, 2006. It was operated in slow mode with a frequency weighting for measurements in decibel (dBA). In addition, calibration checks were carried out before and after the measurements with a 4230 sound level acoustic calibrator according to recognized standards.

The noise measurements were taken outdoors. The microphone was placed at a height of 1.2 m above ground level, and at a good distance from obstacles and the vehicular traffic corridor.

Table 3.4 shows the results of the ambient noise level measurements obtained at the two representative measurement stations, during two periods (daytime and nighttime). It also shows the noise levels that matched or exceeded 1%, 95% and 99% of the time, as well as the equivalent values over the measuring period of one hour. The L95 values represent the background noise.

The measured noise levels varied from 36.3 dBA (nighttime) to 39.7 dBA (daytime). Those sound intensities reflect local activities, such as the passing of an airplane, a helicopter and a few trucks in the vicinity, as well as the presence of birds. Background noises (L95) fluctuated between 33.0 and 36 dBA.

Table 3.4. Results of Ambient Noise Measurements

LOCATION		PERIOD	AMBIENT NOISE (DBA)				OBSERVATIONS AT TIME OF NOISE MEASUREMENTS
ID	Coordinates (Decimal degrees)		L99	L95	L1	Leq (Period)	
Station 1	-67,21595 54,89924	Day 10:26-11:26 10/02/2006	32.9	33.0	52.5	39.3	Light wind Presence of birds Passing of an airplane Passing of two trucks
		Night 0:38-1:36 10/03-2006	35.3	35.5	37.3	36.3	Light wind Passing of a truck
Station 2	-67,23445 54,89814	Day 14:12-15:12 10/02/2006	33.3	33.5	52.9	39.7	Light wind Presence of birds Passing of a helicopter
		Night 4:17-4:59 10/03/2006	34.6	34.9	46.3	36.7	Light wind Presence of birds Passing of an airplane Passing of one truck

3.4 Geology and Hydrogeology

Information on rock and overburden geology is coming from compilation of different sources. Some information of the Section 3.5.1 Geomorphology and Soils was used for the overburden discussion. The Report on Explorations and Operations for 1970 from Labrador Mining and Exploration (1971), providing the results of their drilling program on the Howse deposit, was consulted. The data obtained by Labrador Iron Mine during a 2008 and 2009 drilling campaign was also revised.

Most recently in 2013, TSMC initiated a geotechnical, geological and hydrogeological program on the Howse deposit. The information actually available was integrated in this section. The program was comprised of a drilling campaign using diamond and reverse circulation drilling. Packer tests were conducted in 2 boreholes.

3.4.1 Geology

3.4.1.1 Overburden

Some information presented in this section is based on information provided in Section 3.5.1 Geomorphology and Soil.

Depositional evidence of meltwater activity, rare in the region, occurs within the area encompassed by the Howse Property itself. In this area, a relatively uniform cover of till overlies buried glaciofluvial sand and gravel. The landform is interpreted to be a buried kame, more or less centered on the deposit, overridden by a late glacial advance. The kame (dome shape) is deduced on aerial photograph by a distinct, radial drainage pattern centered on the thickest portion of sand and gravel that encompass the Howse Property area. Drilling by IOC has shown that the overburden covering the Howse Property vary in thickness from 20 to 42 meter in the explored part of the deposit as shown for some boreholes on Figure 3.1.

Silty sand is the most widespread surficial material in the vicinity of the Project. The till is generally moderately well to well drained supporting sandy soils. In depression where the groundwater table is perched on impervious layer, the till may be imperfectly to poorly drained. The 2013-2014 compiled drilling results indicate that the glaciofluvial material intercepted was mainly a mixture of sand and gravel with occasional content of clay. Figure 3.1 show the observed percentage of clay, sand and gravel of overburden section of some boreholes.

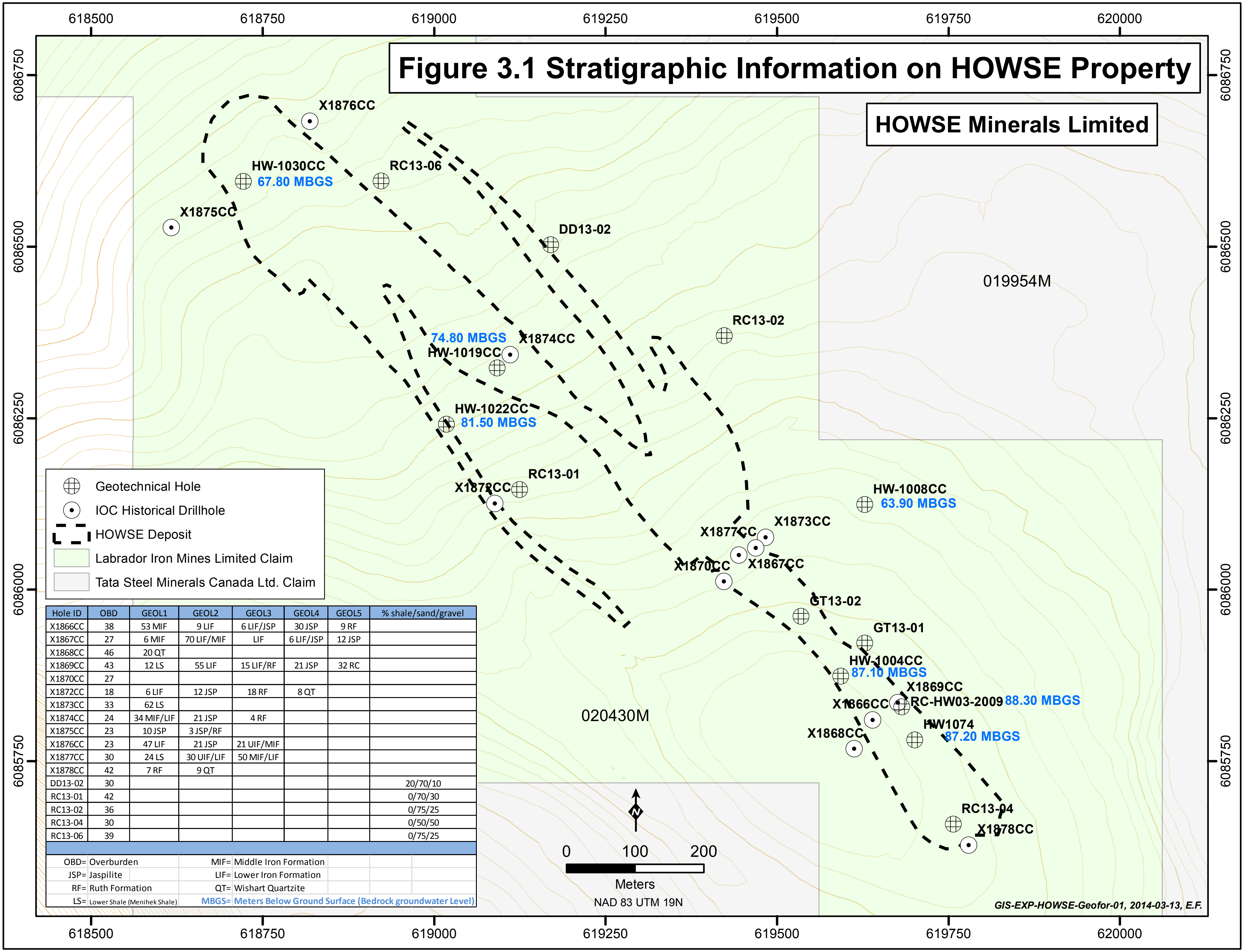
The Howse area is dominated by Irony Mountain which is a prominent bedrock knob resistant to the glacial erosion. Meltwater channels incised through till are seen on the western flank of the mountain.

3.4.1.2 Bedrock

Howse Property Project is a Direct Shipping Ore body (DSO) type which is a leached enriched iron formation. Figure 3.2 shows the general geology of the spatially close Timmins and Howse deposits. It can be observed that the geological context is very similar for the Howse and Timmins deposits considering the geological trend and bedrock lithological continuity. Exploration works, including drilling conducted by IOC on the Howse Property, allow obtaining stratigraphic sections of the deposit showing a narrow correlation with Timmins deposits as illustrated by Table 3.5. The general pattern is the same both Timmins and Howse area except obviously for some minor local variation. The formation containing the economical iron ore are highlighted in blue. Some stratigraphic sequences established from drilling by IOC on the Howse property are shown on Figure 3.1. A surface ore plan produced by IOC shows that the Howse Property lies in a faulted geological environment.

Figure 3.1 Stratigraphic Information on HOWSE Property

HOWSE Minerals Limited



Hole ID	OBD	GEOL1	GEOL2	GEOL3	GEOL4	GEOL5	% shale/sand/gravel
X1866CC	38	53 MIF	9 LIF	6 LIF/JSP	30 JSP	9 RF	
X1867CC	27	6 MIF	70 LIF/MIF	LIF	6 LIF/JSP	12 JSP	
X1868CC	46	20 QT					
X1869CC	43	12 LS	55 LIF	15 LIF/RF	21 JSP	32 RC	
X1870CC	27						
X1872CC	18	6 LIF	12 JSP	18 RF	8 QT		
X1873CC	33	62 LS					
X1874CC	24	34 MIF/LIF	21 JSP	4 RF			
X1875CC	23	10 JSP	3 JSP/RF				
X1876CC	23	47 LIF	21 JSP	21 UIF/MIF			
X1877CC	30	24 LS	30 UIF/LIF	50 MIF/LIF			
X1878CC	42	7 RF	9 QT				
DD13-02	30						20/70/10
RC13-01	42						0/70/30
RC13-02	36						0/75/25
RC13-04	30						0/50/50
RC13-06	39						0/75/25

OBD=	Overburden	MIF=	Middle Iron Formation
JSP=	Jaspilite	LIF=	Lower Iron Formation
RF=	Ruth Formation	QT=	Wishart Quartzite
LS=	Lower Shale (Menihek Shale)	MBGS=	Meters Below Ground Surface (Bedrock groundwater Level)

3.4.2 Hydrogeology

The hydrogeological study initiated in 2013 is partial and allows a preliminary discussion that will be updated with the results of the planned hydrogeological program to be carried out in summer 2014. It is planned to drill wells in order to conduct pumping tests in overburden and rock aquifers to define their main hydraulic parameters and obtain a first model of mine dewatering. The resurgences around the deposits will be mapped and correlated to the hydrogeological data to establish the impact of dewatering on surrounding wetland. Land surveying will allow referencing all information to the same datum in order to establish a coherent groundwater flow model in static and dynamic mode. In The final hydrogeological report that will be completed in August 2014 will provide the needed information to assess the groundwater components of the Howse Property Project.

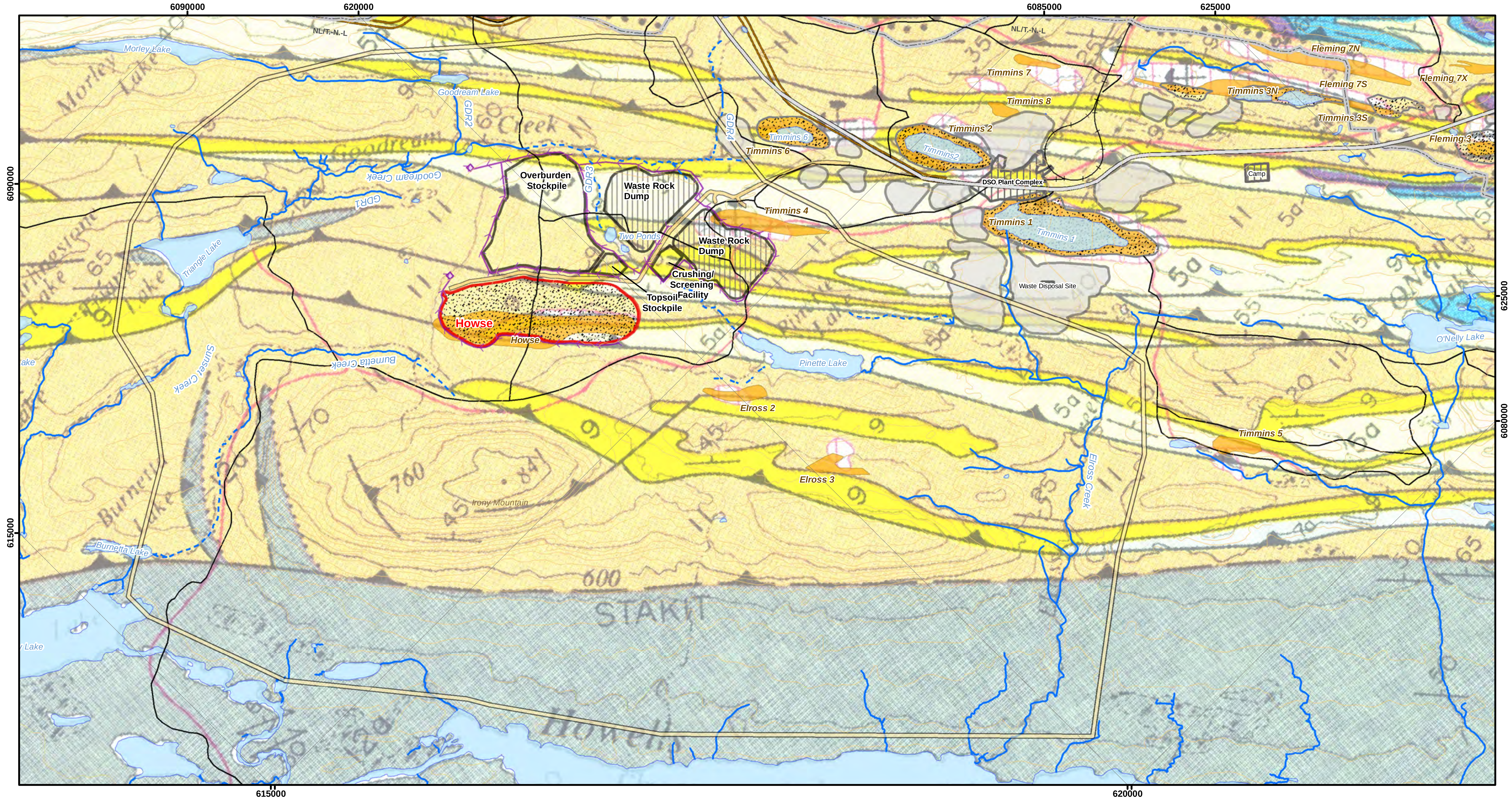
The relatively thick mainly sand and gravel overburden is a permeable material favouring the infiltration of surface water and its migration through the overburden aquifer. No groundwater levels in the overburden are actually available. The most possible groundwater flow pattern, supposed to follow the runoff pattern, is illustrated on Figure 3.3. From the hydrogeological point of view, the kame, more or less centered on the Howse Property, corresponds to a recharge area of groundwater. The groundwater flow is supposed radial from the top of the kame which is circled by a series of wetlands that correspond to areas of discharge of groundwater. The groundwater participates to feed the creeks and lakes surrounding the dome. The northeast flank of Irony Mountain contributes also to the recharge of the groundwater of the area of the dome. The water infiltrating the deglacial meltwater pathways on the flank of the mountain will flow downward and join the groundwater at the toe of the slope as shown on Figure 3.3. The runoff water will tend to infiltrate at the toe of the slopes in flatter zones.

The IOC drilling campaign showed a considerable pattern of fractures supporting the fact that the rock should have a secondary porosity favouring the circulation of groundwater. Some water levels values of rock aquifer coming from previous drilling are shown on Figure 3.1. These values indicate that the groundwater levels vary between 64 m and 88 m below ground surface. The scarce data do not allow defining the pattern of bedrock groundwater flow.

Golder Associés Ltée has conducted packer tests on inclined boreholes GT13-01 and GT13-02 of Howse deposit located on Figure 3.1. The tests cover intervals comprised between 100 m and 200 m below ground surface. The hydraulic coefficient of both holes varies from 1E-07 m/s for the shallowest tested intervals to 5E-08 m/s for the deepest one. Table 3.6 shows the results of the packer test. It should be noted that polymers were used during drilling operation as the drilling company was concerned with the borehole stability. In spite of the efforts made to flush out these polymers prior to testing, it is likely that residual presence of such polymers might have partly clogged the fractures in bedrock thus leading to an underestimation of the hydraulic conductivity. Also, the test interpretation method relies on an assessment of the position of the groundwater table which is inherently difficult to assess during diamond drilling operation.

The geological distinct characteristic of Howse property is related to the presence of a thick fluvioglacial layer which was not observed for the nearest Timmins deposits such as Timmins 4 and Timmins 6 ore bodies. These kinds of sediments are rare in the area where the bedrock is mainly cover by a thin layer of till.

Three hydrogeological wells were drilled around the Timmins 6 abandoned pit and two into the unmined Timmins 4 ore body. The drilling intercepted about 5 m of till and some water bearing zones providing flow rates evaluated between 75 and 125 L/min. For the Howse ore body, it is expected that the flow rates will be higher and that the kame will act as a reservoir along with the rock aquifer. The importance of the dewatering effort of the ore body along with the anticipated impact on the surrounding environment will be assessed when the pending hydrogeological report will be completed in 2014.



LEGEND

Basemap

- Permanent Watercourse
- Intermittent Watercourse
- Storm Run-off
- Disappearing Stream
- Artesian Spring
- Waterbody
- Contour Line (50 pi)
- Provincial Border
- Existing Road
- Main Access Road
- Local Study Area

Infrastructure And Mining Components

- Proposed Howse Pit
- Proposed Topsoil/Overburden Stockpile
- Proposed Crushing/Screening Facility
- Proposed Waste Rock Dump
- Proposed Sedimentation Pond
- Mine Haul Road
- Proposed Ditch
- Potential Road to DSO Area 4
- Proposed Railroad
- Elross Lake Area Iron Ore Mine (ELAIOM) Plant Infrastructure footprint
- Existing Pit
- Existing Dump
- Deposit

*Hydronyms are oriented along the direction of water flow

Geological Component

- 5a : Grey Shale, Siltstone And Graywacke
- 6a : Dolomite
- 8 : Brecciated Chert
- 9 : Orthoquartzite, Quartzite And Siltstone
- 11 : Cherty Iron Formation
- : Mining Area

FILE, VERSION, DATE, AUTHOR:
GH-0479-03, 2014-03-14, E.D., J.T.

0 500 1 000 2 000
Meters

SCALE: 1:30 000

UTM 19N NAD 83

SOURCES:

Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Boundary used for claims
SNC Lavalin, Groupe Hémisphères, Hydrology update, 2013

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/
MET-CHEM Howse Deposit Design for General Layout., 2013

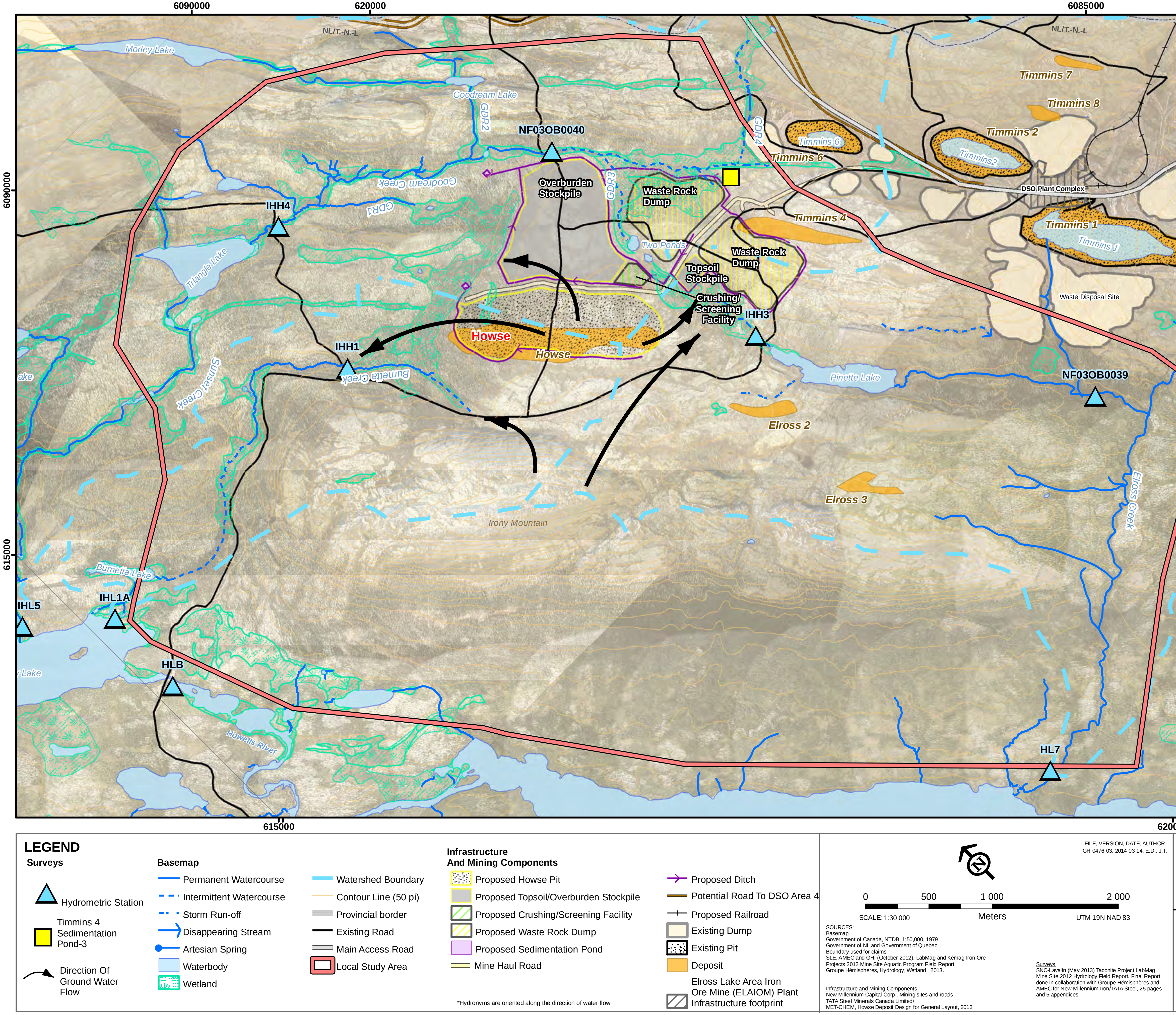
Geology layer
Wardle RJ, Geology of the south-central Labrador Trough, scale 1:100,000.

Geology

DSO Howse Property

Figure 3.2

GroupeHemispheres



Hydrology And Groundwater Flow

DSO Howse Property

Figure 3.3

Table 3.5 Stratigraphic Comparison of Timmins Area and the Howse Property Deposit

AGE	FORMATION (TIMMINS AREA)	ORE ASSOCIATED	HOWSE AREA
Proterozoic	Menihek Shale/Slate		
	Upper Iron Formation (UIF)		Upper Iron Formation (UIF)
	Middle Iron Formation (MIF)	Blue Ore	Middle Iron Formation (MIF)
	Silicate Carbonate Iron Formation (SCIF)/LIF	Yellow Ore	Silicate Carbonate Iron Formation (SCIF)/LIF
	Jaspilite Formation (JSP)	Blue Ore	Jaspilite Formation (JSP)
	Ruth Shale/Slate (RF)	Red Ore	Ruth Shale/Slate (RF)
	Wishart Quartzite (WQ)		Wishart Quartzite (WQ)
	Fleming Chert (observed locally)		
	Denault Dolomite/Chert Breccias (observed locally)		
	Attikamagen Shale		Lower Shale
Archean	Archaean Gneiss	Basement	

Source: IOC Annual Report 1980

Table 3.6 Summary of Packer Test Results

HOLE ID	DEPTH BELOW GROUND SURFACE		ESTIMATED K (m/s)
	TOP	BOTTOM	
HW-GT13-01	91.4	112.2	1E-07
	130.7	136.2	2E-07
	152.7	136.2	4E-08
	158.1	184.4	5E-08
HW-GT13-02	90.5	106.9	2E-07
	100.0	106.9	6E-07
	105.5	128.9	1E-08
	127.5	148.2	3E-08
	147.1	164.5	4E-08
	163.2	183.9	6E-08
	89	183.9	4E-08

3.4.3 Groundwater Recharge

The groundwater recharge calculation for the Schefferville area is based on the 1981–2010 monthly climate normals from the Schefferville A weather station (No. 7117825) and evaporation data from Churchill Falls weather station (No. 8501132). The data is shown in Table 3.7.

Table 3.6 summarizes the water budget. The mean total precipitation is 790.8 mm per year, of which 373.5 mm represents snowfall expressed as rainfall equivalent. The water budget uses the evapotranspiration value calculated for a contiguous area by Fracflow (2006) using the Thornwaites equation. Fracflow evaluated the total evapotranspiration value taking place from May to November at 188.4 mm per year.

The sublimation of snow is estimated at 15 % of the total snowfall based on extensive studies conducted in the Wolf Creek Research Basin, Yukon (Pomeroy *et al*., 1998). The location of this study is at a latitude similar to that of the study area and it experiences similar average temperatures throughout the year. The sublimation will therefore represent 56.2 mm, expressed as rainfall equivalent. As shown on water budget of Table 3.6, a total of 327.7 mm of water is available for groundwater recharge, representing 60 % of the water depth after evapotranspiration and sublimation.

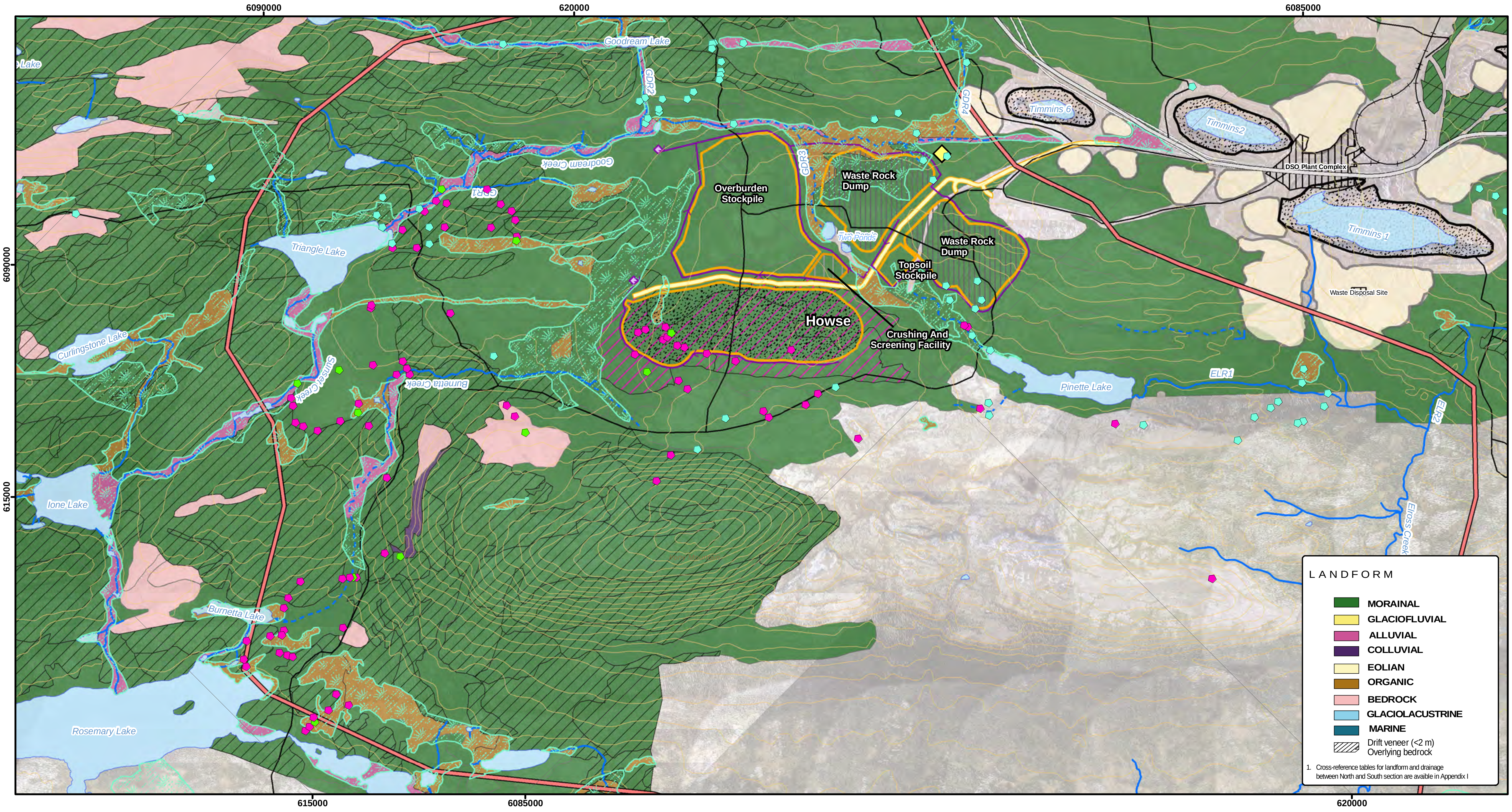
Table 3.7 Average Generalized Water Budget

COMPONENT	DEPTH (mm)
Precipitation	790.8
Evapotranspiration (-)	188.4
Sublimation (-)	56.2
Net Water Depth	**546.2**
Surface flow (40% of Net Water Depth)	218.5
Infiltration (60% of Net Water Depth)	327.7

3.5 Geomorphology, Soil and Permafrost

3.5.1 Geomorphology and Soil

The surficial geology in the vicinity of the Project is based on aerial photograph interpretation (Groupe Hémisphères, 2014a), field observation reviews and previous terrain mapping for the LabMag Iron Ore Project (Gartner Lee and Groupe Hémisphères, 2007) and for the DSO Project (Groupe Hémisphères, 2011a). Terrestrial ecosystem descriptions highlighted for each type of surficial deposit can be consulted in Section 4.2. Terrain in the vicinity of the Project is shown in Figure 3.3.



LEGEND

2008/2009 Survey

2013 Survey

Ground

Visual

Timmins 4 Sedimentation Pond-3

Underlying Glaciofluvial

Infrastructure And Mining Components

Potential Road to DSO Area 4

Proposed Railroad

Elross Lake Area Iron Ore Mine (ELAIOM) Plant Infrastructure footprint

Existing Pit

Existing Dump

Proposed Ditch

Proposed Howse Pit

Proposed Topsoil/Overburden stockpile

Proposed Crushing/Screening Facility

Proposed Waste Rock Dump

Proposed Sedimentation Pond

Mine Haul Road

Basemap

Permanent Watercourse

Intermittent Watercourse

Storm Run-off

Disappearing Stream

Artesian Spring

Waterbody

Contour Line (50 pi)

Existing Road

Main Access Road

Wetland

Local Study Area

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0468-01, 2014-03-14, E.D., J.T.

0 500 1 000 2 000

SCALE: 1:25 000 Meters UTM 19N NAD 83

SOURCES:

Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Boundary used for claims
SLE, AMEC and GHI (October 2012). LabMag and Kémag Iron Ore Projects 2012 Mine Site Aquatic Program Field Report.
Groupe Hémisphères, Hydrology, Wetland, 2013.

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/
MET-CHEM Howse Deposit Design for General Layout, 2013

Surveys
Groupe Hémisphères (2011) Cartographie des écosystèmes terrestres et des dépôts de surface :
Projet de minerai de fer à enfournement direct.
Rapport technique 2008-2010 réalisé pour le compte de New Millennium Capital Corp., 159 p. et 10 annexes.

Terrain

DSO Howse Property

Figure 3.4

GroupeHemispheres

The distribution and characteristics of landforms in the vicinity of the Project reflect a combination of ridges and valleys formed by folded, iron-rich, Pre-Cambrian metamorphic bedrock; glacial erosion and deposition from a generally northwestward flowing portion of the Laurentide Ice Sheet; deglacial meltwater processes; and post-glacial accumulation of organic matter. Irony Mountain, which is relatively resistant to glacial erosion, projects above the surrounding landscape as a prominent bedrock knob. Its silty sand soils are well to rapidly drained and support Ecotypes TSS02 and TSS03, and TSS04 to a lesser extent (see Section 4.2 for details on the ecosystems). Bedrock is also exposed along the crests of lower ridges, and in some narrow valleys where meltwater has eroded surficial materials, supporting Ecotype TSS02. Its weathered surface is a patchwork of angular blocks where frost heave has been most severe.

Silty sand till is the most widespread surficial material in the vicinity of the Project. Its thickness ranges from less than one metre in discontinuous veneers to a few metres in blankets and infilled hollows, which were more sheltered from glacial erosion. The till is generally moderately well to well drained, supporting sandy soils and Ecotypes FSM05 and FSM01. In depressions, where the groundwater table is perched on underlying bedrock, the till may be imperfectly to poorly drained. Ecotype FSM08 is more common in such areas.

Conspicuous meltwater channels wrapping around the western flank of Irony Mountain and incised through till provide clear evidence of deglacial meltwater pathways. Depositional evidence of meltwater activity is less common in the region. One noteworthy exception occurs northeast of Irony Mountain, within the area encompassed by the Howse Property itself. Here, trenching and drilling records indicate that a relatively uniform cover of till overlies buried glaciofluvial sand and gravel (Thiagarajan (BK) Balakrishnan, *pers. comm*.). Its presence can only be inferred in aerial photography based on a distinct, radial drainage pattern interpreted to be centred on the thickest portion of sand and gravel. The landform is interpreted to be a buried kame overridden by a late glacial advance. The till cap is sufficiently thick and continuous that soil moisture and nutrient regime are relatively unaffected by the underlying glaciofluvial deposit. As in other areas of well drained till, Ecotypes FSM05 and FSM01 predominate.

Since the deglaciation of the region, organic material has accumulated in poorly to very poorly drained depressions and in areas of groundwater discharge. Organic mesic and fibric soils support Ecotypes FSM10, FSM12 and FSM 14. In areas of greater regional slope, contemporary streams have eroded and redistributed glacially derived sediments in alluvial plains. The floodplains, comprising sand and silt, are typically imperfectly drained. Riparian ecosystems in such areas include Ecotypes FSM07 and FSM15.

3.5.2 Permafrost

The study area is comprised in a discontinuous permafrost zone (Nicholson and Lewis, 1976). Nicholson (1978) conducted research on permafrost distribution at various sites in the Schefferville area, including Timmins 4 and Fleming 7, at an elevation of 700 m asl, and concluded that extensive, deep permafrost underlies those areas that are higher in elevation, exposed, and where tundra vegetation covers the ground. During fieldwork, Groupe Hémisphères (2011a) observed on high, windswept uplands and ridges, the widespread presence of cryoturbation, which is the mixing of soil horizons due to freezing and thawing, commonly in association with underlying permafrost. Signs of permafrost were also observed during 2013 fieldwork in the LSA (Groupe Hémisphères, 2014a). On less exposed and lower-lying ground, which is covered by woodland, no permafrost is present (Nicholson and Lewis, 1976).

3.6 Hydrography and Hydrology

3.6.1 Hydrography

Knowledge of the surface flow pattern in the area was updated through field observations and interpretation of 2008 aerial photographs taken by NML at a 1:10,000 scale. This hydrographic update was conducted by NML and Paul F.Wilkinson & Associates (PFWA) (2009) and shows that the National Topographic Data Base (NTDB) was relatively outdated and imprecise. It also indicates that the IOC's mining operations dried out sections of watercourses further east and thus reduced drainage density. Developments from that period also resulted in a disappearing stream which flows near the Fleming 7 deposit. Nevertheless, the most recent LSA update conducted by Groupe Hémisphères (2014b) currently reveals a terrain that is rather undisturbed apart from a few trails left by previous geological exploration, but with a drainage density that is still lower than anticipated, i.e. slightly more than 1 km of watercourse per km². With a cumulative length of 36 km in the LSA, the flow is achieved through three main watercourses, namely Goodream Creek to the north, Burnetta Creek (newly recommended hydronym) to the west and Elross Creek to the south-east. A small intermittent stream flowing into Pinette Lake (PIN1) is also present, but only drains a small proportion of the water of the LSA. These creeks end at Howells River, except for Goodream Creek, which ends at Triangle Lake, where waters are discharged toward Howells River via Sunset Creek.

All of the lakes and ponds cover a surface area of 0.5 km². Triangle Lake is by far the largest water body, followed by Pinette Lake. Small ponds (Labelled as Two Ponds on the maps) are located nearby, just north-east of the deposit, while the other small lakes and ponds can be found in the periphery of the LSA.

3.6.2 Hydrology

Brace Centre for Water Resources Management (BCWRM) conducted the initial hydrology investigation in 2005 with flow measurements at the Howells River Bridge (BCWRM, 2005). This station, named HBL, was recommissioned in 2010 by Groupe Hémisphères (2013a) and provides the first year-round hydrogram for the vicinity. The analysis suggests that HBL has hydrological responses that are similar to those of large-scale governmental hydrometric stations. The transposition method for estimating extreme events seems effective only for the largest stations situated down the valley. High elevation stations with small watersheds were found to have really large freshet, proportionally speaking. In contrast, streams fed by large wetland water may show a particularly regular water regime as was the case for the nearby TSMC DSO Project (Groupe Hémisphères, 2010a).

3.6.3 Local Hydrometric Stations

Numerous hydrometric stations already exist in the LSA. There are three types of measurements: instantaneous (single or discontinuous records), recording (continuously recording but not transmitting data using a satellite transmitter), and near real-time (continuously recording and transmitting data using a satellite transmitter). As previously discussed, 20 stations were installed in the Howells River Valley for the LabMag Project (SNC-Lavalin, 2013). Four of these monitor the water quantity coming from the Howse drainage area (Table 3.8). Roughly 20% of the recording stations left for over a year recorded that watercourses were completely dry by the end of the winter, when the low flow period occurred. Those were streams with a total drainage area of less than 9 km². Groupe Hémisphères (2013a) reported similar results at the nearby DSO Project site.

Two upstream stations were built by TSMC for the monitoring of the TSMC's DSO Project 1a and are now part of the Real Time Streamflow program maintained jointly by Environment Canada – Water Survey of Canada and the Water Resources Management Division, NL Department of Environment and Conservation of Newfoundland and Labrador. Station NF03OB0039 records data on Elross Creek below the Pinette Lake inflow, while station NF03OB0040 records data on Goodream Creek, 2 km northwest of Timmins 6 pit. At the moment, gauging is not fully completed and only water level (or stage) is presented over the Internet (WRE, 2013). For the current Project, three instantaneous stations were recently built to collect flow data near the footprint (Groupe Hémisphères, 2014c). In addition to the location, Table 3.8 shows basic morphometric data and flow rates.

Table 3.8 Local Hydrometric Stations and Stream Dimensions

STATION (WATER BODY)	TYPE	COORDINATES (NAD83)		DRAINAGE AREA	WETTED WIDTH* (M)	MEAN WATER DEPTH*	FLOW RATE (m^3/s)**	
		Latitude	Longitude	(km^2)		(m)	min.	max.
Current Project (Groupe Hémisphères, 2014c)								
IHH1 (Burnetta Creek Upstream)	Instantaneous	54.91743	-67.16064	2.72	**2.00**	**0.097**	**-**	0.011
IHH3 (Pinette Lake Inflow)	Instantaneous	54.89796	-67.12312	0.66	0.35	0.031	-	0.003
IHH4 (Goodream Creek)	Instantaneous	54.92791	-67.15383	13.65	3.13	0.236	-	0.703
DSO Project (WRE, 2013)								
NF03OB0039 (Elross Creek)	Near real-time	54.87750	-67.09972	n.d.	n.d.	n.d.	Stage	Stage
NF03OB0040 (Goodream Creek)	Near real-time	54.91750	-67.12389	n.d.	n.d.	n.d.	Stage	Stage
LabMag Project (SNC-Lavalin, 2013)								
HLB (Howells River bridge)	Recording	54.91089	-67.20390	250.0	14.50	0.776	1.42	22.5
HL7 (Elross Creek near Mouth)	Recording	54.86150	-67.13702	16.15	2.75	0.287	0.12	0.26
IHL1A (Burnetta Creek near mouth)	Instantaneous	54.91717	-67,20282	5.81	9.00	0.158	0.26	0.86
IHL5 (Sunset Creek near mouth)	Instantaneous	54,92154	-67,21140	28.80	6.20	0.228	1.58	1.69

*: As measured at the higher observed stage when gauging

**: Minimum or maximum flow rate can be instantaneous or mean daily records

Compared to Howells River, smaller watercourses like Elross or Burnetta Creek have less variation in their flow rate. When we compared flow rate results along the same watercourse, evidence of strong downstream resurgence appeared. For example, for the same days in August 2013, the specific flow for the upstream of Burnetta Creek was 4.1 L/s/km² while the downstream station near the mouth recorded 147 L/s/km². Together, these results imply that both creeks surrounding Irony Mountain are largely fed by groundwater in their downstream sections.

3.6.4 Reference Hydrometric Stations

Long-term streamflow data in central-west Labrador are sparse, whereas data in Quebec are relatively more abundant. Rollings (1997) identified 39 reference stations useful for modelling hydrology in Labrador. McPhadyen (near the mouth), Pekan River and Swampy Bay are hydrometric stations that are now out of operation but are close to the study area and meet previous requirements described in the methodology. Baseline information and statistics can be found in Table 3.9.

Table 3.9 Reference Hydrometric Stations

NAME	FEDERAL NO.	COOR-DINATES (NAD 83)	DRAINAGE AREA (km^2)	OPERATIONAL DATE	MEAN MONTHLY DISCHARGE (m^3/s)	LOWER QUARTILE (m^3/s)	UPPER QUARTILE (m^3/s)
McPhadyen (near the mouth)	03OA003	54°5'52" N 66°33'32" O	3,610	1972–1982	89.1	73.3	109
Pekan River	02UC003	52°11'20" N 66°53'29" O	3,390	1965–1982	75.7	69.7	81.6
Swampy Bay	03LD004	56°38'34" N 68°33'50" O	8,990	1972–1993	165	155	178

3.7 Water Quality

The water quality section is divided into a first sub-section on the physico-chemical properties of the local water bodies and a second sub-section on contaminants already present within the LSA, with a focus on previously mined areas.

3.7.1 Physico-chemical Properties of Local Water Bodies

Table 3.10 summarizes summertime water quality for 10 water bodies close to Schefferville some 25 years after the start of mining in the area. Burnt Lake and Hematite Lake were both receiving water pumped from mines at the time of sampling. Burnt Lake had indeed been so severely disrupted by mining that it had virtually no natural catchment, and the stream above it was actively eroding mine wastes that were encroaching on its banks (Drake, 1981). Lake-water concentrations of Ca, Mg ions were similar in each of the water bodies sampled and are consistent with what would be expected for lakes with drainage basins associated with the mineral-rich rocks of the Labrador Trough (Penn, 1971).

Table 3.10 Water Chemistry in the Schefferville Area, Means and Standard Deviations (1975–2003)

Water Body	Sampling date	Temperature (°C)	pH	Ca (mg/L)	Mg (mg/L)	HCO_3 (mg/L)	SiO_2 (mg/L)
Knob Lake	1975–1978	13.7 (3.7)	6.9 (0.3)	6.6 (0.5)	4.1 (0.8)	24.4 (4.4)	2.1 (0.9)
Burnt Lake*	1975–1978	11.6 (1.7)	7.7 (0.3)	14.7 (4.4)	9.4 (0.9)	90.9 (15.5)	5.5 (1.8)
Hematite Lake*	1975–1978	13.1 (2.0)	5.1 (0.1)	1.2 (-)	0.7 (-)	1.9 (1.7)	0.6 (0.1)
Hope Lake	1975–1978	13.0	5.7	9.8	6.9	59.9	-

Water Body	Sampling date	Temperature (°C)	pH	Ca (mg/L)	Mg (mg/L)	HCO_3 (mg/L)	SiO_2 (mg/L)
Gemini Lake	1975–1978	15.6 (2.9)	8.2 (0.7)	11.5 (2.4)	7.3 (2.3)	75.4 (16.3)	4.3 (1.4)
Pinette Lake	1975–1978	14.0 (3.6)	5.8 (0.4)	1.2 (0.6)	0.7 (0.4)	5.1 (2.6)	2.0 (1.7)
Howells River (Irony Mountain)	1975–1978	15.3 (2.8)	7.0 (0.5)	6.0 (1.6)	2.4 (0.4)	29.8 (8.7)	3.0 (1.1)
Ione	2003	-	-	3.65	2.20	-	-
Rosemary	2003	-	-	8.37	3.00	-	-
Contact	2003	-	-	9.03	3.06	-	-

* Indicates a considerable mining effect

In relation to water softness, Scruton (1984) reports that the salinity of water bodies on the Lakes Plateau has a mean value of 6.1 mg/L, placing these freshwater bodies among the softest in the world. Conductivity in Menihek Lake has been measured by Duthie and Ostrofsky (1974) as being 31 µmho/cm.

In 2006, a large survey of the Howells River basin was undertaken by AMEC Earth & Environmental (2012). Surface water samples were collected from roughly 30 locations along the Howells River valley. For early September, lakes and ponds show surface temperatures ranging from 8.1 to 13.9°C, a pH level of 8.1 to 8.6, conductivity of 43 to 84 µmho/cm and dissolved oxygen of 8.34 to 11.38 mg/L. The water was universally non-turbid (<1 NTU) and soft (hardness 20-60 mg/L; alkalinity 10-60 mg/L).

More recently, *in situ* surface water quality measurements were taken from the LSA (Table 3.11). With respect to the DSO Project, two campaigns undertaken in July and September 2008 allowed for the collection of samples within the LSA (AMEC Earth & Environmental, 2009). The Project's launch required the implementation of two near real-time water quality monitoring stations, in the same location as the hydrological monitoring stations mentioned in the above section. Ultimately, a Groupe Hémisphères (2014b) team finished the sampling of the LSA's water bodies.

Table 3.11 Recently Measured Ambient Surface Water Quality, Minimum and Maximum

REACH/ SITE	WATER BODY LOCATION	Date	TEMPE-RATURE (°C)	CONDUC-TIVITY (µmho/cm)	pH	TURBI-DITY (NTU)	DISSOLVED OXYGEN (mg/L)
PIN1 (DSO3-13)	Pinette Lake Inflow	2008*	8.8 – 16.7	6	4.7	0.62	6.9
GDR3 (DSO3-14)	Two Ponds Outlet	2008	9.3 – 14.1	1 – 14	5.67 – 7.2	13.10	–
DSO3-15	Elross Creek at Pinette Lake inflow	2008	9.7 – 13.8	2 – 11	5.8 – 7.78	0.23	–
NF03OB0039	Elross Creek below Pinette Lake inflow	2012**	0.2 – 16.1	6.7 – 20.4	5.57 - 6.87	0 – 3,000	8.88 – 13.37

REACH/ SITE	WATER BODY LOCATION	Date	TEMPE-RATURE (°C)	CONDUC-TIVITY (µmho/cm)	pH	TURBI-DITY (NTU)	DISSOLVED OXYGEN (mg/L)
NF03OB0040	Goodream Creek 2 km NW of Timmins 6	2012	1.5 – 19.9	3.7 – 6.5	5.33 - 6.53	0 – 2,779	6.41 – 12.91
IHH4	Goodream Creek before Triangle Lake	28-8-2013	3.8	41	5.69	–	13.12
IHL1A	Burnetta Creek downstream	29-8-2013	6.0	5	5.87	0.45	11.5
IHH1	Burnetta Creek upstream	29-8-2013	6.8	6	4.91	–	9.7
n.d.	Pinette Lake	30-8-2013	12.7	4	6.75	–	10.38
n.d.	Triangle Lake	1-9-2013	8.8	34	6.33	–	12.46

*: Two samplings, one in July and the next one in September

**: Over 3,000 readings

Most of the *in situ* parameters measured (including dissolved oxygen, temperature, conductivity) were consistent with good water quality in such environments. Conductivity was exceptionally low; the virtual absence of nutrients, salts or impurities in the water showed no correlation between the location of sampling sites downstream and former mining activities. All of the water bodies within the TSMC's DSO Project 1a study area were acidic at one time or the other of the sampling periods. The pH was low in the Pinette Lake inflow (PIN1) and in the upstream portion of Burnetta Creek, two small watercourses close to the deposit. The acidic value can be correlated with shrub fen partly covering the drainage area.

With regard to turbidity, WRE (2012) states that relatively moderate turbidity events (e.g. 100–1000 NTU) typically coincided with rainfall activity and increases in water stage, whereas large turbidity events (e.g. 1000–3000 NTU) were attributed to biofouling. The same report states that for both Elross and Goodream Creek, daily and weekly trends in water temperature were due to fluctuations in ambient air temperature.

3.7.2 Contaminants Already Present Within the LSA

Laboratory results for the physico-chemical quality of the surface water are shown in Table 3.12. The data for the surface water of Goodream Creek comes from three different field surveys recently conducted (Groupe Hémisphères, 2013a; 2013b; 2014b). Together, the sampling covers the entire LSA, providing a comprehensive overview of surface water quality.

Table 3.12 Laboratory Analysis Results for Surface Water Quality

SURFACE WATER			CCME[2] GUIDELINES	RESULTS				
Parameter	Unit	RDL[1]	Aquatic life	Goodream 27-07-2011	Elross 07-08-2012	GDR2 08-08-2012	Burnetta Creek 03-09-2013	Triangle Lake 02-09-2013
Conventional								
Acidity ($CaCO_3$)	mg/L	10	—	n.d.	<10	41	<10	10
Ammoniacal Nitrogen ($N-NH_3$)	mg/L	0.02	2.22[3]	<0.02	<0.02	<0.02	<0.02	0.02
Bicarbonates (HCO_3 as $CaCO_3$)	mg/L	1	—	n.d.	7	5	2	15
Chlorides (CI)	mg/L	0.05	120	0.41	0.42	0.06	0.11	0.22
Fluorides (F)	mg/L	0.1	0.12	n.d.	<0.1	<0.1	<0.1	<0.1
Nitrate(N) and Nitrite(N)	mg/L	0.02	—	0.29	0.28	<0.02	<0.02	0.11
Sulfates (SO_4)	mg/L	0.5	—	1	2.5	1.7	<0.5	2.2
Suspended Matter (MES)	mg/L	2	—	0.3	19	<2	5	3
Total Alkalinity (CaCO3) at pH 4.5	mg/L	1	—	11	7	5	2	15
Total Hardness ($CaCO_3$)	mg/L	1	—	12	14	11	1.2	1.6
Total Phosphorus (P)	mg/L	0.003/0.01	—	<0.003	<0.01	<0.01	n.d.	n.d.
Metal (total/dissolved)								
Aluminum (Al)	µg/L	10/30	100	10	100	70	**130**	18
Arsenic (As)	µg/L	1/2	5	<1	<2	<2	<1.0	<1.0
Cadmium (Cd)	µg/L	0.2/1	$10^{(0.86(\log [CaCO_3])-3.2)}$	<0.2	<1	<1	<0.2	<0.2
Calcium (Ca)	µg/L	300/500	—	2.0	2.6	1.9	<500	2,700
Copper (Cu)	µg/L	0.5/3	2	<0.5	<3.0	<3.0	<1.0	<1.0
Iron (Fe)	µg/L	100	300	<100	200	100	220	75
Lead (Pb)	µg/L	0.1/1	1	<0.1	<1.0	<1.0	<0.50	<0.50
Magnesium (Mg)	µg/L	100/200	—	2.0	1.8	1.4	290	2,300
Manganese (Mn)	µg/L	0.4/3	—	1	35	12	23	6.5
Mercury (Hg)	µg/L	0.1	0.026	<0.1	<0.1	<0.1	<0.10	<0.10
Molybdenum (Mo)	µg/L	0.5/30	73	<0.5	<30	<30	<1.0	<1.0
Nickel (Ni)	µg/L	1/10	25	<1	<10	<10	<2.0	<2.0
Potassium (K)	µg/L	100/200	—	330	500	<200	<500	<500
Radium (RA 226)	Becquerel/L	0.002	—	n.d.	0.003	n.d.	n.d.	n.d.
Selenium (Se)	µg/L	1	1	<1	<1	<1	<3.0	<3.0
Sodium (Na)	µg/L	100/200	—	820	700	300	<500	580
Uranium (U)	µg/L	0.02/20	15	<0.02	<20	<20	<1.0	<1.0
Zinc (Zn)	µg/L	5	30	<5	<5	<5	<7.0	<7.0

[1] RDL, Reported Detection Limit; (RDL for Goodream/RDL for other stations) when different
[2] CCME (2007), Surface Water Quality Guidelines for the Protection of Aquatic Life
[3] The criteria for total ammoniacal nitrogen varies with temperature and pH; the most conservative value from the parameters measured in the field was used

The laboratory results do not show any parameter exceeding CCME guidelines except for aluminum in the sample from upstream Burnetta Creek. This phenomenon was observed by AMEC Earth & Environmental (2009) in about half the stations visited for the TSMC's DSO Project 1a. The overall quality of the water for metals and conventional parameters is therefore good. The water was soft (hardness 20-60 mg/L; alkalinity 10-60 mg/L) for most of the visited water bodies, but particularly so in Burnetta Creek where the water is less alkaline.

Nevertheless, some RDLs were too high to actually confirm that the CCME guidelines were not exceeded for all parameters. However, if we consider the Metal Mining Effluent Regulations (MMER) guidelines, which are most likely to apply for this Project, the RDLs would be within acceptable limits.

As per Environment Canada conversations with TSMC over than one year on TSMC DSO Project, dewatering, runoff and drainage water is considered process water by the MMER regulations. Therefore, it is possible, if the operation discharge more than 50 m^3, that MMER regulation applies even though there will be no tailings process water associated with the Howse Property Project.

3.8 Seismicity

The Schefferville station of the Federation of Digital Seismograph Networks (FDSN) is located within the Eastern Background seismic zone, in which low-level but occasionally noteworthy seismicity may occur. The region is seismically quiet in all directions from the station for more than 300 km (FDSN, no date). Blasts from the mines near Labrador City are recorded several times weekly. They normally range from 2<MN<3.

3.9 Acid Rock Drainage Potential

Data from the Timmins area are mainly compared and used to understand the Howse Property as they are physically close and geologically similar. Samples were collected from drill holes in various parts of the Timmins deposits to cover the widest range of volume, extent and relative proportions of ore/waste in relation to the exploration hole. Waste samples around the deposit were also included as part of this program in order to better understand the various formations that will be encountered during mining.

The process of sample selection was based on the following rationale:

- Consider the local and regional geological and hydrogeological conditions which could be affected during this process;
- Cover all geological formations to be encountered during the service life of the mine;
- Cover ore and waste in a proportional way;
- Cover any visible changes in the proportions of minerals in the ore and waste log data.

The Timmins area was well analyzed with respect to the acid rock drainage (ARD) potential because of the mining activity. In addition, several orthodox tests such as Acid Base Accounting (ABA), which includes Total Sulphur (S) and Raw Neutralizing Potential (NP), Acid Potential (AP), Net Neutralization Potential (NNP) and Neutralization Potential Ratio (NPR or NP/AP) tests were conducted. Moreover, a Leaching Potential test, including the Toxicity Characteristic Leaching Procedure (TCLP), was conducted on samples and followed by analyses of the resulting leachates for concentrations of mercury, arsenic, barium, boron, cadmium, chromium, lead, selenium, uranium, fluoride, nitrates and nitrites. The primary goal for these tests was to monitor the drainage chemistry and acid generation potential of the geological formations of the Timmins area. Some results are shown in Table 3.13 for reference.

Based on the above ARD results and geological similarity between the Timmins area and the Howse Property, it can be deduced that the geological formations that will be encountered in and around the

Howse Property do not have acid generating potential. The TSMC geological team will also send samples from all Howse geological formations at various levels to confirm this inference in the coming months.

Table 3.13 Toxic Element Concentration and Acid Rock Potential of the Timmins Area

ORE/ WASTE	LITHOLOGY	SULFUR (%)	AS	CR	PB	SE	CD	AP	NP	NNP	F	NO^3	NO^2	LEACHET SPH OF LEACHING
Ore	MIF	0.02	<0.004	<0.007	<0.01	<0.005	<0.002	0.6	12	11.4	1	<0.2	<0.2	4.94
		0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.6	12	11.4	<1	<0.2	<0.2	4.93
Ore	MIF	<.01	<0.004	0.083	<0.01	<0.005	<0.002	0.3	12	11.8	<1	<0.2	<0.2	4.94
Waste	MIF	<.01	<0.004	0.023	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.94
Waste	MIF	0.02	<0.004	0.007	<0.01	<0.005	<0.002	0.6	12	11.4	<1	<0.2	<0.2	4.94
Ore	MIF	0.02	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.93
Waste	MIF	<.01	<0.004	<0.007	<0.01	<0.005	<0.002	<0.3	12	12	<1	<0.2	<0.2	4.94
Waste	MIF	0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.91
Ore	MIF	0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.94
		0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.94
Ore	MIF	0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.91
Ore	MIF	0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.91
Waste	MIF	0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.90
Waste	MIF	0.02	<0.004	<0.007	<0.01	<0.005	<0.002	0.6	12	11.4	<1	<0.2	<0.2	4.90
Ore	MIF	0.01	<0.004	0.008	<0.01	<0.005	<0.002	0.3	25	24.7	<1	<0.2	<0.2	4.94
Waste	MIF	0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	13	12.7	<1	<0.2	<0.2	4.94
Ore	MIF	0.01	<0.004	<0.007	<0.01	<0.005	<0.002	0.3	12	11.7	<1	<0.2	<0.2	4.94
Ore	MIF	0.02	<0.004	<0.007	<0.01	<0.005	<0.002	0.6	12	11.4	<1	<0.2	<0.2	4.94
Waste	MIF	0.02	<0.004	0.091	<0.01	<0.005	<0.002	0.6	12	11.4	<1	<0.2	<0.2	4.94

4 DESCRIPTION OF THE BIOLOGICAL ENVIRONMENT

4.1 Anthropogenically Altered Landscapes

A portion of the study area has been disturbed by previous mining activity, which ended in 1982, in some cases to such an extent that the original condition of the landscape is no longer recognizable. Mining-related alterations to the landscape include numerous test pits and trenches, survey cut-lines, access roads and yards, and abandoned camps, infrastructure and equipment. In anthropogenically altered areas that have not been disturbed for several decades, pioneer species of vegetation have begun to colonize the surface. The rate of colonization has been slow, though, most likely due to the harsh climate, rocky soils and lack of organic matter. The following pioneer plant species were usually found on those sites: rough alder, bearberry willow, flatleaf willow and dwarf birch, as well as several grass species (Groupe Hémisphères, 2011a).

4.2 Terrestrial Ecosystem, Wetlands and Vegetation

4.2.1 Terrestrial Ecosystem

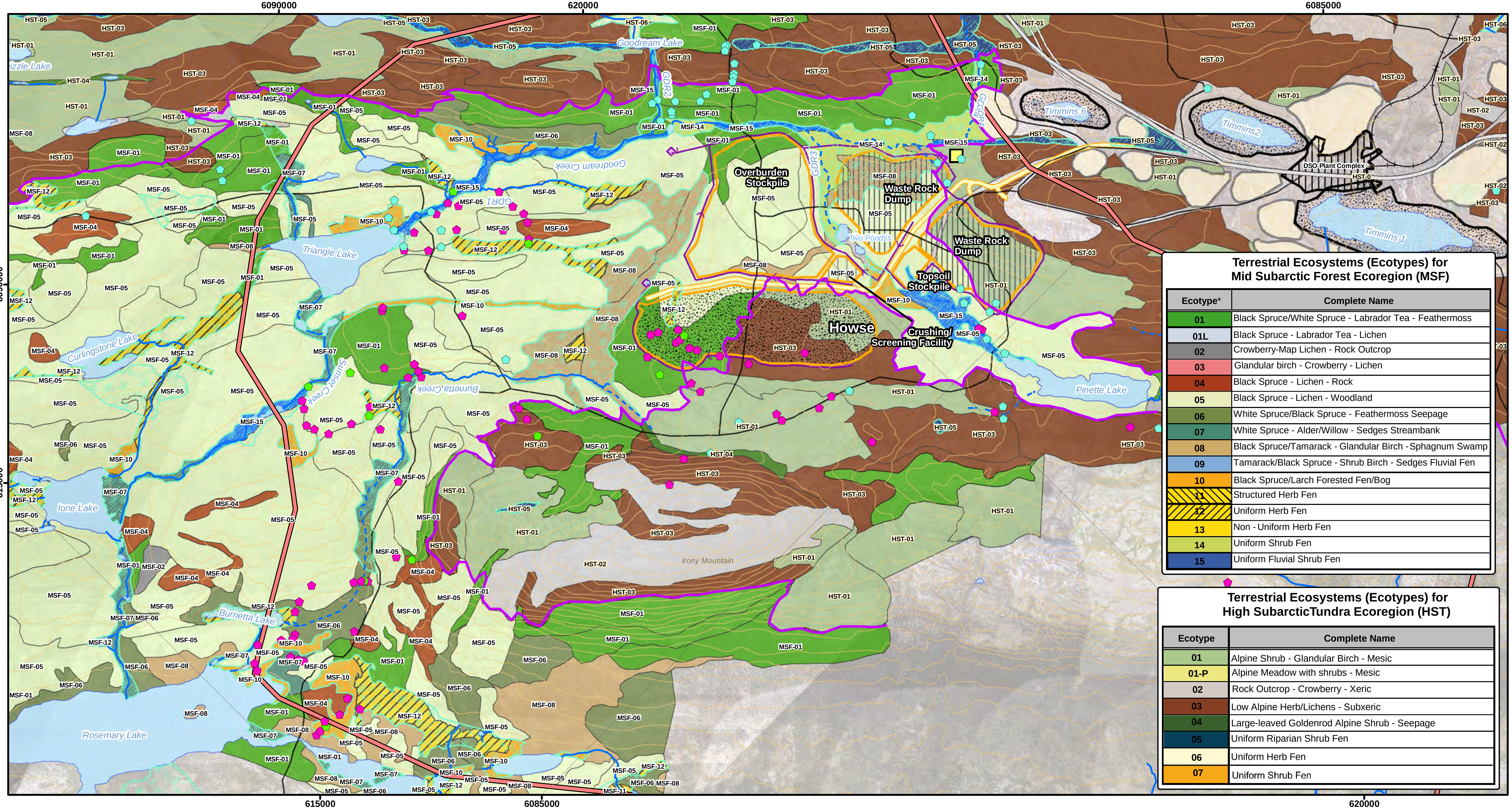
Terrestrial ecosystem mapping (TEM) makes it possible to classify and map the various terrestrial ecosystems present in a given territory. TEM includes forest ecosystems, the tundra, riparian ecosystems and wetlands. The approach used for the TEM included a description of the physical characteristics of the terrestrial ecosystems, such as landforms, drainage, surface geology and soil types. It also included certain biological characteristics of the terrestrial ecosystems, specifically the composition of the plant communities and forest stands. TEM was previously carried out in the vicinity of the Howse property for the LabMag Iron Ore Project (Gartner Lee and Groupe Hémisphères, 2007) and for the TSMC's DSO Project 1a (Groupe Hémisphères, 2011a). The TEM was completed to cover the Project study area (Groupe Hémisphères, 2014a).

The Project is located within two ecoregions which are briefly described in the following sections. Figure 4.1 shows the terrestrial ecosystems mapped in the vicinity of the Project.

4.2.1.1 Mid Subarctic Forest (MSF) Ecoregion

Mean annual temperature is between -5 and -2.5° C, and mean annual precipitation is around 800 mm, with an average 300 mm falling as snow. Summers are cool and four to five months long, and winters are cold and snowy (Meades, 1990). The mean daily minimum temperature of the coldest month is -28.9° C, and the lowest recorded temperature is -49.4° C.

The severe climate inhibits continuous tree cover on upland sites, so forest cover is generally discontinuous; a transition between the relatively productive closed boreal forests to the south and the treeless subarctic tundra to the north. Closed-canopy forests occur only on moist sites with seepage, and there are very few deciduous trees (scattered and isolated stands of white birch do occur on some post-fire sites near the southern boundary with the Balsam Spruce Moss Ecoregion). To the north, balsam fir almost disappears from the main forest canopy, leaving only black spruce, white spruce and tamarack as the dominant tree species. Black spruce-lichen woodland stands are common on dry sites, and low-productivity, open stands of black spruce, mixed with white spruce and tamarack, occur on well-drained sites on deep morainal landforms. Forest fires are common and typically cover large areas, so many stands are in early successional stages. Extensive wetland complexes are common and are characterized by patterned or ribbed fens, interspersed with forested fens.



Terrestrial Ecosystems (Ecotypes) for Mid Subarctic Forest Ecoregion (MSF)

Ecotype*	Complete Name
01	Black Spruce/White Spruce - Labrador Tea - Feathermoss
01L	Black Spruce - Labrador Tea - Lichen
02	Crowberry-Map Lichen - Rock Outcrop
03	Glandular birch - Crowberry - Lichen
04	Black Spruce - Lichen - Rock
05	Black Spruce - Lichen - Woodland
06	White Spruce/Black Spruce - Feathermoss Seepage
07	White Spruce - Alder/Willow - Sedges Streambank
08	Black Spruce/Tamarack - Glandular Birch - Sphagnum Swamp
09	Tamarack/Black Spruce - Shrub Birch - Sedges Fluvial Fen
10	Black Spruce/Larch Forested Fen/Bog
11	Structured Herb Fen
12	Uniform Herb Fen
13	Non - Uniform Herb Fen
14	Uniform Shrub Fen
15	Uniform Fluvial Shrub Fen

Terrestrial Ecosystems (Ecotypes) for High SubarcticTundra Ecoregion (HST)

Ecotype	Complete Name
01	Alpine Shrub - Glandular Birch - Mesic
01-P	Alpine Meadow with shrubs - Mesic
02	Rock Outcrop - Crowberry - Xeric
03	Low Alpine Herb/Lichens - Subxeric
04	Large-leaved Goldenrod Alpine Shrub - Seepage
05	Uniform Riparian Shrub Fen
06	Uniform Herb Fen
07	Uniform Shrub Fen

LEGEND

Data validation
- 2008/2009 Survey

2013 Survey
- Ground
- Visual
- Timmins 4 Sedimentation Pond-3
- Ecoregion Boundary

Infrastructure and mining components
- Proposed Ditch
- Potential Road to DSO Area 4
- Proposed Railroad
- Elross Lake Area Iron Ore Mine (ELAIOM) Plant Infrastructure footprint
- Existing Pit
- Existing Dump
- Proposed Howse Pit
- Proposed Topsoil/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Sedimentation Pond
- Mine Haul Road

Basemap
- Permanent Watercourse
- Intermittent Watercourse
- Storm Run-off
- Disappearing Stream
- Artesian Spring
- Waterbody
- Contour Line (50 pi)
- Existing Road
- Main Access Road
- Wetland
- Local Study Area

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0469-02, 2014-02-25, E.D., J.T.

0 500 1 000 2 000
Meters

SCALE: 1:25 000

UTM 19N NAD 83

SOURCES:
Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec,
Boundary used for claims
SLE, AMEC and GHI (October 2012). LabMag and Kémag Iron Ore Projects 2012 Mine Site Aquatic Program Field Report.
Groupe Hémisphères, Hydrology, Wetland, 2013.

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/
MET-CHEM, Howse Deposit Design for General Layout, 2013

Survey
Groupe Hémisphères (2011) Cartographie des écosystèmes terrestres et des dépôts de surface :
Projet de minerai de fer à enfournement direct.
Rapport technique 2008-2010 réalisé pour le compte de New Millennium Capital Corp., 159 p. et 10 annexes.
Groupe Hémisphères (In Progress) Howse pit study area, Terrestrial ecosystem mapping, Technical report to be submitted to TSMC.

Terrestrial Ecosystems

DSO Howse Property

Figure 4.1

GroupeHemispheres

Table 4.1 shows the late seral-ecotypes present in the MSF Ecoregion. Ecotypes highlighted in blue are not present within the LSA, but are common elsewhere within the MSF Ecoregion. The MSF Ecoregion edatopic grid, showing how the ecosystems are displayed by their moisture level and the nutrient level, is also presented in Figure 4.2.

Table 4.1 Late-Seral Ecotypes in the MSF Ecoregion

ECOSITE	LATE-SERAL ECOTYPE COMPLETE NAME	LATE-SERAL ECOTYPE COMMON NAME	DESCRIPTION
MSF01	Black Spruce / White Spruce - Labrador Tea-Feathermoss (Forested Ecosystem)	Mesic / Zonal Spruce Feathermoss	Black spruce and moss-lichen stand; thin-thick deposits; medium soil texture; well drained
MSF02	Crowberry-Map Lichen Rock Outcrop (Non-Forested Ecosystem)	Rock Outcrop	Rock outcrop with low ericaceous species; no or little surficial deposits; variable soil texture; very rapidly drained
MSF03	Glandular Birch - Crowberry-Lichen Very Thin Till Over Rock (Non-Forested Ecosystem)	Birch-Crowberry-Lichen	Low shrub communities on thin soils in crest positions; variable soil texture; rapidly drained
MSF04	Black Spruce-Lichen Rock (Forested Ecosystem)	Black Spruce Lichen Rock	Rock-dominated sites with scattered, stunted black spruce; very thin veneers; variable soil texture; rapidly drained
MSF05	Black Spruce - Lichen Woodland (Forested Ecosystem)	Black Spruce Lichen	Black spruce lichen stand; thin-thick deposits; coarse soil texture; well to rapidly drained
MSF06	White Spruce/Black Spruce - Feathermoss Seepage (Forested Ecosystem)	Seepage White Spruce	Black spruce feathermoss-ericaceous stand; thin-thick deposits; fine soil texture; imperfectly drained with seepage
MSF07	White Spruce-Alder / Willow-Sedges Streambank (Forested Riparian Ecosystem)	Fluvial White Spruce / Sedge	White spruce-moss stand; thin-thick deposits; fine soil texture; riparian; flooded sites imperfectly to poorly drained
MSF08	Black Spruce / Tamarack-Glandular Birch-Sphagnum Swamp (Forested Wetland Ecosystem)	Forested Swamp	Forested bog; denser stand than Ecotype MSF10; organic deposits; Sphagnum-dominated; poorly drained
MSF09	Tamarack / Black Spruce-Shrub Birch-Sedges Fluvial Fen (Forested Wetland Ecosystem)	Fluvial Spruce Fen	Forested fen; fluvial or organic deposits; sedge-dominated; poorly drained
MSF10	Black Spruce Forested Bog (Forested Wetland Ecosystem)	Black Spruce Bog	Uniform forested fen; organic deposits; forest floor dominated by sedge and grass; poorly drained
MSF11	Structured Herb Fen (or patterned/ribbed fens)	Structured Herb Fen	Structured non-forested herb fen; organic deposits; vegetation dominated by sedge and grass; very

ECOSITE	LATE-SERAL ECOTYPE COMPLETE NAME	LATE-SERAL ECOTYPE COMMON NAME	DESCRIPTION
	(Non-Forested Wetland Ecosystem)		poorly drained
MSF12	Uniform Herb Fen (Non-Forested Wetland Ecosystem)	Uniform Herb Fen	Uniform non-forested herb fen; organic deposits; vegetation cover dominated by sedge and grass; poorly drained
MSF13	Non-Uniform Herb Fen (Non-Forested Wetland Ecosystem)	Non-Uniform Herb Fen	Random non-forested herb fen; organic deposits; vegetation cover dominated by sedge and grass; poorly drained
MSF14	Uniform Shrub Fen (Non-Forested Wetland Ecosystem)	Uniform Shrub Fen	Uniform non-forested shrub fen; organic deposits; vegetation cover dominated by sedge and grass; poorly drained
MSF15	Uniform Fluvial Shrub Fen (Non-Forested Riparian Ecosystem)	Uniform Fluvial Shrub Fen	Uniform non-forested shrub fen; fluvial or rich organic deposits; vegetation cover dominated by sedge and grass; soil richer and more diverse plant community than Ecotype MSF14; imperfectly to very poorly drained

Highlighted: not present within the LSA, but are common elsewhere within the Ecoregion

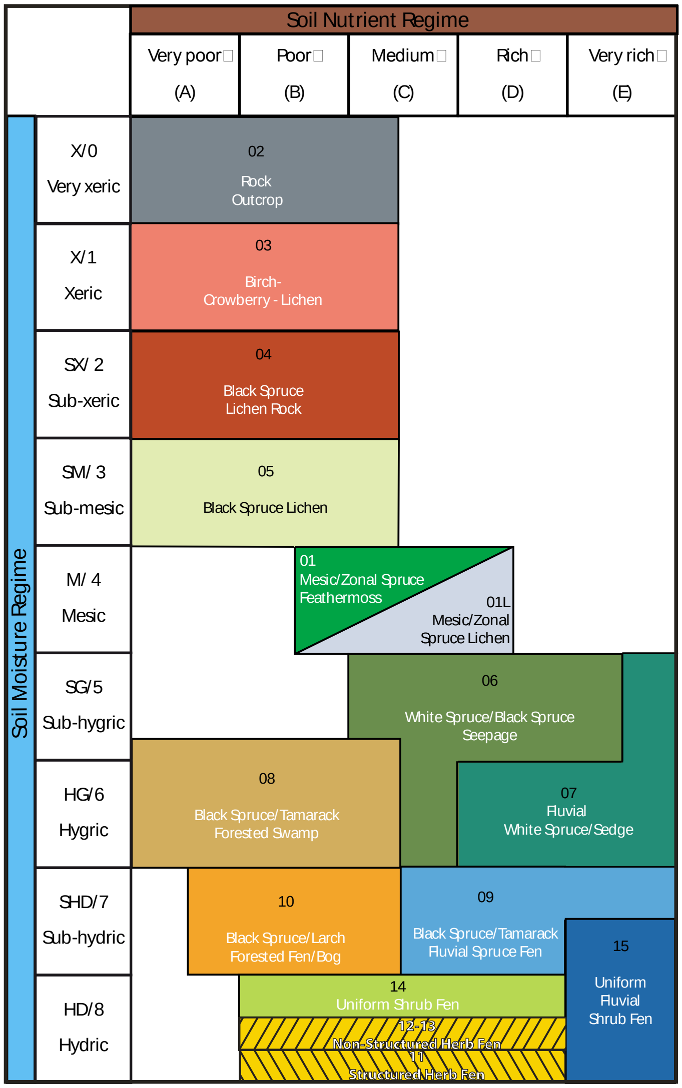


Figure 4.2 Edatopic Grid for the MSF Ecoregion

4.2.1.2 High Subarctic Tundra (HST) Ecoregion

The climate of the HST Ecoregion is characterized by short, cool summers and long, windy winters. The growth period lasts only 80 to 100 days, and annual precipitation varies from 700 to 1,000 mm. Within the Project LSA, the various ecotypes of the HST Ecoregion are found in the vast majority of cases at elevations higher than 650 m. The ecotypes found inside the HST Ecoregion are all treeless and are similar to the alpine tundra that is described by Meades (1990), who mentions that more than 50% of the upland plateaus characteristic of the HST Ecoregion support vegetation dominated by shrubs, low shrubs and graminoids. The HST Ecoregion contains discontinuous permafrost and small areas of wetlands with thin organic soils, mostly located in depressions and around lakes.

Table 4.2 shows the late-seral ecotypes present in the MSF Ecoregion. Ecotypes highlighted in blue are not present within the LSA but are common elsewhere within the HST Ecoregion. The edatopic grid for this ecoregion is also presented in Figure 4.3.

Table 4.2 Late-Seral Ecotypes in the HST Ecoregion

ECOSITE	LATE-SERAL ECOTYPE COMPLETE NAME	LATE-SERAL ECOTYPE COMMON NAME	DESCRIPTION
HST01	Alpine Shrub – Glandular Birch – Mesic	Alpine Shrub Mesic	Mesic ecosystem dominated by herbs and shrubs; thick till; silty texture; well to moderately well drained
HST01-P	Alpine Meadow – Shrub – Mesic	Shruby Alpine Meadow	Moist soil ecosystem dominated by shrubs and herbs; thick till deposits; rich soil with silty texture; good to moderate drainage
HST02	Rock Outcrop – Crowberry – Xeric	Rock Outcrop	Dry ecosystem dominated by lichen-covered rock outcrops; thin or no soil; medium texture; very rapid drainage
HST03	Low Alpine Shrub/Lichens – Subxeric	Alpine Shrub Subxeric	Subxeric ecosystem dominated by Ericaceae and lichen species; thin till on bedrock; medium to coarse texture; good to rapid drainage
HST04	Large-leaved Goldenrod	Alpine Shrub Seepage	Ecosystem with soils enriched by seepage and dominated by tall shrubs and a dense and diverse ground cover; thick till deposits; medium or fine texture; moderate to imperfect drainage
HST05	Alpine Shrub – Seepage	Uniform Riparian Shrub Fen	Riparian fen; fluvial or organic deposits; ground cover dominated by sedge and grass; imperfect to poor drainage
HST06	Uniform Riparian Shrub Fen	Uniform Herb Fen	Uniform herb fen; organic deposits; ground cover dominated by sedge and grass; poor to very poor drainage

Highlighted: not present within the LSA, but are common elsewhere within the Ecoregion

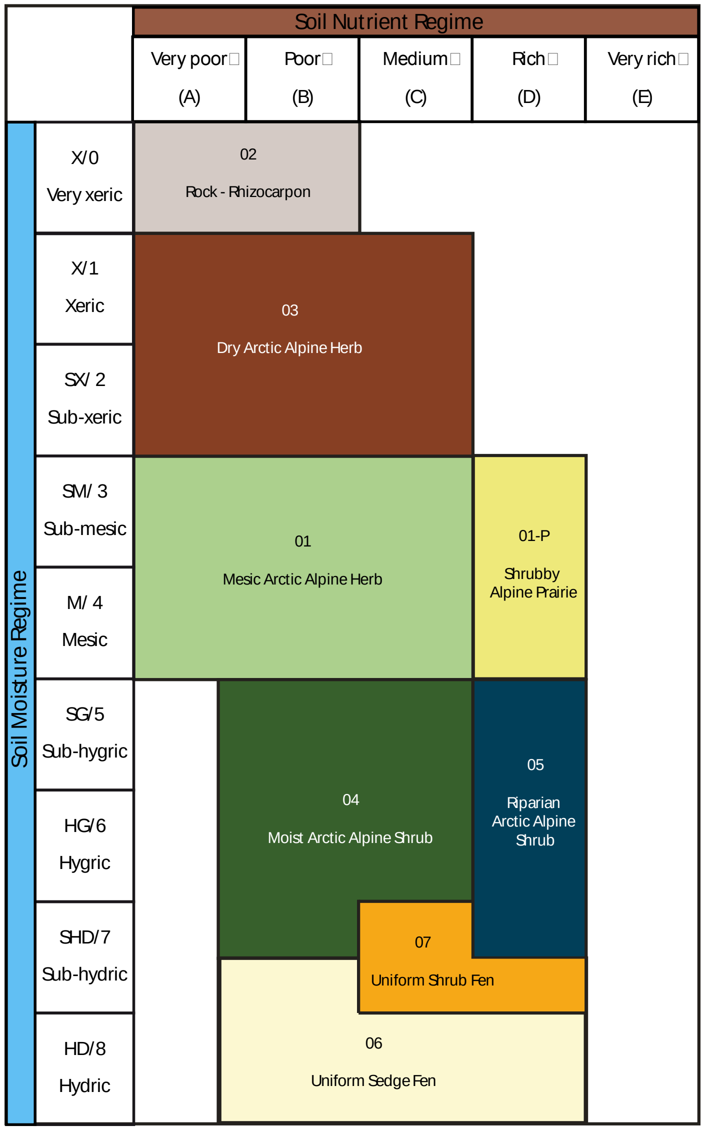


Figure 4.3 Edatopic Grid for the HST Ecoregion

4.2.1.3 Ecotypes Present Within the Project Footprint

Table 4.3 presents the ecotypes that are located in the Project footprint. Wetland ecotypes are highlighted in light grey in the table.

Black Spruce Lichen Woodland (MSF05) covers more than 40% of the Project footprint. Ecotype MSF05 is typified by a low cover (15 to 25%) of slowly growing black spruce, scattered shrubs and herbs and commonly continuous cover of reindeer lichens. AECOM (2010) also reported that it was the most common plant community, which they called open black spruce woodland. Stassinu Stantec Limited Partnership (2010) classified this ecotype as Black Spruce/Lichen Woodland.

Alpine Shrub Mesic (HST01) represents 20% of the Project footprint. Trees are absent or infrequent (shrub forms only) within Ecotype HST01. The shrub layer is dominated by glandular birch, alpine billberry and mountain cranberry, while the herbaceous layer is diverse and mainly composed of tufted hairgrass and large-leaved goldenrod. Several lichens and mosses are also found scattered on the ground cover.

The Mesic / Zonal Spruce Feathemoss Ecotype (MSF01) occupies less than 15% of the Project footprint. Compared to Ecotype MSF05, Ecotype MSF01 has a more closed canopy of black and white spruce and a higher shrub cover, consisting mostly of Labrador tea. Feathermosses are more abundant than reindeer lichens in the moss layer.

Table 4.3 Ecotypes Within the Project Footprint

ECOSITE	COMMON NAME	SURFICIAL AREA (HA)	PROPORTION (%)
MSF01	Mesic / Zonal Spruce Feathermoss	30.23	13.51
MSF05	Black Spruce Lichen	96.30	43.04
MSF08	Forested Swamp	17.88	7.99
MSF10	Black Spruce Bog	0.53	0.24
MSF12	Uniform Herb Fen	1.24	0.55
MSF14	Uniform Shrub Fen	1.74	0.78
MSF15	Uniform Fluvial Shrub Fen	0.35	0.16
HST01	Alpine Shrub Mesic	44.32	19.81
HST03	Alpine Shrub Subxeric	27.18	12.15
HST05	Alpine Shrub – Seepage	0.23	0.10
Anthropogenic		3.74	1.67
	TOTAL	223.72	100

Highlighted: Wetland Ecotypes

4.2.2 Wetlands

Wetlands represent around 20% of the Project footprint (Table 4.3). Wetlands are common in the north-eastern portion of the LSA since the watercourse network mainly flows in that direction before reaching Howells River due west. The Howells River valley also supports large and diverse wetland complexes.

The Forested Swamp (MSF08) is the most common ecotype in the Project footprint. This ecosystem is generally forested, with abundant herb, shrub and moss species. Although black spruce is the dominant tree, tamarack occurs more frequently in this ecotype than in any other.

Uniform Herb Fen (MSF12) are sedge-dominated ecosystems with scattered shrubs and other wetland herbs. Their surfaces range from flat to depressed, with a continuous vegetation cover. Black spruce and tamarack occur as scattered, stunted individuals on raised microsites.

Uniform Shrub Fen (MSF14) support shrub species that tolerate poor drainage. Bushy tamaracks are also dispersed on higher microsites.

AECOM (2010) conducted an evaluation of wetland functions based on criteria from NWWC (1997). They concluded that the wetland complex along Irony Mountain did not meet the criteria required for protection; however it is recommended that the function of the conveyance of clean surface water be maintained.

4.2.3 Plant Species at Risk

No flora species at risk were observed during the surveys of terrestrial ecosystems (Groupe Hémisphères, 2011a and 2014 a). An analysis of species designated by the federal government (SARA, 2013; COSEWIC, 2013) and the provincial government (NLDEC, 2013a) revealed that no species at risk might be found in the vicinity of the Project.

4.2.4 Plant Use

Some plant harvesting is done by the Naskapi and the Innu in the vicinity of the Project (Weiler, 2009; Clément, 2009). Different varieties of berries, including blueberry, bilberry, cranberry, cloudberry and crowberry, are harvested. Plants harvested for medicinal purposes are Labrador tea and tamarack bark. White spruce, black spruce and tamarack are harvested for firewood.

4.3 Fauna

4.3.1 Caribou

Given the cultural importance of caribou for First Nations, this section is entirely devoted to the species and addresses both the tundra and the forest-dwelling ecotypes.

4.3.1.1 Woodland Caribou, Tundra Ecotype

The woodland caribou, tundra ecotype, or migratory caribou that might be found in the vicinity of the Project belong to the George River Caribou herd (GRCH). The most recent census of this population was carried out in 2001, at which time the size of the herd was estimated at 440,000 individuals (Couturier et *al*., 2004). The herd has since declined, and comprised an estimated 74,000 individuals in 2010 and 27,600 in 2012 (CARMA, 2013). The results of this census, biological health indicators, population modelling projections, and consultation with stakeholders have prompted the provincial government to initiate a five year caribou hunting ban in Labrador for conservation purposes (NLDEC 2013f).

In general, the Project is contained within the migratory corridor of the GRCH that links their calving and wintering grounds. Much less clearly defined than calving areas, the caribou wintering grounds are thought to have shifted toward eastern Labrador early in the 2000s (Schmelzer and Otto, 2003). The preferred migration routes of the caribou are high ridges and open black spruce-lichen forests. They have adapted to the formerly mined area by using old mining roads should they happen to be heading in the same direction as the route along which they are migrating (Brown, 2005).

Since the LSA supports Ecotype MSF05 (Black Spruce — Lichen — Woodland) (see Section 4.2.1) and Ecotype HST04 (Large-leaved Goldenrod — Alpine Shrub — Seepage), food for caribou is readily available, as it is elsewhere in the region.

4.3.1.2 Woodland Caribou, Forest-dwelling Ecotype

The woodland caribou, forest-dwelling ecotype, or sedentary caribou is considered an endangered species under federal and Newfoundland and Labrador legislation (SARA, 2013; NLDEC, 2013a).

The sedentary caribou prefers mature spruce forests. It uses various habitats depending on the season and most likely according to the environment in which the herds find themselves (Courtois, 2003). In some regions, the females move to fens or islands for calving, in all likelihood to reduce the risks of predation.

The population density of sedentary caribou is low (1 to 3 individuals per 100 km^2) throughout its range. They occupy environments that are poorly suited to other cervidae, probably to isolate themselves from those cervidae and their predators (Courtois, 2003). They avoid environments that have been disturbed naturally (e.g. by fire) or anthropogenically.

In Labrador, three herds are currently recognized, and their range does not encompass the Project LSA (Schmelzer *et al.*, 2004). The closest one, the Lac Joseph herd, has a range 150 km south of Schefferville. The range of caribou occurrences from the Lac Joseph herd in the 1980s was situated about 50 km south-east of Schefferville (Schmelzer *et al.*, 2004).

According to RRCLS (1994) the range of the McPhadyen River herd encompasses the Project LSA. There is, however, no direct evidence suggesting that the caribou associated with the McPhadyen River form a distinct population, and some have suggested that they belong to the Lac Joseph herd (Schmelzer *et al*., 2004). According to Environment Canada (2008), the "[…] McPhadyen River population was associated with the Lac Joseph population but no longer exists".

The approximate range of the McPhadyen River herd was defined by a polygon surrounding the outermost locations of the seven radio-collared female caribou (Saint-Martin, 1987). The data (based only on seven collared animals) suggested that the range extended north of Schefferville. However, the small sample size of collared caribou did not permit an adequate description of population dynamics (Saint-Martin, 1987). Bergerud *et al*. (2008) further commented on Saint-Martin's (1987) study by pointing out that the seven radio-collared animals did not use the same calving area in each of the three years of the study, which suggests that the group in question should not be designated as a herd and managed as a unit.

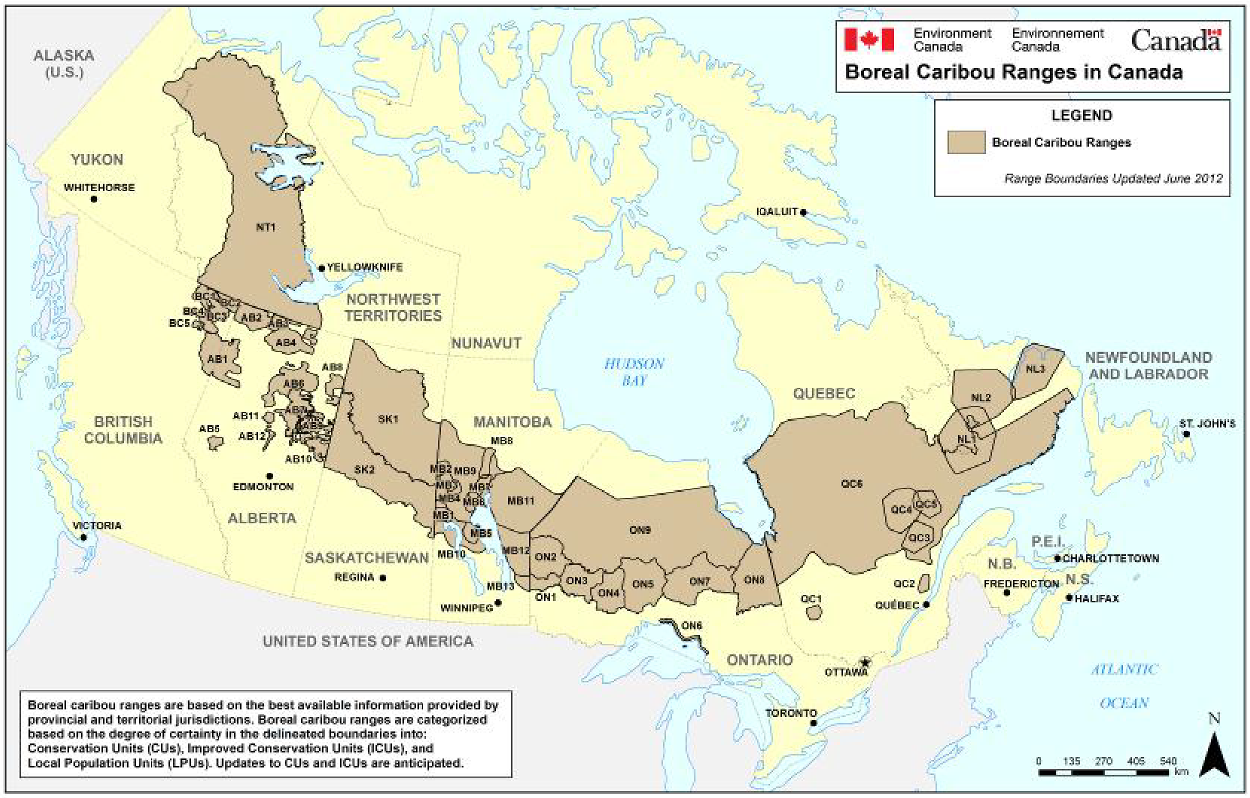
According to Environment Canada (2012), no ranges of forest-dwelling caribou overlap the Project LSA (Figure 4.4). The Government of Québec (ERCFQ, 2013) also shows their distribution to be clearly outside the Project LSA.

The Project LSA does not have a high potential for sedentary caribou. A high proportion of its area is covered by subarctic tundra, and part of it has been disturbed by former and current mining operations, including a road used by local human populations (Groupe Hémisphères, 2014a) and the TSMC's DSO Project 1a facilities and operations. Sedentary caribou are highly sensitive to anthropogenic disturbance. They avoid roads and areas used by humans (Dyer *et al*., 2001). The main factor limiting its presence in the study area would therefore be disturbances, including snowmobile use in winter. Food availability would be of secondary importance for its presence in the LSA, since it generally is abundant in the herd's range (Courtois, 2003).

4.3.1.3 Caribou Survey in the Project LSA

The Project LSA is included in the study area delineated for the caribou surveys carried out by NML and LIM from 2009 to 2012. In 2009, only three sightings of caribou, totalling seven individuals, were confirmed over a much larger area than that flown in 2010, 2011 and 2012 (50 km versus a 20 km radius). No sightings were made in 2010, 2011 or 2012.

The 2009 body measurements indicated that the two caribou measured in the study area probably belonged to the migratory ecotype (D'Astous and Trimper, 2009). Moreover, the only caribou captured in 2009 had joined the GRCH (D'Astous and Trimper, 2010a). Based on the absence of caribou sightings in 2012, and based on the 2009 (D'Astous and Trimper, 2009), 2010 (D'Astous and Trimper, 2010b), 2011 (Groupe Hémisphères, 2011b) and 2012 (Groupe Hémisphères, 2012a) results accumulated to date, there has been no evidence that the study area has been used by sedentary caribou during the pre-calving period in recent years.



Source: Environment Canada (2012)

Figure 4.4. Geographic Distribution of the Known Ranges of Boreal Caribou in Canada

D'Astous and Trimper (2009) collected caribou tissue samples for genetic analysis. Samples of ear dermis were collected from the adult female that was collared by the field team and from a recently killed (by wolf) adult female. The samples could not be assigned to any of the ecotypes or herds in the reference collection. Both caribou sampled are genetically similar, suggesting that they belong to the same ecotype. As a result of the extensive variability observed in the genetic testing, attributable to gene flow between the different migratory herds of caribou in the Quebec–Labrador Peninsula, a clear assignment of the sampled individuals to a known reference herd based solely on genetics was not possible at that time (D'Astous and Trimper, 2011).

While conducting a bird survey in July 2009, AECOM observed recent caribou scats on a service road in the northern part of Howse Property (AECOM, 2009).

4.3.1.4 Subsistence Hunting

Caribou harvesting is still important for the Naskapi and Innu. Hunting grounds depend on caribou movements. A 2006 survey of Naskapi land- and resource-use in the Howells River valley shows extensive caribou hunting therein. The densest concentration of caribou hunting was recorded along the ridge between the Howells River valley and the Swampy Bay River basin, between DSO2 and Goodwood, which encompass the Project LSA. A secondary area of concentration is the Howells River basin between Kivivic and Stakit lakes (Weiler, 2009). Caribou can be found in both areas during their fall migration. Most of the hunting activity during that period occurs along the ridge, as harvesting is most effective when caribou appear in large numbers along the fairly barren hilltops, where they can be easily spotted.

As previously noted, in 2013 the government of Newfoundland and Labrador initiated a five year ban on all caribou hunting in Labrador.

4.3.2 Other Large Mammals

4.3.2.1 Moose

Although rare because the Schefferville area is outside their preferred habitat, moose are known to travel as far north as the Schefferville region in spring and summer (Brown, 2005). The potential of the Project for moose habitat is low because of the high proportion of open areas (close to 60% of the LSA consists of arctic tundra and open-forest habitats) (Groupe Hémisphères, 2014a). Regeneration is rare, and 20% of the Project is covered by wetlands, including fens and shrub fens (MSF14) (Section 4.2). In addition, the Project contains no riparian bogs (MSF07), a preferred habitat for moose.

Several moose sightings were recorded during the caribou surveys carried out from 2009 to 2012. In 2009, one adult male was seen east of Menihek Lakes and four tracks were recorded south-east of Menihek Lakes (D'Astous and Trimper, 2009). In 2010, one adult female moose and the tracks of two other moose were identified (D'Astous and Trimper, 2010b). They were not located close to the Project LSA. No moose sightings or tracks were seen in 2011 (Groupe Hémisphères, 2011b) and in 2012 (Groupe Hémisphères, 2012a).

4.3.2.2 Black Bear

Black bears are known to be present in the vicinity of the Project. Black bears were recorded during the caribou surveys that were carried out from 2009 to 2012. Several black bears were seen in 2009, none in 2010, one was located south of the study area in 2011, and none in 2012 (D'Astous and Trimper, 2009; D'Astous and Trimper, 2010b; Groupe Hémisphères, 2011b; Groupe Hémisphères, 2012a). Several bears are also regularly seen at the Schefferville dump, and TSMC DSO site (camp, complex area and landfill).

4.3.2.3 Subsistence Hunting

Black bears and moose are harvested by the Naskapi, principally along the Howells River valley for black bears and east of the valley for moose (Weiler, 2009). Between 1989 and 1993, only one moose was killed by Naskapi hunters (Tecsult Foresterie Inc., 2000) and not necessarily in the vicinity of the Project. The Innu are familiar with the black bear but they say that, although black bears abound near the Schefferville landfill, it is not harvested because of its eating habits. They are also not keen on hunting moose (Clément, 2009).

4.3.3 Furbearers, Small Mammals and Micromammals

4.3.3.1 Furbearers and Small Mammals

The species of small mammals and furbearers observed by Brown (2005) along Howells River from May to October over the 1983–2002 period are listed in Table 4.4 along with other species potentially present in the sector.

Table 4.4 Furbearers and Small Mammal Species Potentially Present or Observed in the Howells River Valley

SPECIES		OBSERVED	HABITAT DESCRIPTION
English name	Latin name		
American beaver	*Castor canadensis*	X	Wetlands and riparian environments
American marten	*Martes americana*		Large coniferous forests
American mink	*Mustela vison*	X	Forests and the shrub-covered banks of watercourses and lakes
Arctic fox	*Alopex lagopus*		Various habitats where they can find their prey (north of the tree line)
Arctic hare	*Lepus arcticus*		Tundra and rocky slopes
Canada lynx	*Lynx canadensis*		Boreal forest, swampy areas, and brush, where hare (its main prey) is abundant
Ermine	*Mustela erminea*	X	Wide variety of habitats, feeding essentially on hares, small mammals and birds
Grey wolf	*Canis lupus*	X	The availability of prey is more important than the types of habitat present
Common muskrat	*Ondatra zibethicus*	X	Bogs, ponds, rivers, streams and lakes
North American porcupine	*Erethizon dorsatum*		Mature forests, stands of conifers, rocky slopes and talus deposits
Northern flying squirrel	*Glaucomys sabrinus*		Coniferous and mixed forests, often nesting close to watercourses
Northern river otter	*Lontra canadensis*	X	Otters are entirely dependent on aquatic habitats and fish
Red fox	*Vulpes vulpes*	X	Wide variety of habitats; cannot be associated with a specific terrestrial ecosystem
Red squirrel	*Tamiasciurus hudsonicus*	X	Coniferous and mixed forests
Snowshoe hare	*Lepus americanus*	X	Wherever young conifers grow: regeneration areas, copses, brush, along watercourses and all places that offer protection and food
Wolverine [P, F]	*Gulo gulo*		Wherever there is prey availability; not linked to specific habitats
Woodchuck	*Marmota monax*		Pastures, boulder-covered rugged terrain, open forests and well-drained rocky slopes

[Species at risk according to the provincial (P) or the federal (F) legislation]

Source: Novak *et al.*, 1987; Clément, 2009; Groupe Hémisphères, 2011a; Weiler, 2009; Tecsult Foresterie Inc., 2000; Brunet *et al.*, 2008; Moisan, 1996.

4.3.3.2 Micromammals

The term micromammal refers to terrestrial mammals of a very small size. These animals play an important ecological role, being one of the first links in the food chain of carnivorous mammals and birds of prey. Micromammals include several taxonomic groups, such as rodents (mice and voles) and insectivores (shrews and moles) (Desrosiers *et al.*, 2002). In general, they are active night and day and all year long. In winter, they rarely come out in the open, moving through tunnels that they dig under the snow to protect themselves from predators.

A review of observations by Brunet and Duhamel (2005a) and Brunet, Duhamel and Léger (2008a; 2008b) is provided in Table 4.5.

Table 4.5 Micromammal Species Potentially Present or Observed in the Schefferville Region Along with Habitat Description

SPECIES		OBSERVED	HABITAT DESCRIPTION
English name	Latin name		
Cinereus shrew	*Sorex cinereus*	X	Mature deciduous or coniferous forests, bogs, fens and brush Corresponding terrestrial ecosystems: MSF01, MSF06, MSF07 MSF08, MSF11, MSF12.
Pygmy shrew	*Microsorex hoyi*	X	Various habitats close to watercourses (forests, groves, fens, etc.) Corresponding terrestrial ecosystems: MSF07, MSF11, MSF12, MSF13, MSF15.
Water shrew	*Sorex palustris*		Mature coniferous or mixed forests close to watercourses. Corresponding terrestrial ecosystems: MSF07, MSF11, MSF12, MSF13, MSF15
Star-nosed mole	*Condylura cristata*		Forests and fields, but prefers riparian and wetland environments. Corresponding terrestrial ecosystems: MSF07, MSF15.
Meadow jumping mouse	*Zapus hudsonius*	X	Wet meadows, brush, grassy banks of watercourses as well as alder and willow groves. Fringes of coniferous and deciduous forests (where vegetation is dense). Corresponding terrestrial ecosystems: MSF07, MSF11, MSF12, MSF15.
Woodland jumping mouse	*Napaeozapus insignis*	X	Deciduous and coniferous forests close to watercourses. Corresponding terrestrial ecosystems: MSF06, MSF07.
Meadow vole	*Microtus pennsylvanicus*	X	Wet and brush areas close to ponds, lakes and watercourses. Corresponding terrestrial ecosystems: MSF11, MSF12, MSF15.
Northern bog lemming	*Synaptomys borealis*	X	Sphagnum fens, wet coniferous forests, wet subalpine grasslands and tundra. Corresponding terrestrial ecosystems: MSF06, MSF08 MSF11, MSF12, HST01, HST03, HST04, HST05, HST06.
Rock vole	*Microtus chrotorrhinus*	X	Wet taluses, between moss-covered rocks, at the base of cliffs, on rocky outcrops in mixed or coniferous forests. Corresponding terrestrial ecosystems: HST02, HST03, HST05.
Southern red-backed vole	*Clethrionomys gapperi*	X	Mature forests (coniferous, mixed or deciduous) and brush close to a source of water. Corresponding terrestrial ecosystems: MSF06, MSF07, MSF08, MSF15.
Ungava collared lemming	*Dicrostonyx hudsonius*		Mature forests (coniferous, mixed or deciduous) and brush close to a source of water. Corresponding terrestrial ecosystems: MSF06, MSF07, MSF08, MSF15.

SPECIES		OBSERVED	HABITAT DESCRIPTION
English name	Latin name		
Western heather vole	*Phenacomys intermedius*	X	Various habitats close to water. Bushes near wooded areas, wet meadows with moss. Summits of mountains. Corresponding terrestrial ecosystems: MSF06, MSF07 MSF13, MSF15 HST01, HST02, HST03.

Species highlighted in light blue were observed in the LSA

During the 2005 micromammal survey, the southern red-backed vole was the most abundant micromammal. The western heather vole was the next most abundant micromammals. One of the study sites of Brunet and Duhamel (2005b) included a part of the LSA around Triangle Lake.

Brunet and Duhamel (2005b) indicated that they measured relatively low population densities, and they noted that inter-annual variations in the size of micromammal populations are particularly great in northern latitudes. They speculated that such fluctuations might explain the absence of Ungava lemmings in 2005. Low population densities were also recorded by SNC-Lavalin (2012a) during a survey for the KéMag project.

The southern bog lemming was recorded in riverine and bog habitats between the 52nd and 53rd parallels of latitude south-west of Schefferville (Fortin *et al.*, 2004). According to Girard (2003), small mammals, such as Ungava lemmings and meadow voles, also occur in the Howells River valley.

The Innu of Matimekush–Lac John are familiar with the star-nosed mole and confirmed its presence in the Schefferville region (Clément, 2009).

4.3.3.3 Species at Risk

The wolverine, listed both federally and provincially as endangered, is the only at-risk species potentially present in the region. It is typically found wherever there is prey available and has not been linked to specific habitats. A study in the Howells River basin endeavoured to identify the presence of wolverines by means of baited posts. No wolverines were found in the area (Brunet *et al.*, 2008b). In 1978, an Innu gave to an Indian and Northern Affairs Canada representative a wolverine reportedly harvested north of Schefferville (Moisan, 1996). The site of the capture was not confirmed. Nonetheless, based on knowledge of the territory used by the Matimekush–Lac John Innu, it seems unlikely that the harvest would have occurred further than ± 150 km north of Schefferville. Prior to 1978, the most recent wolverine sightings in the Schefferville region were those made by the Innu of Matimekush–Lac John in the 1950s (Clément, 2009). The wolverine is probably extremely rare in Quebec and Labrador or it might have disappeared according to the COSEWIC (2003).

4.3.3.4 Traditional Knowledge

Innu from Matimekush–Lac John have observed wolves in the local study area (Clément, 2009). Wolves are said to visit landfills occasionally, but they are mostly associated with migratory caribou, which they follow most of the time.

According to most of the Innu of Matimekush–Lac John who were interviewed, the beaver population in the region has been stable for the last 10 years (Clément, 2009).

The Innu of Matimekush–Lac John are very familiar with otters (Clément, 2009). Sightings of otters have been recorded in the region, but it seems that none have been observed in the LSA.

The presence of the American mink was confirmed by all the Innu interviewed by Clément (2009).

Ermine are said to be plentiful in the Schefferville area and are trapped by the Naskapi (Weiler, 2009). The Innu believe that the ermine population in the local study area is stable (Clément, 2009).

According to the Innu of Matimekush–Lac John, red foxes are found everywhere in the region of Schefferville. The red fox population is thought to have increased in recent years (Clément, 2009). Foxes are said to be plentiful also by the Naskapi, who harvest them in considerable numbers (Weiler, 2009).

According to Innu informants (Clément, 2009), red squirrels are found everywhere in the local study area.

The muskrat is observed mostly in the sector of Howells River according to the Innu of Matimekush–Lac John (Clément, 2009).

All the Innu interviewed by Clément (2009) reported the presence of hare in large numbers in the local study area.

The Naskapi trap martens in the region of Howells River (Weiler, 2009).

Porcupines are a valued prey, particularly for the Innu. According to the Innu of Matimekush–Lac John, porcupines are found everywhere along the roads in the region (Clément, 2009).

The Innu of Matimekush–Lac John reported observations of northern flying squirrels close to Howells River (Clément, 2009).

According to the Innu of Matimekush–Lac John, woodchucks are found in the LSA (Clément, 2009).

The Innu of Matimekush–Lac John consider the Canada lynx to be scarce in the region, and several of those who were interviewed had never seen one (Clément, 2009).

The arctic fox and arctic hare are also hunted by the Naskapi. The local study area is located at the southern limit of their ranges (Novak *et al*., 1987). Both species may be found in the LSA, but Weiler (2009) did not record their presence in interviews with Naskapi hunters about the area from the Howells River valley to Menihek. According to the Innu of Matimekush–Lac John, arctic foxes are mostly observed in the tundra, but there was only one sighting in the village of Matimekush–Lac John on January 12, 2009 (Clément, 2009).

There is little traditional knowledge on micromammals, as they are not an important component of Native subsistence.

4.3.4 Chiroptera

In Canada, 20 species of bats are found (Williams *et al.*, 2002). In Newfoundland, there are four species of bats (Wild Species Canada, 2010). The four species can be found on the island of Newfoundland, but only one species, the little brown bat (*Myotis lucifugus*), has been confirmed in Labrador (NLDEC 2009 [the little brown bat]). It must be noted, however, that the distribution of many bats in Canada is still unknown (Wild Species Canada, 2010).

4.3.4.1 Species Presence

No species were formally identified in the surveys carried out in 2005 and 2006 (Brunet et Duhamel, 2005b; Brunet et *al.*, 2008b). Cries were recorded but their low intensity made it impossible to attribute them to a particular species. However, no cries were recorded in a study area located north-east of Irony mountain; the cries were recorded in the Howells river valley sites.

NLDEC (2009) notes that the little brown bat is the only species known to live in Labrador. The probability that the recorded species is the little brown bat is therefore high. It is a medium-sized species. This is the most widespread bat species in Canada and it exploits a variety of habitats (Williams *et al.*, 2002), from arid grasslands to humid coastal forests. Summer roosts are, when possible, in buildings and other man-made structures or in tree cavities, rock crevices, caves, and under the bark of trees. In summer, females will congregate in nursery colonies that may contain hundreds to thousands of individuals (Broders and Forbes, 2004). The Little brown bat emerges at dusk to feed on a variety of insect prey and will often feed over water (Furlonger *et al*., 1987). This species typically hibernates in caves and abandoned mines (Nagorsen and Brigham, 1993).

4.3.4.2 Local and Regional Habitat Distribution

Bat density was estimated to be very low by Envirotel 3000 Inc. (2008). Furthermore, even after several surveys in the area, no bat species were identified. There is only a slight potential that this species is to be found around the LSA. Surveys for identifying roosting and hibernacula conducted in 2005 and 2006 throughout the LIOP as well as in the TSMC's DSO Project 1a LSA found no evidence of bats (Brunet et Duhamel, 2005b; Envirotel 3000 Inc., 2008).

4.3.4.3 Species at Risk

The little brown bat is designated as endangered by the COSEWIC (COSEWIC, 2013).

4.3.4.4 Traditional Knowledge

There is little traditional knowledge on Chiroptera, as they are not an important component of Native subsistence.

4.3.5 Herpetofauna

4.3.5.1 Species Presence

Table 4.6 lists the species of herpetofauna present or likely to occur in the Schefferville region, including the LSA, based on species distribution and survey results. The generally low abundance of the species present is noteworthy.

There is a total of eight species of herpetofauna potentially present within the region. Five species were found during recent surveys in the region (Brunet et Duhamel, 2005a; Brunet et Duhamel, 2005b; Brunet *et al*., 2008b; Genivar, 2011; SNC-Lavalin, 2012a). These are the American toad, the mink frog, the northern light green frog, the northern spring peeper and the wood frog. The three species that, based on the literature, may be present (the northern dusky salamander, the northern two-lined salamander and the blue-spotted salamander) were searched for but not found.

Table 4.6 Herpetofauna Potentially Present or Observed in the Schefferville Region

SPECIES		OBSERVED
English name	Latin name	
American toad	*Bufo americanus americanus*	X
Blue-spotted salamander	*Ambystoma laterale*	
Mink frog	*Lithobates septentrionalis*	X
Northern green frog	*Lithobates clamitans melanota*	X

SPECIES		OBSERVED
English name	Latin name	
Northern spring peeper	*Pseudacris crucifer crucifer*	X
Northern two-lined salamander	*Eurycea bislineata*	
Wood frog	*Lithobates sylvatica*	X
Northern dusky salamander	*Desmognathus fuscus*	

Species highlighted in light blue were observed in the potential impact area

Sources: Brunet et Duhamel, Juillet 2005a; Brunet et Duhamel, Décembre 2005b ; Brunet *et al*., 2008b; Desroches et Rodrigue, 2004; Conant, 1975; Genivar, 2011; SNC-Lavalin, 2012

4.3.5.2 Local and Regional Distribution

The wood frog and the northern spring peeper were recorded in the LSA. The northern spring peeper outnumbered the wood frog everywhere. The American toad was only found on the western side of Howells River (Brunet et Duhamel, 2005b; Brunet *et al*., 2008a), quite far from the LSA. Brown (2005) also recorded the American toad in the Howells River valley, and he was advised that it belonged to the *copei* subspecies.

No salamanders or snakes were recorded north of the 54th parallel during recent surveys (Brunet et Duhamel, 2005a; Brunet et Duhamel, 2005b; Brunet et *al.*, 2008b; Genivar, 2011; SNC-Lavalin, 2012a).

Fortin (no date) recorded the northern two-lined salamander close to the 54th parallel of latitude some distance west of Schefferville, and he cited other records south and south-east of Schefferville.

Brunet and Duhamel (2005a) noted that few inventories of herpetofauna have been conducted in northern regions and that knowledge of the northern limits of the distribution of herpetofauna is consequently limited.

4.3.5.3 Species at Risk

No amphibians or reptiles found in the literature review are protected under the legislation of Canada or Newfoundland and Labrador. No other species at risk are expected to be found in the LSA.

4.3.5.4 Traditional Knowledge

There is little traditional knowledge of amphibians and reptiles among the Schefferville Innu, since they are not an important part of their subsistence and are considered to be pests (Clément, 2009). The American toad and the Mink frog are the only species of amphibians and reptiles apparently known to the Innu. No salamanders or snakes are known to them (Clément, 2009).

4.3.6 Avifauna

This section presents results from studies conducted during the breeding and migrations seasons in which the Howse property was covered or partially covered. Species with status (federal and provincial) are also presented. Migratory birds, as per the Migratory Birds Convention definition, are also presented. In general, birds not falling under federal jurisdiction within Canada include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds (Environment Canada, 2013).

4.3.6.1 Breeding bird survey

AECOM conducted a breeding bird survey on the LIM property (including Howse pit) in 2009 (AECOM, 2009). The most frequently recorded species at the Howse property was the white-crowned Sparrow, which prefers spruce or open habitats. The American tree sparrow, which prefers taiga or open habitats, was frequently observed. The common redpoll and American robin were also common.

Those results are similar to the ones that Groupe Hémisphères obtained for the breeding bird surveys on the TSMC DSO Project properties (Groupe Hémisphères, 2009), covering the Howse Property. The limit of the bird survey area is presented on Figure 4.5.

Sixteen species located on the TSMC DSO Project properties were recorded during the point counts survey in the vicinity of the Howse Property. This bird survey covered all types of biotope comprised within this ridges and valleys landscape. In open areas and in the tundra, white-crowned sparrows were the most abundant. In coniferous forests, fox sparrows and dark-eyed juncos were the most abundant. A total of 52 species were identified during the breeding bird survey carried out throughout the located on the TSMC DSO Project properties, including 4 birds of prey, 13 aquatic birds and 35 terrestrial birds (Groupe Hémisphères, 2009). Of those 52 species, 41 are considered migrating species under the Convention. The complete list of birds surveyed during this study is presented in Appendix I.

Two bird species at risk are known to nest in the vicinity of the Project LSA. The migratory bird, grey-cheeked thrush nests in tundra and in coniferous forest (Groupe Hémisphères, 2009). Several rusty blackbirds were seen in wetlands located in the TSMC’s DSO Project 1a (Groupe Hémisphères, 2009). One pair of breeding adults was recorded on the Howse property in 2009 (AECOM, 2009). Given their their prensence in the wetlands, a mitigation plan was produced to protect their nesting habitat for the TSMC’s DSO Project 1a (Groupe Hémisphères, 2011c).

The short-eared owl and harlequin duck have been sighted regionally in spring 2011 while conducting surveys on bird migrations (Groupe Hémisphères, 2012b). Both species were seen on the KéMag property, located 30 km north-west of the Project, at the bottom of the Goodwood Valley.

4.3.6.2 Bird migration

Surveys were conducted in 2001 during the spring and fall migration on the LabMag and KéMag properties (Groupe Hémisphères, 2012b; Groupe Hémisphères, 2012c). The LabMag study area covered Howse’s LSA (Figure 4.5). Waterfowls, shorebirds and passerines were surveyed and sightings of raptors were also noted.

As highlighted in the LabMag mining site migrating birds survey technical report (Groupe Hémisphères, 2012c), the dominant staging areas for waterfowls and shorebird were located within the bottom of the Howells River valley, at lower elevation compare to the Project footprint (Figure 4.5). Most of the waterfowls and shorebirds inventoried during the 2011 May and September migration were located within the Howells River boundaries, more than 3 km away from any Project footprint, in large, flat and open wetlands or in valley bottom forested biotopes.

One exception was Triangle Lake where waterfowl were observed during spring migration. Four Lesser Scaups and two Common Goldeneyes were observed on Triangle Lake during the spring migration (Groupe Hémisphères, 2012c). No waterfowls were seen on Triangle Lake during the fall migration. Triangle Lake is located at a higher elevation compared to the Howell’s River valley, but still more than 1 km away from any Project footprint. According to Clement (2009), the only goose hunting site located close to the Howse Project footprint is Pinette Lake, an area not directly affected by the Project. No ducks or geese were seen on Pinette Lake during the spring and fall migrations (Groupe Hémisphères, 2012c).

As for passerines identified during the migration, the most frequent species were also common during the breeding bird survey (Groupe Hémisphères, 2012c). Common redpoll and white-crowned sparrow were the most common species in coniferous forest and shrub land. White-crowned sparrow and American robin were the most common species in the tundra. Several sightings of rusty blackbirds and the migratory bird, grey-cheeked thrush were made during both migration periods.

4.3.6.3 Traditional Knowledge

Despite the fact that many species have been observed in the vicinity of the TSMC's DSO Project 1a by members of the local FNs, only bird species at risk or species having socioeconomic importance with a high probability of being found in the LSA are covered in this section. A complete list of bird species observed by the Matimekush–Lac John Innu is found in Clément (2009). While there is detailed information about the presence of raptors and songbirds in Clément (2009), they are not hunted or used by the local populations.

The group of birds most important to the livelihood of the Innu are the Missipat or "water game" (Clément, 2009). The wetlands around Kivivic Lake, as well as the Boundary and Harris lakes, represent a refuge for waterfowl by serving as staging and nesting areas during spring and early summer (Clément, 2009).

Two species of loons are clearly distinguished by the Innu (Clément, 2009). The common loon is very common along Howells River, and the red-throated loon is common around Rosemary Lake, but it is not observed directly in the LSA.

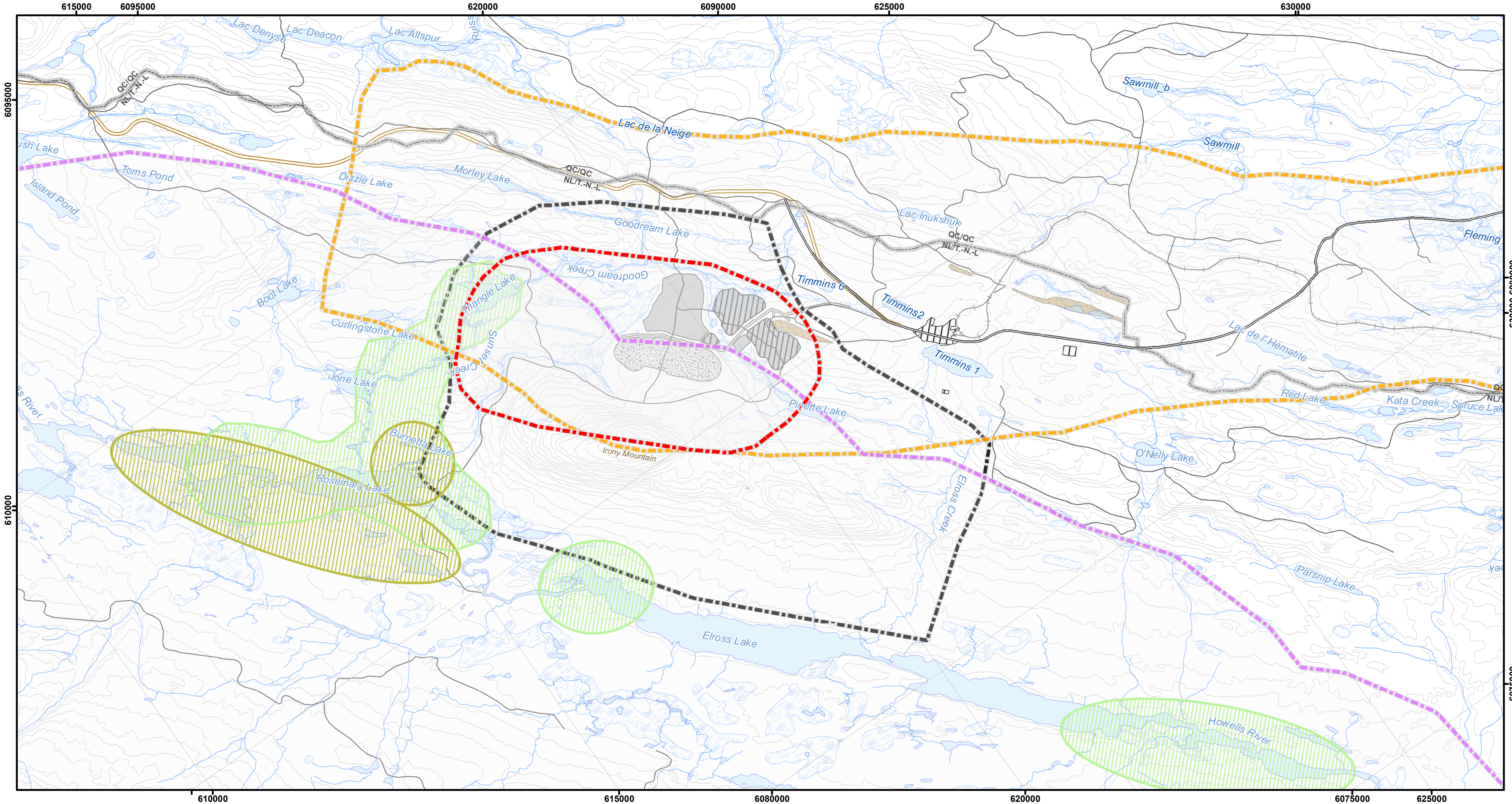
The long-tailed duck is common in the spring, and many observations of this species have been reported (Clément, 2009). It has been reported in the eastern and western portions of the Howells River valley, between the Fleming and Stakit lakes.

Various dabbling duck species (black duck, pintail duck, green-winged teal) are assigned to the same category by the Innu (Clément, 2009). They appear to be quite common and widespread, with observations between John and Squaw lakes, north of Elross Lake and along Howells River and Star Lake.

Gull's eggs are commonly eaten by the Innu and Naskapi (Clément, 2009; Weiler, 2006). Herring gulls and Iceland gulls are thought to be present in the LSA and are commonly observed at the Schefferville landfill.

The harlequin duck is associated with fast water according to the Elders. Informants confirmed that it is sometimes seen in the rapids around Lac John, but very rarely In the TSMC's DSO Project 1a LSA.

Another group with considerable importance for the Innu is the Tetraonidae family, which are sought after for their meat. Three species are commonly found in the region: the spruce grouse, the willow ptarmigan and the rock ptarmigan (Clément, 2009). Ruffed grouse is less common but is also observed in the region. Spruce grouse is the most common species, being found in summer and winter. It is reported around Howells River. Willow ptarmigan is common in the winter, also around Howells River. The rock ptarmigan is observed in the spring and fall and is found in mountainous regions near old IOC sites.



LEGEND

Migratory Bird Surveys

- Survey Area LabMag 2011
- High Concentration Area Fall - LabMag 2011
- High Concentration Area Spring - LabMag 2011

Breeding Bird Surveys

- Survey Area DSO 2008-2009
- Survey Area AECOM 2008-2009

Infrastructure And Mining Components

- Existing road
- Main access road
- Potential Road To DSO Area 4
- Proposed Railroad
- Deposit
- Proposed Howse Pit
- Proposed Topsoil/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Mine Haul Road

Basemap

- Contour Line (15 m)
- Provincial Border
- Watercourse
- Waterbody
- Wetland
- Local Study Area

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0517-00, 2014-03-26, E.D.

0 2 4
Kilometers

SCALE: 1:55 000

UTM 19N NAD 83

SOURCES:

Basemap and Bird Surveys Components
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec,
DSO 2009 - Groupe Hémisphères (2009)
Groupe Hémisphères (2012c)
AECOM (2009)

Mining Components
TATA Steel Minerals Canada Limited/
MET-CHEM Howse Deposit Design
for General Layout., 2013
Groupe Hémisphères,
Hydrology and wetland update, 2013

Bird Surveys Completed In The Vicinity

DSO Howse Property

Figure 4.5

GroupeHemispheres

4.3.6.4 Subsistence Hunting

Waterfowl is an important resource in spring (Weiler, 2009). They are also harvested during the fall migration to a lesser degree, when they tend to stop to rest on suitable water bodies or to feed on hilltops and ridges offering berries or other food. Waterfowl is not harvested close to the Project footprint. It occurs mostly along Howells River and in the Swampy Bay River basin (Weiler, 2009). The hilltops along the ridge offer staging areas for flocks of geese during the fall migration. Geese rest and feed on the northern half of the ridge, north of Kivivic Lake, attracted by the berries. Goose hunters thus come to that area in fall (Weiler, 2009).

4.3.7 Aquatic Fauna

There is extensive literature about the fish and fish habitat in the Schefferville region (Scruton, 1984; Brown, 2005; Weiler, 2009; Gartner Lee Limited, 2006). Moreover, because of the multitude of recent ongoing projects around Schefferville, many more studies have been done on fish and fish habitat, including benthos, for other mining projects (AMEC, 2009; Groupe Hémisphères and Groupe Synergis, 2010 and 2011; SNC-Lavalin, 2012b) and for road construction design (Groupe Hémisphères, 2010b and 2013c). Other baseline fish and fish habitat surveys, including benthos, were also done for the Canadian government's environmental effect monitoring (EEM) program as part of the TSMC's DSO Project 1a (Groupe Hémisphères, 2013b).

4.3.7.1 Fish Species Present in the Schefferville Region

Nearly 1,400 species of fish are found in Canadian waters, accounting for approximately 60% of Canada's vertebrate species. Eleven percent of Canada's fish species are found in freshwater habitats. Thirty native freshwater fish species are present in Newfoundland and Labrador's waterways, in addition to two exotic species. Eighteen species are found in Newfoundland, and 26 are found in Labrador (NLDEC, 2013b).

Table 4.7 lists the 12 species of fish that have been recorded in the Schefferville region and in the Howells River basin. However, according to Groupe Hémisphères (2014b), only five species are present in the LSA. They are highlighted in light blue in Table 4.7.

Table 4.7 Fish Species Present in the Schefferville Region

SPECIES	
English name	Latin name
Brook trout	*Salvelinus fontinalis*
Burbot	*Lota lota*
Lake chub	*Couesius plumbeus*
Lake trout	*Salvelinus namaycush*
Lake whitefish	*Coregonus clupeaformis*
Landlocked Atlantic salmon (Ouananiche)	*Salmo salar*
Longnose sucker	*Catostomus catostomus*
Mottled sculpin	*Cottus bairdii*
Northern pike	*Esox lucius*
Round whitefish	*Prosopium cylindraceum*

SPECIES	
English name	Latin name
Slimy sculpin	*Cottus cognatus*
White sucker	Catostomus commersoni

Species highlighted in light blue were observed in the potential impact area

4.3.7.2 Common Species

No fish species other than the ones caught in the 2013 survey Groupe Hémisphères (2014b) should be present within the LSA. There is only a slight possibility that species found lower in the Howells River valley (Howells River and mouth of tributaries) would swim upstream into the LSA since there are steep slope gradients to overcome. Nevertheless, here is a brief overview of other species usually found in similar habitats. White and longnose suckers and lake trout usually dominate the fish biomass in the larger lakes of the region, where more than 50% of the biomass is usually composed of suckers and lake trout (Scruton, 1984; Groupe Hémisphères and Groupe Synergis, 2010 and 2011; SNC-Lavalin, 2012b). Brook trout is the dominant species in the smaller lakes and often the only species present in streams. Individuals of that species have been observed in all aquatic habitat types encountered during surveys in the Howells River valley (Lee, 2006; Groupe Hémisphères and Groupe Synergis, 2010 and 2011; SNC-Lavalin, 2012b). According to Lee’s visual estimates of stream habitats, brook trout ranged in age from young of the year (0+) to five-year-old (5+) individuals. Young of the year and 1+ were usually encountered in upwelling areas, on stream margins and in small side channels. Older Brook trout (5+) were generally present in pools, deeper sections and on pond margins (Lee, July 2006). A Fisheries and Oceans Canada (DFO) gill-net survey of western Labrador lakes in 1982 indicated that lake trout accounted for 37% of the biomass of the salmonid catch in lakes (Scruton, 1984).

4.3.7.3 Benthos

Benthos sampling has also been conducted in the region on many occasions recently (AMEC Earth & Environmental, 2009; Groupe Hémisphères and Groupe Synergis, 2010 and 2011; SNC-Lavalin, 2012b; Groupe Hémisphères, 2013b and 2014b). The species found are generally the same all over the region and the greatest diversity is found in streams as opposed to lakes, which show really low diversity. The higher density found in streams indicates that streams are better feeding grounds for insectivorous fish species like brook trout. It should also be noted that a high proportion of taxons (mainly in the *Ephemeroptera*, *Plecoptera* and *Trichoptera* orders) intolerant to pollution were always caught within LSA. This is indicative of a generally good water quality since those species are the first to disappear when water quality degrades. This data thus provides good background information, since it will allow rapid monitoring of water-quality-related environmental effects on aquatic biota.

4.3.7.4 Local Habitat Distribution and Description

Table 4.8 summarizes the incidence of fish and fish habitat within the LSA. The Figure 4.6 shows all of the sampling sites investigated. Within each site, multiple sampling points were taken. The number of sampling points varied depending on the length and complexity of the site. Habitat classification shown is based on a system developed by McCarthy *et al.* (2007) that is suitable for all freshwater species found in Newfoundland and Labrador.

Table 4.8 Habitat Type and Fish Presence Summary

SITE ID	YEAR OF SAMPLING	HABITAT TYPE In decreasing order of importance	SPECIES PRESENT English name
Watercourses			
Burnetta Creek (upstream of Burnetta Lake)	2013	Flat[b]/Riffle	None
Goodream Creek	2013	Riffle/Flat[b]/Run/Rapid	Brook trout
GDR1	2013	Riffle[b]/Flat[b]	None
GDR2	2012	Rapid/Riffle	Brook trout
GDR3 (DSO3-14)	2008	Flat	None
PIN1 (DSO3-13)	2008-2013	Flat[b]/Riffle/Run	Lake chub Brook trout*
DSO3-11	2008	Run/Riffle	None
Elross Creek (DSO3-15)	2008-2012-2013	Riffle/Rapid	Brook trout
Water Bodies			
Pinette Lake	2013	Max depth 4.5 m	Brook trout Lake chub
Triangle Lake	2013	Max depth 12 m	Burbot Lake trout Round whitefish

[b] : Some segments presenting this type of habitat were braided
* All fish caught at the mouth of the stream, in the first downstream segment
Highlighted: Potentially impacted fish habitat

Burnetta Creek

This stream originates mainly from surface runoffs on the north-eastern side of Irony Mountain and flows around it and into Burnetta Lake. It is a little more than 4 km long. Its flow is permanent in its upstream section but gets intermittent in its downstream section because of excessive infiltration. This represents an obstacle to fish passage and explains the absence of fish in the stream (Groupe Hémisphères, 2014b).

Goodream Creek

This stream originates mainly from resurgence in the Timmins 4 and 6 areas. It is a little more than 4 km long. Goodream Creek is intermittent in its upstream section and gets permanent after the inflow from Goodream Lake. From this point the stream flows in a wetland area and braids in some areas. In the downstream part, the channel is close to 5 m wide and the flow rate is high. Brook trout have been caught both upstream and downstream (Groupe Hémisphères, 2013b; Groupe Hémisphères, 2014b).

GDR1

This stream originates in a wetland on the south side of Goodream Creek for which it is a tributary. It is about 800 m long. It flows in a wetland area and is braided in many places. The first downstream segment is spatially intermittent, the water flow disappearing underground in many places. This is an obstacle to fish passage and explains the absence of fish in this stream (Groupe Hémisphères, 2014b).

GDR2

This stream is the outflow of Goodream Lake, is about 600 m long and flows into Goodream Creek. It consists mainly of rapids with a few riffles and is permanent. Since fish was caught in its upstream segment, it is considered to be a fish habitat over all its length. Goodream Lake is also considered a fish habitat since no obstacle to fish passage exists between the stream and the lake (Groupe Hémisphères, 2013b).

GRD3

During July's survey, this site was considered a potential fish habitat but did not yield any fish during sampling in September. This stream is not considered a fish habitat and neither are the two ponds upstream (AMEC Earth & Environmental, 2009).

PIN1

This stream is a tributary to Pinette Lake and originates from resurgence about 600 m upstream of the lake. Brook trout and lake chub were caught in the first downstream segment, directly connected to the lake, but the channel gets really small and choked with vegetation upstream and no fish was caught in any of the other segments (Groupe Hémisphères, 2014b; AMEC Earth & Environmental, 2009).

DSO3-11

During July's survey, this site was considered a potential fish habitat, but at the time of sampling in September, this stream was dry and is therefore not considered a fish habitat (AMEC Earth & Environmental, 2009).

Elross Creek (DSO3-15)

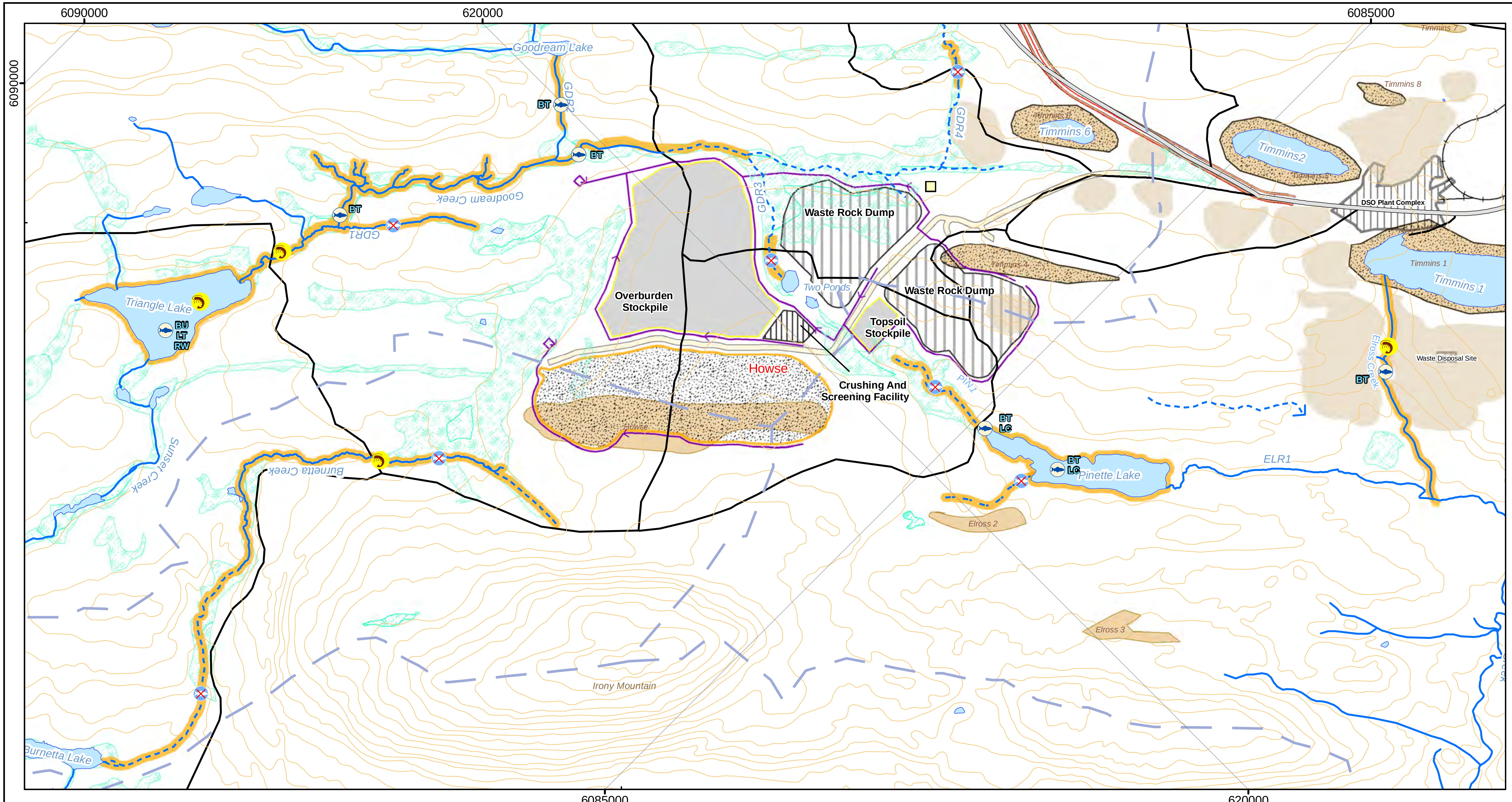
The site consisted of some moderately deep pools with overhanging vegetation providing cover for fish. The uppermost portions (outflow of Timmins 1) had little to no overhanging vegetation due to the large tailing piles on each side of the stream. This stream is a confirmed fish habitat due to the presence of fish there. Substrate consisted mostly of medium substrate intermixed with fine and coarse substrate (Groupe Hémisphères, 2014b; AMEC Earth & Environmental, 2009).

Pinette Lake

This lake has an area of about 15 ha and a maximum depth of about 4.5 m. Its substrate is dominated by silt with a few blocks, even in the littoral zone. There is a dense aquatic plant population on the north-eastern end of the lake. Both lake chub and brook trout have been caught with the gill nets and minnow traps deployed in the lake (Groupe Hémisphères, 2014b).

Triangle Lake

This lake has an area of about 21 ha and a maximum depth of about 12 m. Its substrate is dominated by silt with a few blocks, although cobbles and rubbles cover more than half of the littoral zone between zero and one meter of depth. There are some patches of aquatic plants dispersed all over the littoral zone. Lake trout, round whitefish and burbot have been caught with the gill nets and minnow traps deployed in the lake (Groupe Hémisphères, 20114b).



LEGEND

Surveys

Fish habitat

- Fish
- No fish
- Benthos
- Lake And Stream Segments Surveyed

Fish species

- BT : Brook trout
- LT : Lake trout
- RW : Round whitefish
- BU : Burbot
- LC : Lake chub

Basemap

- Permanent watercourse
- Intermittent watercourse
- Storm run-off
- Disappearing strem
- Artesian spring
- Waterbody
- Contour line (50 pi)
- Main access road
- Existing road
- Provincial Border
- Wetland
- Watershed Boundary

*Hydronyms are oriented along the direction of water flow

Infrastructure And Mining Components

- Potential Road to DSO Area 4
- Proposed Railroad
- Elross Lake Area Iron Ore Mine (ELAIOM) Plant Infrastructure footprint
- Existing Dump
- Deposit
- Other Pit
- Timmins 4 Sedimentation Pond-3
- Proposed Ditch
- Proposed Howse Pit
- Proposed Topsoil/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Sedimentation Pond
- Mine Haul Road

FILE, VERSION, DATE, AUTHOR:
GH-0470-02, 2014-03-26, E.D., J.T.

0 — 1 500

SCALE: 1:21 000 Meters UTM 19N NAD 83

SOURCES:

Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec,
Boundary used for claims,
Groupe Hémisphères, Hydrology and Wetland update, 2013

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New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/
MET-CHEM, Howse Deposit Design for General Layout, 2013

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AMEC Earth and Environmental. (2009).
Fish and Fish Habitat Investigation for the Direct-Shipping Ore Project,
New Millennium Capital Corp. Report TF8165902.
Prepared for Groupe Hémisphères, 39 pages and 3 appendices

Groupe Hémisphères (2013) Baseline Aquatic Fauna Characterization:
Elross Lake Area Iron Ore Mine (ELAIOM) Environmental Effects
Monitoring (EEM).
Field Report Submitted to TSMC, 12 pages and 2 appendices.

Groupe Hémisphères (In Progress) Howse Pit Aquatic Survey.
Technical report to be submitted to TSMC.

Fish Survey Results

DSO Howse Property

Figure 4.6

GroupeHemispheres

4.3.7.5 Species at Risk

No species of the aquatic biota found in the LSA are protected under the legislation of Canada or Newfoundland and Labrador. No other species at risk are expected to be found in the LSA.

4.3.7.6 Traditional Knowledge

The LSA does not contain many subsistence fishing areas, but the Pinette and Triangle lakes are sometimes used for recreation and fishing by the local populations. Nevertheless, locals have a thorough knowledge of the fish species present in the region.

This section describes the species observed by the Innu and the Naskapi in the Schefferville area and discusses the probability of finding these species in the LSA. The Naskapi are documented as using Elross Lake, Kivivic Lake and Fleming Lake in the Howells River basin, but not the small lakes within the LSA (Weiler, 2009).

The Innu recognize several forms of Brook trout. According to the Innu, brook trout is abundant everywhere in rivers, streams and lakes. They are known to be found in Lac John, Howells River, Elross Lake, Island Pond, Boot Lake and Lac de la Squaw. The Innu have also reported the presence of a spawning ground at Lac Star. According to several informants, the population of brook trout has increased in a number of the water bodies commonly fished (Clément, 2009).

Lake trout is a species that frequents large, deep cold-water lakes (Scott and Crossman, 1974). According to the Innu informants, it is found in Howells River. This species is already identified as present within the LSA (Groupe Hémisphères, 2014b).

Lake chub are already identified as present within the LSA (Groupe Hémisphères, 2014b). Populations are considered stable by the Innu (Clément, 2009).

Burbot is already recorded in the LSA (Groupe Hémisphères, 2014b). Populations are considered stable by the Innu (Clément, 2009).

The longnose sucker and white sucker could be found within the LSA, as their presence is confirmed in the Elross Creek catchment area and in small streams and lakes (Clément, 2009). Usually these species are the first to be caught in nets during surveys, so it is believed they are not present in the LSA, as none were caught in 2013 (Groupe Hémisphères, 2014b).

4.4 Species at Risk

4.4.1 Flora Species at Risk

No flora species at risk were observed during the surveys of terrestrial ecosystems (Groupe Hémisphères, 2011a and 2014a). An analysis of species designated by the federal government (SARA, 2013; COSEWIC, 2013) and the provincial government (NLDEC, 2013a) revealed that no species at risk might be found in the vicinity of the LSA.

4.4.2 Fauna Species at Risk

Table 4.9 shows the fauna species at risk that have been observed in the vicinity of the LSA. The species that might be present are also listed in Table 4.9. Those species are either listed federally (SARA, 2013; COSEWIC, 2013) or provincially (NLDEC, 2013a). For specific information on species at risk, see the associated descriptions in their respective sections.

Table 4.9 Fauna Species at Risk Potentially Present in the Project

SPECIES Latin name	**SPECIES** English name	**STATUS** Federal	**STATUS** Provincial	**COMMENT**
Mammals				
Gulo Gulo	Wolverine	Endangered (COSEWIC and SARA (schedule 1))	Endangered	
Myotis lucifugus	Little brown bat	Endangered (COSEWIC)		Single known species of bat in Labrador
Rangifer tarandus caribou	Woodland caribou	Threatened (COSEWIC and SARA (schedule 1))	Threatened	
Avifauna				
Asio flammeus	Short-eared owl	Special concern (COSEWIC and SARA (schedule 1))	Vulnerable	Present regionally
Catharus minimus	Migratory bird, grey-cheeked thrush		Vulnerable	Nesting confirmed locally
Contopus cooperi	Olive-sided flycatcher	Threatened (COSEWIC and SARA (schedule 1))	Threatened	
Falco peregrinus anatum /tundrius	Peregrine falcon	Special concern (COSEWIC and SARA (schedule 3))	Vulnerable	
Histrionicus histrionicus	Harlequin duck	Special concern (COSEWIC and SARA (schedule 1))	Vulnerable	Present regionally
Euphagus carolinus	Rusty blackbird	Special concern (COSEWIC and SARA (schedule 1))	Vulnerable	Nesting confirmed locally

5 DESCRIPTION OF THE SOCIOECONOMIC ENVIRONMENT

5.1 Data Limitations

The most recent Census of the Canadian population was conducted in 2011, with data released in 2012. The Government of Canada eliminated the mandatory long Census form in the 2011 Census and this has resulted in data limitations and data discontinuity. Thus 2011 Census information is limited to population and private dwelling data. Other data, previously available in the Census, may be obtained through the National Household Survey (NHS). However, the NHS is not mandatory and some data are unavailable, statistically unsound or suppressed due to the small number of responses. In these cases, 2006 Census data or other information is used.

5.2 Historic and Heritage Resources

5.2.1 Prehistoric Period (5,000 to 250 BP)

The area covered by the Project was affected by the last glaciation until at least 7,000 BP (Dubois, 1996), and it took no less than 1000 years before the site could be inhabited by the Aboriginals, once the vegetation had regrown and animals had repopulated (Richard, 1987). The first occupants may have had access to the territory as early as 6000 BP, but they are more likely to have appeared around 5,000 BP, since the first record of human presence in the area of Indian House Lake, which is located east of the studied area (Samson, 1993), dates back to that period, and since the oldest occupation of the Caniapiscau reservoir further west can be traced back to 3,500 BP (Denton, 1989).

5.2.1.1 Indian House Lake Area (Mushuau Nipi)

Between 5,000 and 3,000 BP, populations maintained economic relations with other groups located along the coast of Labrador, and obtained Ramah quartzite—the main source of which is found in the Bay bearing the same name—at the extreme north of the north-eastern tip of Labrador (Lazenby, 1980). Between approximately 3,500 and 1,600 BP, the use of beige, black or crimson chert is indicative of a larger network of interactions encompassing the Labrador Trough area, where sources of fine chert have been located (McCaffrey, 1989). While the economy of these groups focused primarily on coastal animal resources during the most ancient events, inland resources became increasingly important for populations in the recent prehistoric period (between 1,600 and 200 BP). Land occupation thus grew considerably during this time, and the elongated shape of some houses suggests the presence of several family units who hunted caribou together (McCaffrey, 1989).

5.2.1.2 Caniapiscau Area

In anticipation of large hydroelectric reservoirs in the James Bay region, the Caniapiscau area was the subject of an archeological research program of an intensity rarely matched elsewhere in Quebec that uncovered nearly 300 places of activity (Denton, 1976, 1977; Denton *et al*., 1981; Denton *et al*., 1982; Denton *et al*., 1983)

Although it has been habitable since 5,000 BP, the Caniapiscau area only welcomed its first human populations around 3,500 BP. Groups apparently hailing from the regions to the east and involved in the Ramah quartzite distribution network then occupied the territory on a seasonal basis. Surprisingly, the period between 2,100 and 1,700 BP was marked by an interruption in the territory’s occupation, with only one camp recorded during that time.

Since 1,500 BP, the territory has been continuously and intensively occupied. The content of homes reveals the significance of caribou as a means of subsistence. The long houses characteristic of the period could accommodate several family units or groups of hunters who shared diverse knowledge. Mistassini and Ramah quartzite thus circulated throughout the territory, along with chert from the Labrador Trough and perhaps certain varieties taken from the Hudson Bay and the La Grande River valley. Such a variety of raw materials clearly illustrates the openness of the residents toward the populations living to the south-west, the west and especially the east (Nolin, 1989).

The Caniapiscau region can be seen as an area of interaction between the ancestors of the peninsula's Algonquian peoples, meaning the Cree in the west and the Innu (Montagnais/Naskapi) in the east (Denton *et al.*, 1981). The continuity between the archeological collections of the end of the prehistoric period (after 1,000 BP) and those of the historic period—not only in this region, but also across the subarctic and the hemi-arctic—is indicative of both the cultural lineage between the diverse societies populating these areas and the ancestral nature of their occupation of the territory (Denton, 1989; Fitzhugh, 1972; Loring, 1984; Séguin, 1985).

5.2.1.3 Labrador Trough Area

Recognized as one of the rare sources of chert in Quebec's subarctic, the Labrador Trough was exploited by the Aboriginals as of 3500 BP because of the availability of siliceous raw materials prized for their stone size and the possibility of finding a variety of wildlife resources (McCaffrey, 1989). Despite the abundance of chert, Aboriginal people appear to have preferred Ramah quartzite. Furthermore, it is plausible that this interest in quartzite sourced from far away stimulated trade within a vast territory, thereby also promoting an extensive social network (Lazenby, 1980).

5.2.2 Historic Period (16th to 20th Century)

5.2.2.1 Aboriginal Peoples

The Innu/Montagnais

The term "Innu" has been used since the late 1980s to refer to the communities previously known as "Montagnais" and "Naskapi" (Charest et Clément, 1997). Residents of Kawawachikamach have nevertheless retained the name "Naskapi".

The ancestral territory of the Innu is linked to the St. Lawrence and Atlantic drainage basins, between Québec City and Davis Inlet (coast of Labrador). At the dawn of the era of trade with the Europeans, the Innu would assemble during summer around fish-bearing lakes located inland, on the Labrador coastline or on the coast of the St. Lawrence River. During winter, the groups would retreat deep into the forest, up to the headwaters, in order to hunt caribou, which was their primary food source at that time of the year.

During the 18th and 19th centuries, the arrival of French settlers along the coastline and the opening of trading posts both inland and in the eastern section of the Labrador Peninsula resulted in part of the Innu moving away from the coast ("Montagnais des Terres"). The Labrador Innu ("Montagnais from Lake Melville") then began taking part in these trade activities and even joined the Mingan post in 1834.

Despite efforts by missionaries to impose a sedentary lifestyle, the Innu continued to travel extensively throughout the territory in order to maintain social ties and to maintain harvesting practices. As of 1885, most Innu concentrated their activities inland, where they were involved in the intensive hunting of fur-bearing animals. In the mid-1900s, the bands associated with trading posts assembled into permanent sites such as Betsiamites, Schefferville and Happy Valley (Hamilton Inlet). The First World War (1914–1918) ended the fur trade and, after the Second World War (1939–1945), the Department of Indian Affairs began offering general access to primary education, the payment of family allowances and the creation of new reserves. The Innu communities that exist today are the result of the gradual, and often very recent, settlement of nomadic hunters at former trading posts (from which their names originate).

The Naskapi

The Naskapi are groups from the central and northern parts of the Quebec–Labrador peninsula who call themselves the *Nenenot*. The Naskapi people exploited the interior basins of Ungava and Labrador and preferred to hunt caribou over other fur-bearing animals. They took part in a trade economy that began near the end of the 18th century, and were not only present in Ungava Bay and the coast of Labrador, but also in the lower north shore of the St. Lawrence River (Lévesque *et al.*, 2001).

The closure of Fort Mackenzie in 1946 took a devastating toll on the population, which chose to head to Fort Chimo (Kuujjuaq), and was later forced to move to the Schefferville region, where Innu (Matimekush) were already living, in 1956.

5.3 Archeological Aspects

5.3.1 Previous Archeological Research and Sites with Aboriginal Components

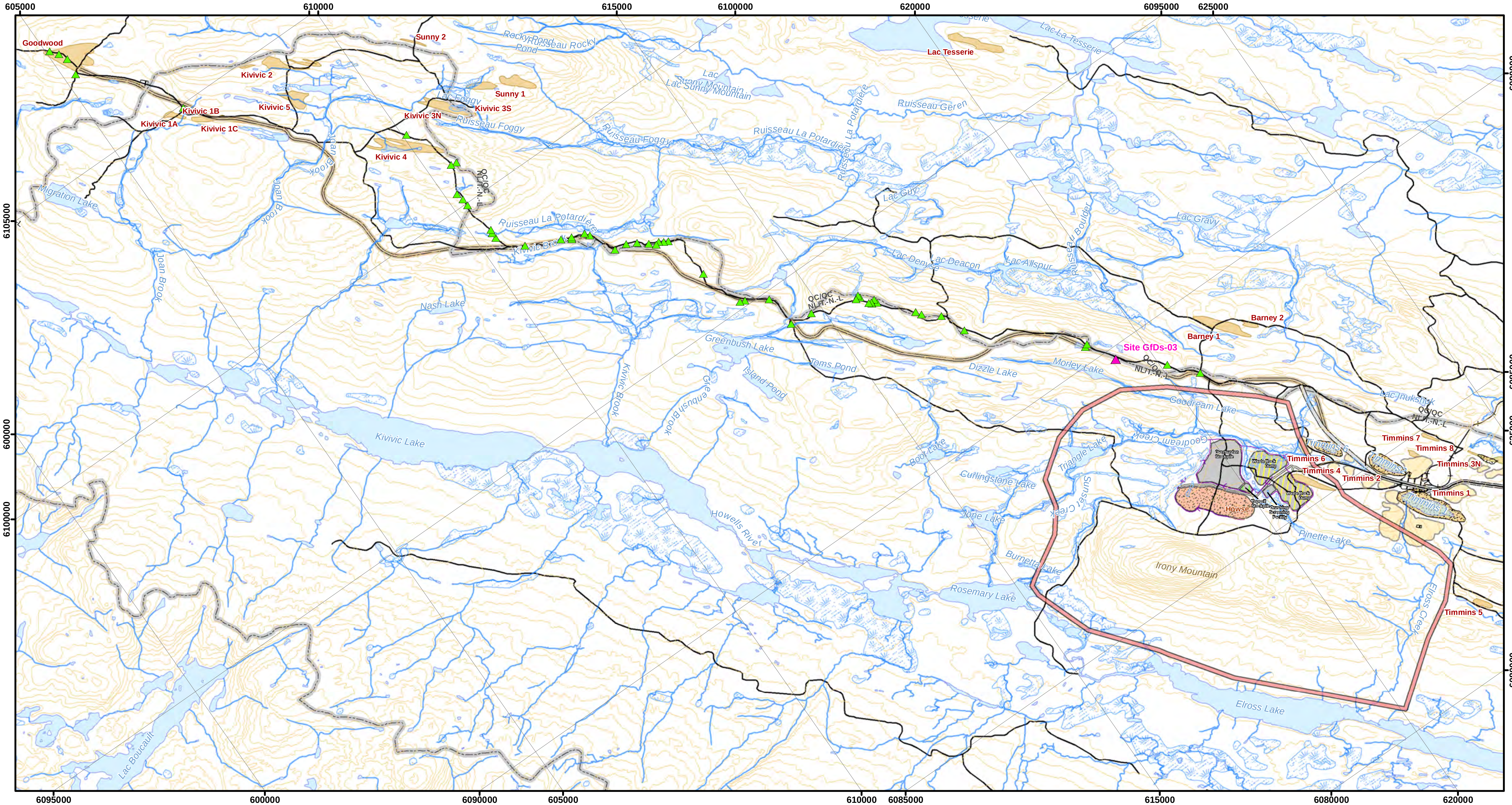
Archeological work was carried out in the vicinity of the LSA and resulted in the discovery of some prehistoric sites as well as numerous Aboriginal sites from the contemporary period. An extensive assessment of archeological potential (McCaffrey *et al.*, 2006) conducted in a pipeline assessment corridor—between Harris Lake, north-west of Schefferville, and Pointe-Noire in Sept-Îles (LabMag Iron Ore Project)—and followed by an inventory, revealed some forty recent (post-1940s) sites in the northern section of the study corridor (Figure 5.1).

An assessment of archeological potential and an archeological field work (supervision and inventory) were later conducted in 2007 (Arkéos Inc., 2008a) in the Harris Lake area, in the upper reaches of Goodwood River more specifically. Two test pits revealed the GgDu-1 and GgDu-2 sites, where three lithic tool fragments and altered stones were discovered, suggesting the presence of an ancient fireplace. The GgDu-2 site also contained seven contemporary Aboriginal camps. In July 2013, an inventory was conducted at these two sites and no additional lithic artefacts were discovered (Artefactuel, 2013). An analysis of the three relics discovered in 2007 did not find them to be noteworthy and the Borden codes were cancelled. An inventory conducted in 2011 along the Goodwood–Timmins road yielded a prehistoric site (GfDs-3) where an endscraper and a scraper, both carved in stone, were discovered on a plateau overlooking the valley of Morley Lake in Labrador (Arkéos Inc., 2012). The site is located about 3.5 km east of the Project site. During the inventory, several relics from recent camps (all connected to the existing road) were also recorded. Interestingly, an archeological inventory (Schwarz, 2006) was also conducted west of Howells River to determine if 58 chert outcrops recorded by LabMag geologists had served as sources of prehistoric lithic raw materials. The research did not show traces of human alterations associated with quarrying or any other human activities.

Another archeological inventory was carried out in 2008 (Arkéos Inc., 2008b) on properties affected by TSMC's DSO project, but it did not reveal any new archeological sites. Lastly, it bears mentioning that a Stage 1 Historic Resources Assessment was conducted in 2008 on behalf of LIM for a number of iron ore deposits including the Howse Property and that no archeological site was identified (Stantec, 2009).

5.3.2 Archeological Potential

All of the available data related to the paleogeography and geography of the Project footprint (glacial retreat, proglacial lake, climate, accessibility, surface characterization, resource availability and abundance, position in relation to travel routes, etc.) as well as the existing archeological and ethnohistorical data was used to determine the prehistoric potential.



LEGEND

Archaelogical Component

- GfDs-03 Site
- Contemporary Site

Infrastructure And Mining Components

- Proposed Howse Pit
- Proposed Topsoil/Overburden Stockpile
- Proposed Crushing/Screening Facility
- Proposed Waste Rock Dump
- Proposed Mine Haul Road
- Proposed Ditch
- Potential Road To DSO Area 4
- Proposed Railroad
- Existing Dump
- Existing Pit
- Deposit

Basemap

- Watercourse
- Waterbody
- Wetland
- Contour Line (15 m)
- Existing Road
- Main Access Road
- Provincial Border
- Local Study Area

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0477-02, 2014-02-25, E.D.

0 1 000 2 000 3 000 4 000 5 000
Meters
SCALE: 1:75 000
UTM 19N NAD 83

SOURCES:

Basemap
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec,
Boundary used for claims,
Groupe Hémisphères, Hydrology and wetland update, 2013

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
TATA Steel Minerals Canada Limited/
MET-CHEM, Howse Deposit Design for General Layout, 2013

Archaelogical Sites

DSO Howse Property

Figure 5.1

GroupeHemispheres

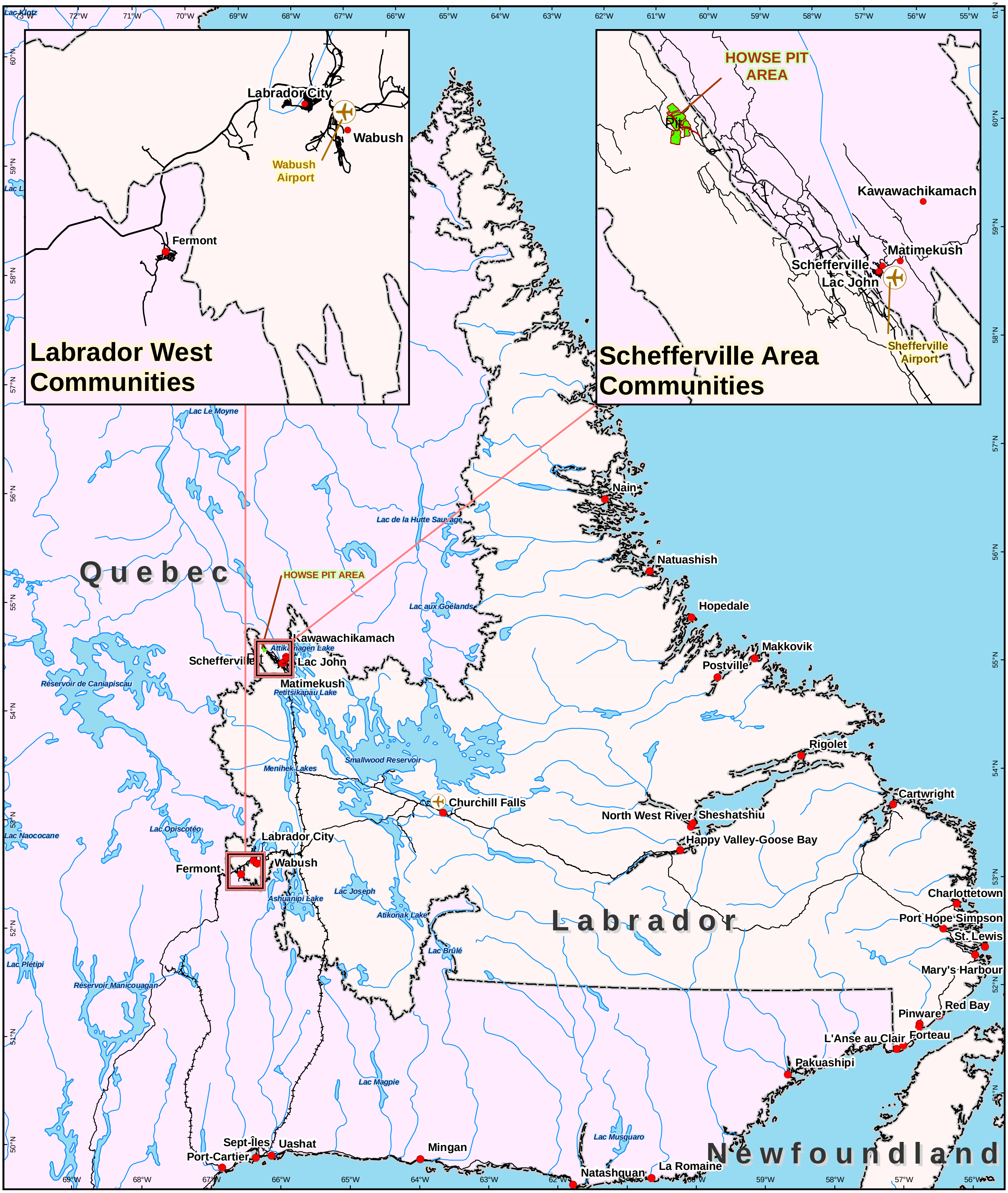
The presence of ice on the territory until about 6500–6000 BP establishes a maximum age for human colonization of the area. However, the favourable climate that followed deglaciation and the sector's rapid colonization by vegetation after glaciers melted and proglacial lakes retreated made human inhabitation possible thereafter. It is therefore plausible that there may have been a human presence in the region as early as 6,000 BP.

The studied area spans 3.5 km in a northwest–southeast direction and 2 km in a northeast–southwest direction, and its landscape varies in altitude between 600 and 700 m. Its surface materials consist primarily of moraine deposits, i.e. coarse components mixed with sand, silt and clay deposited on the bedrock, which is exposed in some areas. The area features a few low-lying areas filled with organic matter having imperfect, if not non-existent, drainage. In the southwest section, a small nameless lake flows through a series of small creeks and lakes before reaching Rosemary Lake, a northern constituent of Howells River. To reach this river, approximately 8 km of non-navigable streams must be crossed. A nameless stream is found alongside the west flank of the study area and runs through a sloping section that is not suitable for setting up camps. Goodream Creek flows into a relatively flat valley, but its surface areas are practically non-existent due to poorly drained surface materials. In short, given the environmental features, the area does not lend itself well to the establishment of human settlements. Archeological inventories conducted in Quebec's subarctic have revealed a general tendency by Aboriginals to settle in areas characterized by fine, well-drained superficial deposits situated near watercourses or water bodies that are linked to a drainage basin.

Some documented archeological sites in Quebec–Labrador, however, show that the Aboriginals used chert from the Labrador Trough to prepare certain tools as early as 3,500 BP, and around that same time, this resource began to be used in the dealings within a vast social network (McCaffrey, 1989). Still, among other things, the studied area contains fine chert that could have been utilized. Access to the studied area is nevertheless difficult and the latter is situated away from main paths and water bodies. As such, it appears unlikely that Aboriginals would have invested time and energy to reach this relatively remote area given the presence of much more accessible chert outcrops along watercourses or water bodies (McCaffrey et Denton, 1987). Furthermore, a visual inspection of the studied area was conducted in 2008 and no archeological relics were recorded at that time.

5.4 Communities and Population

The proposed Howse Property Project is located in western Labrador near the Quebec border and the nearest communities to the mine site are located in Quebec. However, the towns of Labrador City and Wabush provide regional transportation and commercial services to the Quebec / Labrador border region as shown in Figure 5.2. This section describes the various communities in the region.



LEGEND

- Town/Community
- Howse Deposit Layout

Transportation Infrastructure

- Road
- Railroad
- Airport

Basemap

- Watercourse
- Waterbody
- Provincial Boundary

Figure 5.2

Regional Context and Transportation Infrastructure

0 50 100 150 200
Kilometers

SCALE: 1:5 500 000

UTM 19N Nad 83

FILE, VERSION, DATE, AUTHOR:
GH-0472, 01, 2013-03-17, E.D.

SOURCES:

Base map
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec.

GroupeHemispheres

5.4.1 Quebec

Four Quebec communities, located in the Schefferville area, are the nearest to the proposed Howse Property mining site. The non-Aboriginal Town of Schefferville, a former IOC mining town, is located 24 km from the Howse Property. The Innu communities of Matimekush and Lac John are located near Schefferville at 24 km and 25 km (respectively) from the Property. The Naskapi Nation of Kawawachikamach (NNK) is located 25 km from the Property.

The province of Quebec recorded a population of 7,903,001 in the 2011 Census (Statistics Canada, 2013a). Population loss was evident in Schefferville between 2001 and 2011 (Table 5.1). These population changes reflect mining industry cycles. Growth is expected to continue due to mining activity.

Table 5.1 Population Change (2001-2011)

COMMUNITY	2001	2006	2011	CHANGE (10 years)	CHANGE (%)
Schefferville	240	202	213	-27	-11.3
Matimekush – Lac John*	472	544	742	+270	+57.2
Kawawachikamach*	540	569	624	+84	+15.6

* Population data for the Aboriginal communities were obtained from Aboriginal community profiles on the Department of Aboriginal Affairs and Northern Development Canada website.

Source: Statistics Canada, 2013a, 2010; AANDC, 2013a

Schefferville's population consists of mostly middle-aged people. This structure is attributed largely to the fact that experienced, middle-aged professionals move to Schefferville to provide services to the Aboriginal communities that neighbour the municipality as well as to provide labour to the mining industry (NML and PFWA, 2010).

The Aboriginal communities of Matimekush - Lac John and Kawawachikamach experienced population increases between 2001 and 2011 (Table 5.2). The population of the Naskapi Nation of Kawawachikamach (NNK) is young, with 60% of individuals under 30 years of age. The Nation Innu Matimekush – Lac John (NIMLJ) has similar characteristics with 41% of the population under 20 (NML and PFWA, 2010). The Aboriginal communities, which have had higher birth rates than non-Aboriginal communities over a number of decades, are an important component of the future labour force that will support the mining industry.

5.4.2 Labrador West

The towns of Labrador City and Wabush, referred to as Labrador West, are in close proximity to one another and generally function as one large community. The towns have similar histories as both were developed in the 1960s to support two local mining operations: IOC and Wabush Mines respectively (IOC, 2013). These municipalities are accessible by paved and gravel roads that connect to Quebec and central and eastern Labrador. A regional airport is located in Wabush.

The 2011 population of Newfoundland and Labrador was 514,526. Of this total 26,728 reside in Labrador and more than 9,000 in Labrador West (Statistics Canada, 2013a). Due to mining industry cycles, the population of Labrador West decreased between 2001 and 2006 and increased between 2006 and 2011 though not enough to compensate for the previous decline (Table 5.1). Recent strong economic activity in mining and related industries has led to increased employment opportunities resulting in permanent population growth. Given current mineral extraction and processing along with industry plans, growth is expected to continue.

Table 5.2 Population Change (2001-2011)

COMMUNITY	2001	2006	2011	CHANGE (10 years)	CHANGE (%)
Labrador City	7,744	7,240	7,367	-377	-4.9
Wabush	1,894	1,739	1,861	-33	-1.7
Total	9,638	8,979	9,228	-410	-4.3

Source: Statistics Canada, 2013a, 2010

5.5 Infrastructure and Services

The mining industry is cyclical and affects the rate of population growth or decline in communities that are largely reliant on mineral extraction. Permanent population change has the greatest effect on community infrastructure and services. Temporary populations such as construction crews and fly in – fly out workforces may not affect communities unless individuals are housed there. However, they often affect regional services such as transportation. This section discusses local and regional infrastructure and services that may be affected by changes in mining activity.

5.5.1 Quebec

The Quebec communities near the proposed Howse Property provide immediate day to day services to the mining industry in the Schefferville area.

5.5.1.1 Transportation

Schefferville is accessible by rail and air. Transport Ferroviaire Tshiuetin provides passenger and freight rail service between Schefferville and Sept-Îles. This service is operated by Tshiuetin Rail Inc., which is owned by Innu Takuaikan Uashat mak Mani-Utenam (ITUM), the NIMLJ and the NNK (TRT 2009). Tshiuetin Rail Inc. owns the approximately 200 kilometres of railroad between Schefferville and Emeril Junction, Labrador and uses the Quebec North Shore and Labrador Railway (QNS&L) for the rest of the trip to Sept-Îles.

Schefferville airport is operated by Transport Canada. Regularly scheduled flights are offered by Air Inuit and Provincial Airlines. Air Inuit operates an average of four commercial flights daily to and from Sept-Îles, Kuujjuaq, Montreal and Québec City. One commercial Provincial Airlines flight between Wabush and Schefferville arrives and departs daily three days of the week. Air Inuit, Max Airlines and SkyJet Airlines provide charter flights as required (Schefferville Airport, 2013).

The Schefferville area is not connected to the provincial highway system in Quebec or Labrador. Schefferville's internal road network is 8 km long including access roads to the airport and railway. Approximately 200 km of former mining roads are also located within the town's limits. The NNK is connected by road to Schefferville (LIM, 2009). Existing roads are also located in the Howse Property Local Study Area.

5.5.1.2 Policing and Fire Protection Services

Sûreté du Québec polices the community from a station located in Schefferville and assists the Naskapi Police Service when required. The NNK is served by the Naskapi Police Service (NPS). The NIMLJ is policed by *Sûreté du Québec* (NML and PFWA, 2010).

The Kawawachikamach Volunteer Fire Department services the NNK. Firefighting services are provided to Matimekush – Lac John by the *Ville de Schefferville* (NML and PFWA, 2010).

5.5.1.3 Accommodations and Housing

Schefferville, a former mining town, has small population and its workforce has been centered around providing services to nearby Aboriginal communities. However, Schefferville is currently experiencing capacity issues in accommodations and housing.

Detailed housing data for Quebec are available in the 2011 National Household Survey and the 2006 Census. Due to the small size of Schefferville's population, 2011 Census data is not available but the National Household Survey offers some data. In 2011, 110 private dwellings were recorded in Schefferville (Statistics Canada, 2013b).

The occupancy rate of hotels in the province of Quebec was approximately 72.5% in the third quarter of 2012 (QI, 2012). Temporary accommodations are available in the Schefferville area in four hotels that offer a total of 72 rooms (LIM, 2009). Hotel occupancy data for Quebec hotels in the region are unavailable.

The Quebec Aboriginal communities also face housing issues, particularly in capacity to house growing communities. The Naskapi Nation develops and manages housing for Kawawachikamach. Unmet housing need is so great that individuals on the waiting list for housing in 1997 remained on the list in 2008. Though no information is available to suggest that housing issues face Matimekush – Lac John, a comparison of population to available housing suggests the population is also growing, creating similar issues in 2008 (LIM, 2009).

5.5.1.4 Health

The interrelationship between health as a Valued Ecosystem Component and the ELAIOM, as well as monitoring and mitigation measures are addressed in TSMC'S DSO Project 1a (ELAIOM) EIS (NML, 2009). A component study on Aboriginal health can also be consulted in said study.

5.5.1.5 Healthcare

Healthcare is provided by the Naskapi *Centre Local de Services Communautaires* (CLSC, or Local Community Centres) at clinics in Schefferville and Kawawachikamach and at the Innu dispensary. A full time ambulance service is available. CLSC also provides emergency and preventative care, and is equipped with a radiology department, specialized services, sampling and diagnostics, administrative services and a pharmacy. It is not equipped for long term care. A dentist is shared between the Naskapi CLSC, Schefferville and Matimekush – Lac John (NML and PFWA, 2010).

A federally funded clinic in Matimekush serves the NIMLJ. The 2006 data shows that the clinic employed a doctor who also served Schefferville and the NNK, five nurses as well as social workers who specialized in addictions counselling. Specialized services are available and the clinic is equipped with two observation beds (NML and PFWA, 2010).

5.5.1.6 Education

Education in Kawawachikamach is provided by Jimmy Sandy Memorial School, which offers classes from Kindergarten to Secondary V, the Quebec equivalent of Grade 11. Education is provided to the NIMLJ by École Kanatamat Tshitipetitamunu. Classes are offered from Kindergarten to Secondary V and the primary language is French. Schefferville does not have a school and French children from Schefferville attend École Kanatamat. English children, when approved, attend school at the NNK (NML and PFWA, 2010).

5.5.2 Labrador West

The communities of Labrador West are distant from the proposed Howse Property but workers, materials and equipment for the Project will likely move through, or use services and infrastructure in, Labrador City and Wabush. This section discusses regional services that may be relevant to the population and industry of the Schefferville area.

5.5.2.1 Transportation

Labrador West transportation infrastructure includes a road / highway network. The Trans Labrador Highway, Route 500, extends from Happy Valley-Goose Bay to the Quebec border west of Labrador City. This highway does not connect to the Schefferville area.

The Quebec North Shore & Labrador Railway (QNS&L) connects Labrador West and Quebec but not to the Canadian rail network. The QNS&L was opened in 1954 to carry ore from the IOC's mine at Schefferville to the Port of Sept-Îles, Quebec. This mine closed in 1982 and the QNS&L continues to operate the rail line that extends from Emeril Junction (near Labrador West) to Sept-Îles. Tshiuetin Rail Transportation Inc. a company owned by three First Nations: Innu Takuaikan Uashat Mak Mani-Utenam, - Naskapi Nation of Kawawachikamach and Nation Innu Matimekush– Lac John operates the rail service between Schefferville and Emeril Junction.

TSMC and LIM have jointly invested over $17 million for improvements to the railway operated by Tshiuetin.

The QNS&L transports iron ore products, goods and freight for other enterprises in Labrador West (IOC, n.d.). QNS&L is a common rail carrier and each company that uses the system manages their own rail cars. Passenger rail service is available from Schefferville to Sept-Îles on Transport Ferroviaire Tshiuetin's rail service.

Wabush Airport is operated by Transport Canada with commercial flights offered by: Air Canada, Air Canada Jazz, Provincial Airlines, Air Inuit, Pascan Aviation and Air Liaison. Private charters also use Wabush Airport (TC, 2013a). The airport provides connections to points within Newfoundland and Labrador and in Quebec (Figure 5.2).

Aircraft and passenger traffic have both increased at Wabush Airport due largely to strong mining industry and construction activity (Table 5.3). Passenger movements increased by 82% between 2004 and 2010 (TC, 2010, 2013a). The total number of passenger movements exceeded 200,000 in 2012 (Dooley, 2013).

Table 5.3 Wabush Airport Passenger Movements (2004-2010)

YEAR	2004	2005	2006	2007	2008	2009	2010
Passenger Movements	54,756	57,993	67,180	71,344	86,416	78,078	99,579

Source: TC, 2010

Aircraft movements at Wabush Airport reached 25,910 in 2012 (tripled since 2009) (TC, 2013b). Aircraft movements increased most noticeably from May to October (Table 5.4). Transport Canada has developed a plan for improvements to Wabush Airport.

Table 5.4 Wabush Airport Aircraft Movements (2010-2011)

MONTH	2010	2011	CHANGE (%)
January	741	959	29
February	789	1,060	34
March	868	1,260	45
April	795	1,098	38
May	856	1,325	55
June	1,004	1,659	65
July	850	2,064	143
August	1,134	2,182	92
September	1,228	2,183	78
October	1,244	1,904	53
November	1,227	1,642	34
December	927	1,388	50
Total	11,663	18,724	61

Source: TC,2013a

5.5.2.2 Policing and Fire Protection Services

Labrador West is served by the Royal Newfoundland Constabulary (RNC) through a detachment in Labrador City. Firefighting services are provided by combined professional and volunteer municipal fire departments. Emergency response teams are available at each of the mining sites (LIM, 2009).

5.5.2.3 Healthcare

The Captain William Jackman Memorial Hospital, located in Labrador City and operated by the Labrador-Grenfell Regional Health Authority (LGRHA), serves Labrador West. The hospital is equipped for medical, surgical, obstetrical, pediatric and palliative services as well as respite and long term care. The hospital is staffed by seven physicians, one general surgeon and an anaesthesiologist. Emergency services, as well as radiology, specimen and diagnostics, dialysis, physical and speech therapy, oncology services, addictions counselling and nutrition services are also available (LGRHA, 2013).

A new acute care and long term health care facility is currently under construction and anticipated to open in 2014. This facility will offer similar services and capacity as the current facility (IOC, 2013). The healthcare centre has sufficient capacity for the current population but has difficulty filling some healthcare positions.

5.5.2.4 Education

The College of the North Atlantic (CNA) in Labrador City offers post-secondary training in a variety of trades and continuing education. The Provincial Mining Technology Centre, located at the campus, had 150 students registered for full time studies in 2010-2011 (IOC, 2013). CNA in Labrador City is an important training facility for the mining industry.

5.6 Economy, Employment and Business

The economy of the Quebec Labrador border region is dependent on a geological area known as the Labrador Trough. Interest in mining in this area continues to increase as a result of global demand for mineral resources. The two operating Labrador West mines (IOC and Wabush Mines) have been active since the early 1960s. Currently, mining companies are making major investments in the iron ore industry in the Labrador Trough (IOC, 2013).

Various mining companies such as TSMC, LIM and NML are investing in a number of projects in the Howell's River area and former IOC site near Schefferville. As per the Benefits Plan agreement signed with the Government of Newfoundland and Labrador, residents from this province will continue to make-up a majority of the workforce and Newfoundland and Labrador businesses and particularly Labrador West businesses will continue to supply goods and services to support the mining industry in the region (TSMC, 2013).

The economy of the province of Quebec relies heavily on manufacturing, sales and service, as well as employment in government services. However, communities in the Quebec Labrador border region are mainly reliant on the mining industry. Strong employment and participation rates are evident, due largely to mining activity. The participation rate and employment rate in Schefferville is higher than the provincial average (Statistics Canada, 2013a). Matimekush – Lac John and Kawawachikamach have lower participation and employment rates than the provincial average (AANDC, 2013a) (Table 5.5).

Table 5.5 Labour Force Characteristics, Quebec Communities (2011)

COMMUNITIES	LABOUR FORCE INDICATORS			
	Labour Force Over 15	Participation Rate	Employment Rate	Unemployment Rate
Schefferville	175	88.6%	80.0%	9.7%
Matimekush – Lac John	375	61.8%	40.8%	30.9%
Kawawachikamach	365	47.2%	38.9%	23.5%

*The most recent data available for the Aboriginal communities of Matimekush – Lac John and Kawawachikamach, is from 2006
Source: Statistics Canada, 2013b; AANDC, 2013b

The majority of Aboriginal people in both Kawawachikamach and Matimekush – Lac John are employed in trades related work and sales and services (AANDC, 2013a) (Table 5.6). Over the last year, LIM employed approximately 60 Aboriginal workers, from Kawawachikamach (15) and Matimekush – Lac John (45) during its seasonal operation at the James Mine. More than 100 Aboriginal men and women, primarily from Matimekush – Lac John and Kawawachikamach, were employed on TSMC's DSO Project 1a in 2013. They were employed in various areas including exploration, infrastructure maintenance, heavy equipment operations, safety and security, blasting, food preparation and transportation.

Table 5.6 Labour Force by Sector, Quebec Communities (2006)

ECONOMIC SECTOR	MATIMEKUSH – LAC JOHN*	KAWAWACHIKAMACH*
Agriculture, Resource-Based	10	10
Manufacturing, Construction	10	20
Wholesale, Retail	20	10
Finance, Real Estate	0	0
Health, Education	70	45
Business services	10	15
Other Services	135	110

Source: AANDC, 2013b

The economies of these Quebec Aboriginal communities, as well as Schefferville, have lacked diversity (Table 5.7). Since the closure of the IOC mine at Schefferville, the area's economy has mainly been based on the outfitting industry which is in decline in this area. The economy has been based on providing government services such as education and healthcare and infrastructure and services such as power generation, airport, transportation and various commercial and retail services. However, the mining industry has created new opportunities. Local businesses now supply services to the mining industry including catering, housekeeping, communications, construction, transportation and heavy equipment rental (NMCC 2010 [Goodwood, Leroy, Sunny] (over $150 million worth of goods and services have been acquired from Aboriginal businesses and partnerships since the beginning of TSMC's DSO project).

Table 5.7 Labour Force by Industry, Quebec Aboriginal Communities (2006)

INDUSTRY	COMMUNITIES	
	MATIMEKUSH – LAC JOHN	KAWAWACHIKAMACH
Management	30	25
Natural Sciences, Health	10	10
Social Sciences, Government	50	30
Sales and Service	85	50
Trades and Related	55	60
Primary Industry	10	10
Other Occupations	20	35

Source: AANDC, 2013b

Matimekush – Lac John

Members of this Innu Nation work most commonly in construction and manufacturing, health and education, and the service industry. Other employment opportunities exist in both Aboriginal-owned and non-Aboriginal-owned businesses (Table 5.8).

Table 5.8 Businesses Owned in Whole or in Part by the NIMLJ

NAME	SERVICES PROVIDED
Tshiuetin Rail Transportation Inc.	Freight and passenger service between Emeril and Schefferville
Société de gestion Innu	Heavy machinery rental, construction and renovation, public works
Artisanat Innu	Innu craft sales
Dépanneur MLJ	Food and convenience store
Restaurant Chez Rita	Restaurant
Transport Montagnais	Trucking and passenger service (operations suspended)
Schefferville Airport Corporation	Airport operation and maintenance

Source: NML and PFWA, 2010

Training programs have been delivered in disciplines relevant to current and future mining activities. Courses include heavy equipment operations and truck driver Class 1 and Class 3. On-the-job training has been provided in health and safety, security, heavy equipment operation, food preparation, housekeeping, mining exploration and sampling.

Kawawachikamach

Members of the NNK work for the community in administrative positions, with the Public Works Department and at the community centre / recreation facilities. Naskapi also work in government services such as healthcare, policing, education and childcare. Others are employed in computer science, engineering and automotive repair. A number of businesses owned by the Naskapi Nation provide employment related to mining activity (Table 5.9).

Table 5.9 Businesses Owned in Whole or In Part by the NNK

NAME	SERVICES PROVIDED
Béton Naskinnu LP	Fresh concrete supply. Pre-fabricated concrete structures
Innu Namesu Ltd.	Drilling and blasting
Kawawachikamach Energy Services Inc.	Electrical line installation and maintenance
Naskapi Adoschaouna Services	Freight transportation and general construction contractor
Naskapi Catering Inc.	Catering and housekeeping services
Naskapi Heavy Machinery LP	Rock crushing. Civil works, landscaping. Road construction and maintenance. Mining (clearing, stripping, haulage, stockpiling, etc.)
Naskapi Imuun Inc.	Internet, telephone, radio and cellular services. Telecommunications infrastructure design and installation
Naskapi Waste Management	Collection and disposal of hazardous waste. Contaminated soil remediation. Distribution of safety products and gases (Linde)
Pimi Naskinnuk LP	Fuel supply and distribution. Construction and operation of tank farms
Tshiuetin Rail Transportation Inc.	Rail transportation (passenger, freight and ore)

NAME	SERVICES PROVIDED
X-Pijiit	Expediting and logistics services

Source: Coggan, 2013

Training programs in a number of fields have been delivered to Naskapis since 1992. These include crafting, carpentry, construction and more recently, heavy equipment operations, truck driving territorial Class 1 and Class 3, health and safety officer, crusher operator, waste management specialist, welding, telecommunications and mineral prospecting.

Schefferville

Since the 1982 mine closure, Schefferville's economy had contracted, to primarily provide basic retail, commercial and infrastructure services to nearby Matimekush – Lac John and Kawawachikamach. Residents of Schefferville also work in government agencies that deliver healthcare, education, transportation and other services to the communities of the area. However, during the last five years mining activity has served to diversify the economy which includes occupations in business, management, transportation and equipment services.

Workers in Schefferville have a relatively high level of post-secondary education (Table 5.10) (Statistics Canada, 2013b). This can be attributed to the fact that many Schefferville residents are mainly employed in education and healthcare for the NIMLJ and the NNK. Workers also fill positions with Transport Canada, and in other public and private organizations (NML and PFWA, 2010).

Table 5.10 Schefferville Labour Force by Sector (2011)

OCCUPATION / SECTOR (SELECT)	EMPLOYED (#)
Health	10
Education, Law and Social, Community and Government Services	45
Manufacturing and Utilities	0
Sales and Services	30
Management	15
Business, Finance and Administration	10
Natural and Applied Sciences and Related Occupations	0
Art, Culture, Recreation and Sport	0
Trades, Transport and Equipment Operators and related	25
Natural Resources, Agriculture and Related Production	0
All Occupations	135

Source: Statistics Canada, 2013b

5.7 Land, Water and Resource Use

5.7.1 Environmental Implications of Past Land Use

As opposed to the Timmins sector, contamination of the Howse Property site from past land use is unlikely, since there has not been any heavy industrial or similar activity carried out in the vicinity of the Project. However, it should be noted that this area has been marginally disturbed by road and exploration (trenching and exploration drilling) of past and present mining activities.

5.7.2 Aboriginal Land, Water and Resource Use for Traditional Purposes

Several Aboriginal communities and/or their traditional territories occur within or overlap with the Labrador West region and/or adjacent areas of Quebec, including the:

- Labrador Innu (Sheshatshiu and Natuashish, Labrador, as represented by Innu Nation);
- NunatuKavut Community Council (NCC) (Labrador);
- NNK (Québec);
- NIMLJ (Québec); and
- ITUM (Québec).

A number of these and other Aboriginal communities and organizations in Labrador and Québec claim and assert Aboriginal rights and/or title to areas of Labrador, including parts of western Labrador (Figure 5.3). The land claims and rights assertions of these groups are at varying stages of acceptance, negotiation and settlement.

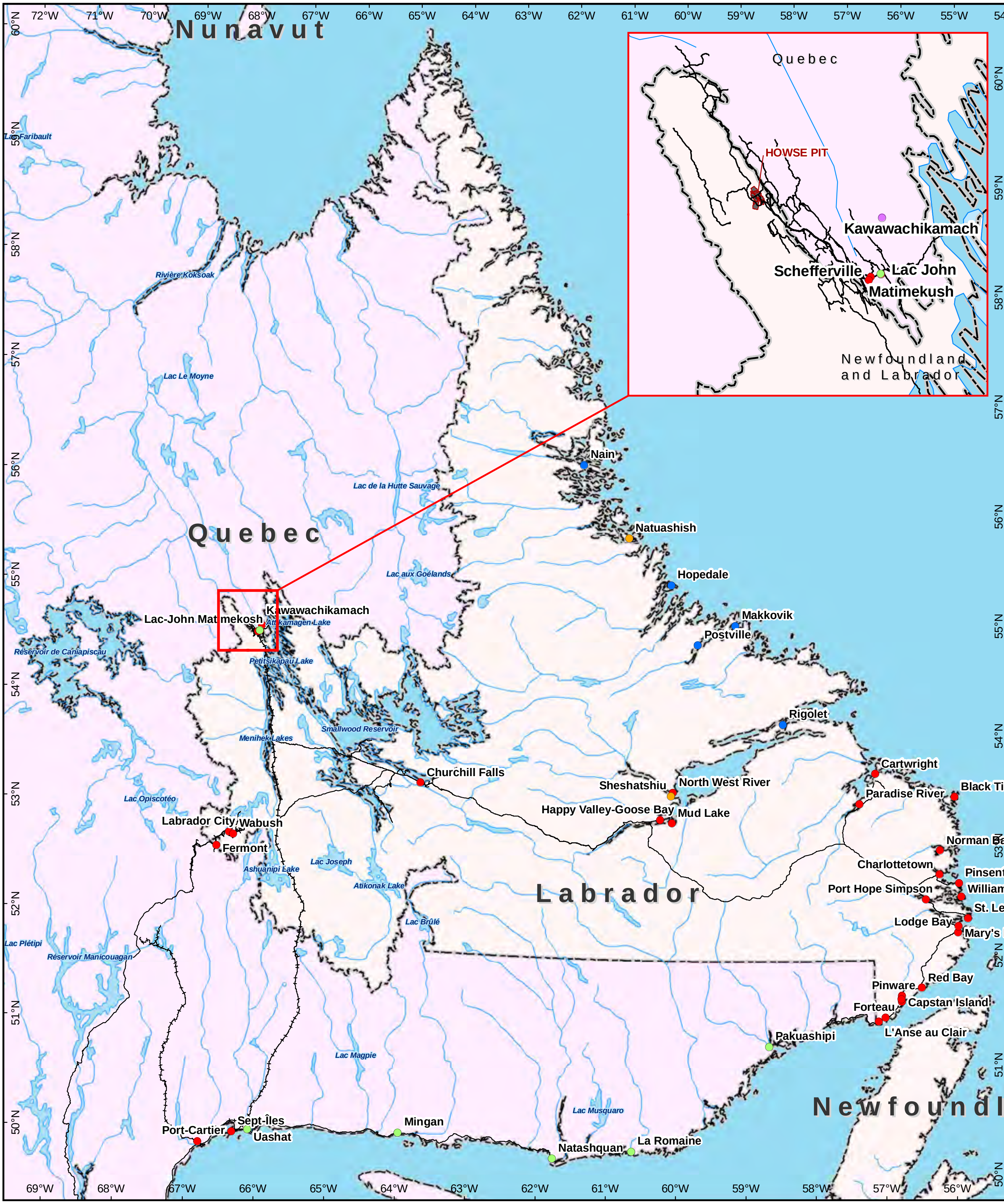
Aboriginal traditional uses are often considered to refer to the practices, traditions and customs that distinguish the distinctive culture of an Aboriginal group and which were practiced prior to European contact and control, and can include, for example, hunting or fishing for food and ceremonial purposes. Section 35 of the *Canadian Constitution Act* (1982) recognizes and affirms the existing Aboriginal and treaty rights of the Indian, Inuit, and Metis peoples of Canada, the existence, nature and scope of which have been further defined through land claim and other agreements (treaties) between governments and particular Aboriginal groups in specific areas, as well as through various legal decisions.

The following sections provide an overview of these relevant Aboriginal groups and their known current use of land, water and resources for traditional purposes. It is not the purpose or intent of this document to evaluate or comment on the overall question of whether or not one or all of these groups possess Aboriginal rights or title in or near the Project area and/or the nature of any such rights, or indeed, whether any such current land, water and resource activities are being undertaken as the assertion of an Aboriginal right.

5.7.2.1 Labrador Innu

The Innu (previously known as Montagnais and Naskapi Indians) are indigenous inhabitants of an area they refer to as Nitassinan, which comprises much of the Québec-Labrador Peninsula. They were traditionally a nomadic people, whose movements responded to the seasons and to the migrations of the animals they relied upon.

The Innu of Labrador currently number about 2,500 and reside primarily in two communities - Sheshatshiu in Central Labrador and Natuashish on the Labrador North Coast (AANDC, 2013c). The Sheshatshiu Innu and the Mushuau Innu of Natuashish comprise separate bands, with each community currently a reserve with an elected Chief and Council. Both communities are represented by Innu Nation in land claims negotiations and on other matters of common interest.



LEGEND

Communities
- Labrador Innu Community
- Quebec Innu Community
- Quebec Naskapi Community
- Labrador Inuit Community
- Other Select Communities

Basemap
- Road
- Railroad
- Watercourse
- Waterbody
- Provincial Boundary

Figure 5.3

Relevant Aboriginal Communities in Labrador and Quebec

0 50 100 150 200
Kilometers

SCALE: 1:5 500 000

UTM 19N Nad 83

FILE, VERSION, DATE, AUTHOR:
GH-0471, 2014-01-09 , E.D.

SOURCES:

Base map
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec.

GroupeHemispheres

The Labrador Innu claim Aboriginal rights and title to much of Labrador. In September 2008, the Government of Newfoundland and Labrador and Innu Nation announced the signing of the *Tshash Petapen* ("New Dawn") *Agreement*, which resolved key issues relating to matters between the Government of Newfoundland and Labrador and Innu Nation surrounding the Innu land claim, as well as impacts and benefits related to past and proposed hydroelectric developments in western and central Labrador. Since that time, the provincial and federal governments and Innu Nation have completed detailed agreements on these matters, including a tripartite *Labrador Innu Land Rights Agreement-in-Principle* (AIP), which were ratified by the Innu on June 30, 2011 and signed by the three parties on November 18, 2011.

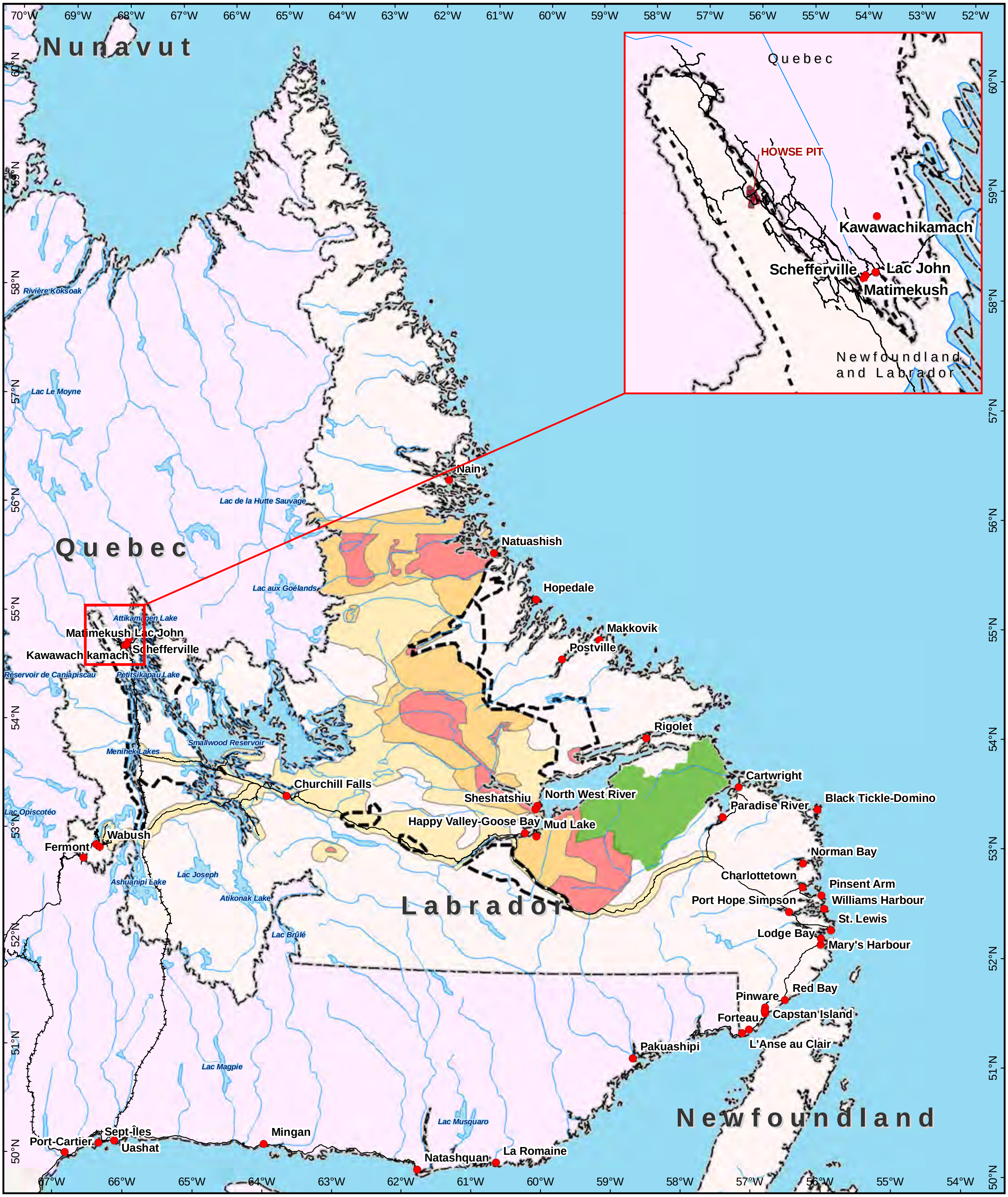
The AIP sets out jurisdictions, rights, benefits and limitations for the Labrador Innu in a variety of subjects, which are tied directly to specific geographic areas. There are various types of lands referenced in the AIP (Figure 5.4), including (NLIAAS, 2013):

- *Labrador Innu Lands (or LIL, Category 1)* are lands comprising an area of 12,950 km^2 which would be held by the Labrador Innu and under the administration and control of the Labrador Innu government as of the effective date of a *Final Land Claims Agreement*;
- *Labrador Innu Settlement Area (or LISA, Category 2)* comprises 36,260 km^2 of lands and waters that include LIL, and within which the Labrador Innu will be entitled to a variety of rights and benefits, including resource harvesting and management;
- *Permit-Free Hunting Area (Category 3)* comprises 33,670 km^2 of lands and waters where the Innu would have the right to harvest wildlife without obtaining a licence or permit; and
- *Economic and Hydroelectric Major Development Impacts and Benefits Areas* would give the Innu the right to Impact and Benefit Agreements (IBAs) for "Major Developments" as defined in the AIP.

As illustrated in Figure 5.4, the proposed Project does not overlap or otherwise interact with land areas that have been designated as LIL (Category 1), LISA (Category 2) or Permit-Free Hunting Areas (Category 3) under the current Labrador Innu Land Claims AIP. The proposed Project site is approximately 120 km away from the closest area of Category 3 lands in western Labrador, and is well over 200 km from any designated Category 1 or 2 Lands. It is also located approximately 480 km from Sheshatshiu and 410 km from Natuashish.

The proposed Project site is located within the Western Labrador Economic Major Development Impact and Benefits Agreement Area (Figure 5.4), which under an eventual Final Land Claims Agreement would see the Innu having the right to IBAs for "Major Developments", as defined specifically in the Agreement.

The current Labrador Innu Land Claim AIP is not legally binding, and will form the basis for on-going treaty negotiations.



LEGEND

- Labrador Innu Lands (LIL) Category I
- Labrador Innu Settlement Area (LISA) Category II
- Labrador Innu Settlement Area (LISA) Category III
- Mealy Mountain National Park Reserve
- Economic Development Areas (Labrador Innu would have impact benefit agreements for major developments)

Basemap

- Road
- Railroad
- Watercourse
- Waterbody
- Provincial Boundary

Figure 5.4

Labrador Innu Land Claims AIP Area

0 50 100 150 200
Kilometers

SCALE: 1:5 500 000

UTM 19N Nad 83

FILE, VERSION, DATE, AUTHOR:
GH-0471, 2014-01-09 , E.D.

SOURCES:

Base map
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec.
Labrador Innu land Claim
Adapted from AANDC (2013)

GroupeHemispheres

In terms of known current land, water and resource use activities for traditional purposes, Armitage (1989) depicts the approximate boundaries of the Sheshatshiu Innu territory in approximately the first half of the 20th century, the general limits of which included an area extending west from Sheshatshiu along the Churchill River to Churchill Falls, with a number of other locations within the general Western Labrador / Eastern Québec region also reportedly used by Labrador Innu (including the Ashuanipi River, Ashuanipi Lake and Lac Joseph, east of Wabush) (Tanner, 1947; Mailhot, 1986; Armitage, 1989, 1990). Existing and available information indicates that there are presently three core areas for traditional land and resource use activities by the Sheshatshiu Innu (Mailhot, 1997; Armitage and Stopp, 2003):

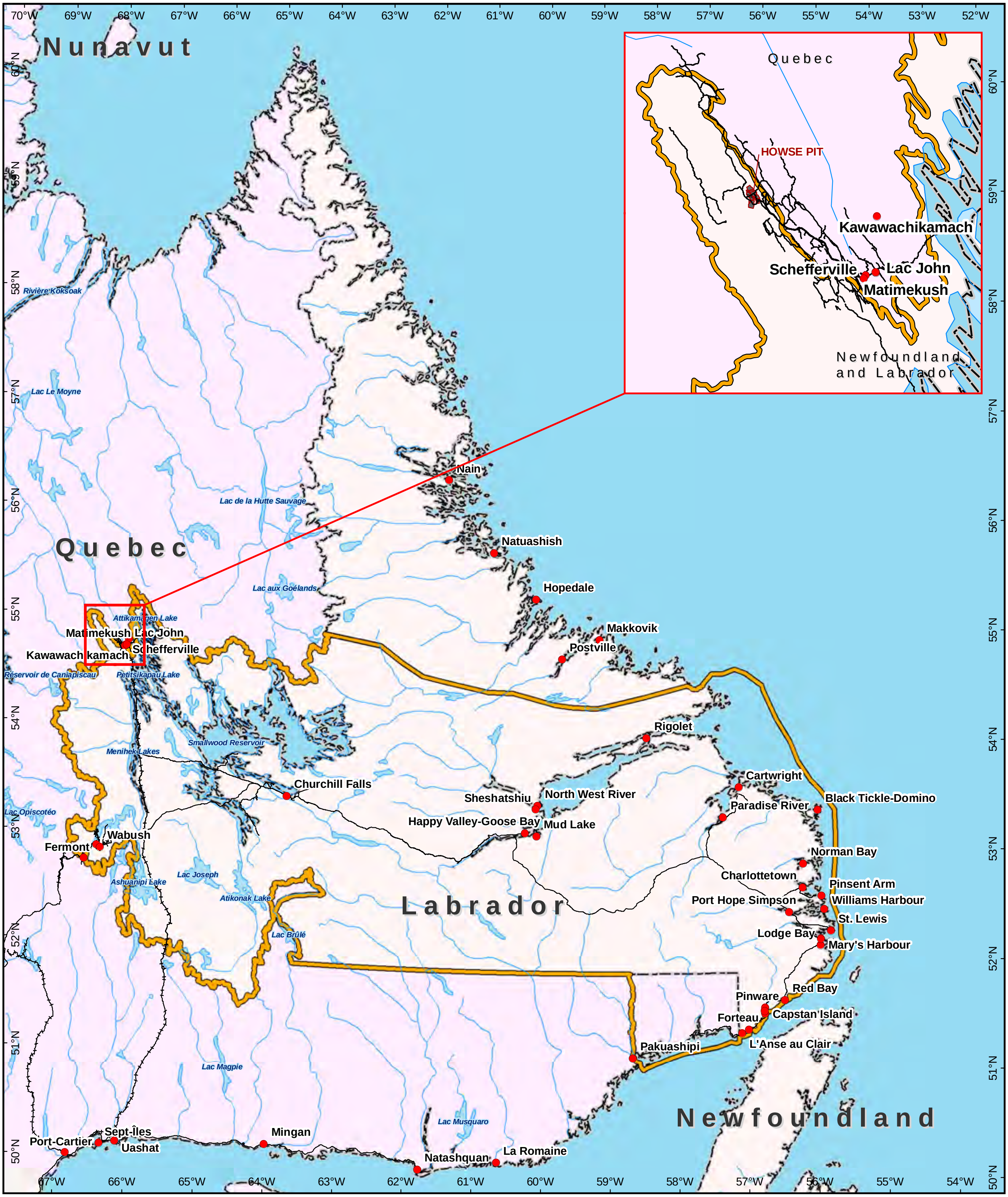
- The hub of activity remains the group of lakes at the headwaters of Eagle River in southeastern Labrador and its tributaries, which had been an important area since pre-settlement times;
- An area of Central Labrador bounded by Uinnukapau (Winnokapau Lake) in the south, Smallwood Reservoir (formerly Mishikamau) in the west, Atshuku-nipi (Seal Lake) in the north, and Nipishish (Nipishish Lake) in the east; and,
- An area centered on three lakes – Ashuapamatikuan (Shipiskan Lake), Ashtunekamuku (Snegamook Lake), and Shapeiau (Shapio Lake).

Each of the identified core areas for current Labrador Innu land, water and resource use is located outside of the proposed Project area. Land use in these main areas is now also supplemented by Innu harvesting along the Trans Labrador Highway (TLH) and various secondary roads between Happy Valley-Goose Bay and Western Labrador (Armitage and Stopp, 2003; Armitage, 2010). Current land and resource use by the Labrador Innu therefore appears to be focussed in areas of central and southeastern Labrador, and while there is reportedly some activity in western Labrador (particularly along the TLH, Esker Road, etc.), available information does not indicate that such activities take place within or near the proposed Project area.

5.7.2.2 NunatuKavut

The NCC, formerly the Labrador Metis Nation, (LMN) reports a membership of over 6,000 persons who reside primarily in southeastern and central Labrador and who are descendants of Inuit and Europeans who traveled to Labrador in the 1700-1800s (NCC, 2013).The NCC’s membership live throughout Labrador and elsewhere, particularly in the communities along the southeast coast from Hamilton Inlet south to the Labrador Straits, including the towns of Cartwright, Charlottetown, Port Hope Simpson, St. Lewis and Mary’s Harbour and the communities of Paradise River, Black Tickle-Domino, Norman Bay, Pinsent’s Arm, Williams Harbour and Lodge Bay, as well as in central and western Labrador. As illustrated in Figure 5.5, the NCC has asserted a land claim that covers much of central and southeastern Labrador, including the area of western Labrador in which the proposed Project will occur, but this has not been accepted for negotiation by the federal or provincial governments.

The available information indicates that the traditional trapping areas of this group extended through southeastern Labrador to the Churchill River and included trap lines up to the “Height of Land” in Western Labrador (LMN, 2009). NCC members continue to rely upon the resources of the land, the water and the sea (NCC, 2013), and are known to undertake land use and harvesting activities throughout Labrador. These include hunting for large and small game, fishing and harvesting vegetation for food, traditional medicines, firewood and other purposes (Martin, 2009; LMN, 2009; NCC, 2010a, 2010b).



LEGEND

NunatuKavut Land Claim within Labrador

Basemap

- Road
- Railroad
- Watercourse
- Waterbody
- Provincial Boundary

Figure 5.5

NunatuKavut Community Council Land Claim within Labrador

0 50 100 150 200
Kilometers

SCALE: 1:5 500 000

UTM 19N Nad 83

FILE, VERSION, DATE, AUTHOR:
GH-0471, 2014-01-09 , E.D.

SOURCES:

Base map
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec.
Aboriginal datas
Adapted from Alderon Iron Ore Corp (2012)

GroupeHemispheres

A 2012 Land Use Study of NCC in the area of current and potential future iron ore mining in Western Labrador indicated that NCC members residing in Western Labrador undertake a variety of land and resource use activities in the region, including hunting, fishing, berry picking, camping and associated travel across the land. That study did not record any indication of current land, water or resource use by NCC members in or near the proposed Project area.

5.7.2.3 Nation Innu Matimekush - Lac John

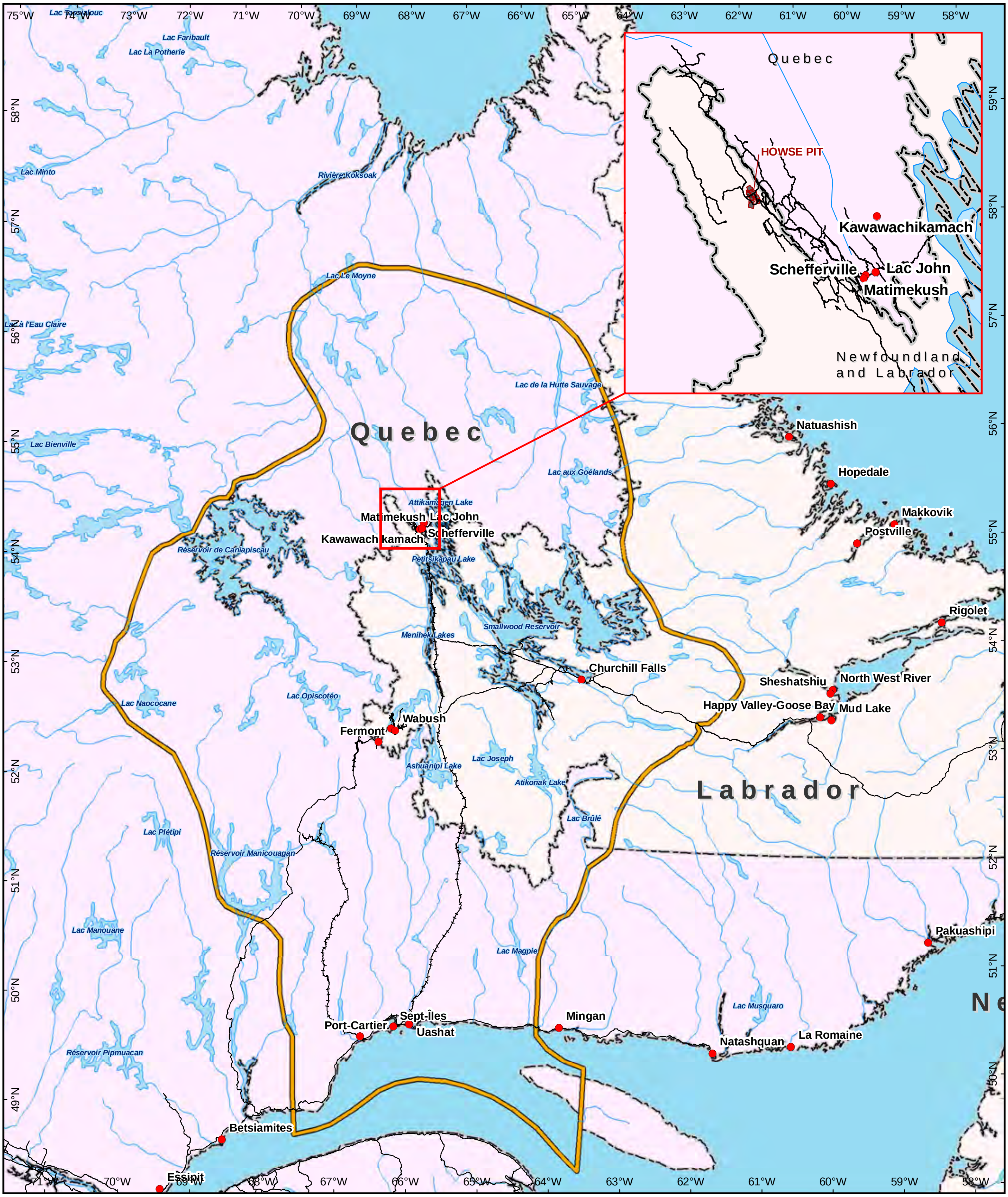
In addition to Aboriginal persons and communities in Labrador, a number of Québec Aboriginal groups, including First Nations that reside in the Schefferville area and along the Québec North Shore, claim Aboriginal rights and/or title to parts of Labrador, including several groups that claim lands and assert such rights in western Labrador. Québec Innu and Naskapi undertake land use and harvest resources in that province as well as into Labrador, including in the general vicinity of existing and proposed mining projects in the region. The land claims asserted by Québec First Nations for territory in Labrador have not been accepted for negotiation by the Government of Newfoundland and Labrador.

Matimekush and Lac-John have a combined population of approximately 800 persons (AANDC, 2013c). Both reserves are jointly administered by Conseil de la Nation Innu Matimekush-Lac John, and are located approximately 25 km from the proposed Project site.

The NIMLJ are descendants of an Aboriginal population that has traditionally occupied much of the Québec-Labrador Peninsula. The members of this Québec Innu First Nation share close cultural and familial ties with ITUM, with whom they share a vast traditional territory that covers much of the Québec-Labrador Peninsula and extends down to the coast of the Québec North Shore (Figure 5.6), and they follow a similar pattern of land use and harvesting. Traditionally, these Innu traveled to summer camps at the mouth of the Sainte-Marguerite and Moisie rivers to fish, trade and gather. Because of decreases in the number of caribou and the closing of key trading posts in the interior in the late nineteenth century, many Innu moved seasonally to the coast and to the north, and eventually, to the Schefferville area to work on the railway or in the mines (Charron, 1994).

The Innu of Matimekush-Lac John currently maintains many aspects of their traditional way of life and culture. Like other Aboriginal and northern communities, hunting, fishing, and other such activities form a key part of their food supply and overall culture. The current cycle is characterized primarily by the fall hunting of caribou, though presently more difficult due to the remarkable decline of the George River herd, waterfowl hunting in spring, and berry picking and other gathering in summer, with fishing and small game hunting taking place year round (Clément, 2009). Although historically the travel routes and associated activities of the Innu extended through the western Labrador region (CAM, 1983), in recent years travel into the interior has been somewhat reduced and land use has been more focussed on areas nearer to the communities and especially, the vicinity of existing access roads and other linear infrastructure such as the railway connecting Schefferville to Sept-Iles, Quebec. (CAM, 1983; Clément, 2009). However, there are established travel routes to the east of the Project area within Quebec, which have been used to reach hunting areas further north, and the associated practice of various harvesting activities (such as goose hunting and berry picking) and Innu toponyms in adjacent parts of Labrador including the Howell's River Valley and surrounding areas (Clément, 2009 – See Figures 5, 8, 9 and others in this report).

During recent consultations related to this Project, representatives of the First Nation also described the presence of Irony Mountain (Kauteitinat) site near the Project area, and discussed its importance to the Innu (see Section 6).



LEGEND

Ancestral Territory of the innu of Uashat mak Mani-Utenam and Matimekush-Lac John

Basemap

- Road
- Railroad
- Watercourse
- Waterbody
- Provincial Boundary

Figure 5.6

Traditional Territory of the Innu of Uashat mak Mani-Utenam and Matimekush-Lac John

0 50 100 150 200

Kilometers

SCALE: 1:5 500 000

UTM 19N Nad 83

FILE, VERSION, DATE, AUTHOR:
GH-0471, 2014-01-09 , E.D.

SOURCES:

Base map
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec.
Aboriginal datas
Adapted from Alderon Iron Ore Corp (2012)

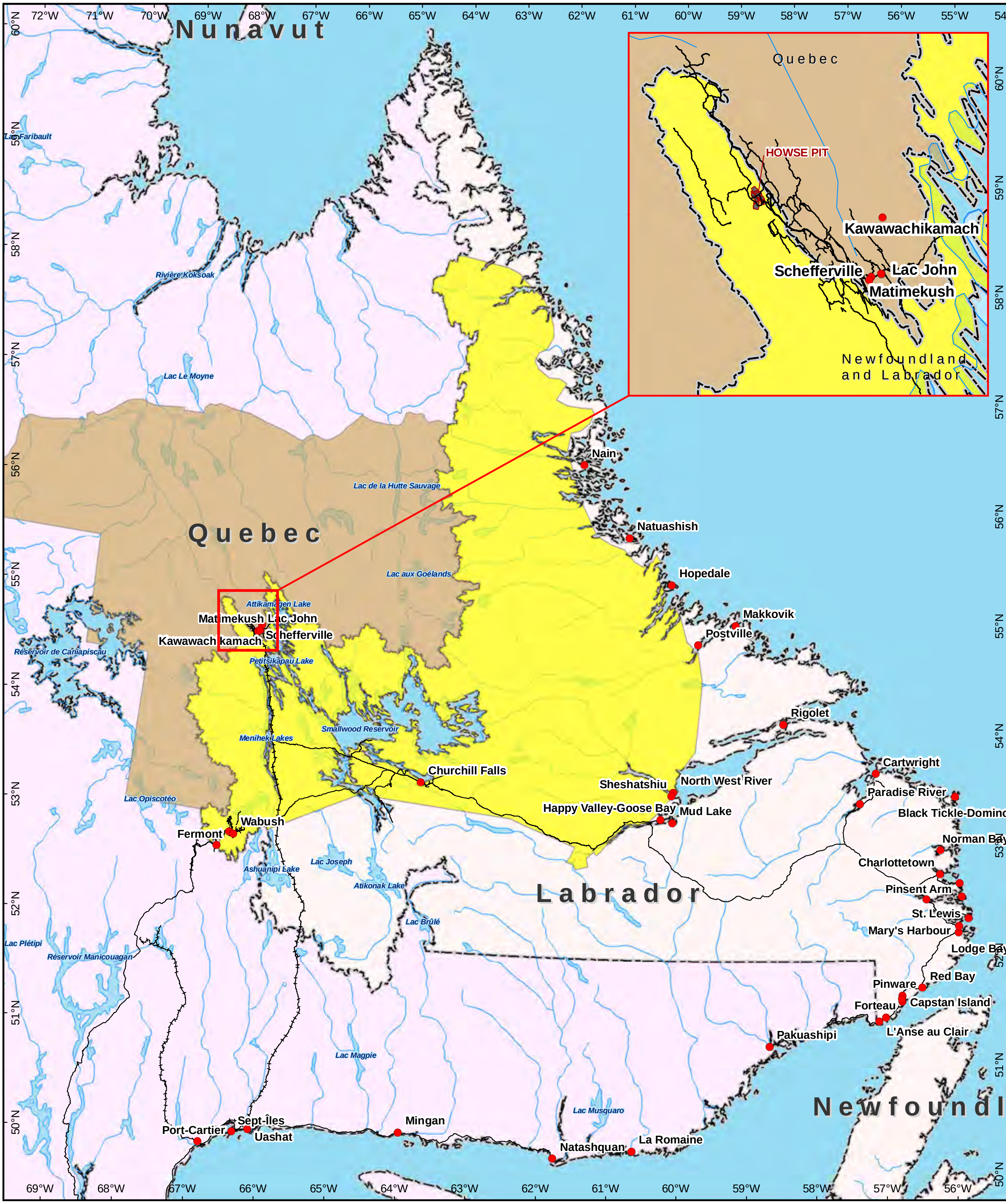
GroupeHemispheres

5.7.2.4 Naskapi Nation of Kawawachikamach

The NNK number approximately 700 persons, of which over 600 reside in the community of Kawawachikamach itself (AANDC, 2013c), which is located approximately 8 km northeast of Schefferville and approximately 25 km to the southeast of the proposed Project area. The mother tongue of the NNK members is Naskapi, although many also speak English. The NNK signed a comprehensive land claims agreement, the *Northeastern Québec Agreement* (NEQA), with the Governments of Quebec and Canada in 1978 which settled the Naskapi's claims of Aboriginal rights and title in Québec (Figure 5.7). The NNK members continue to assert Aboriginal rights and title to a large portion of Labrador, having submitted a Statement of Claim for this area in 1995 which remains unresolved.

Archaeological evidence indicates that the Naskapi and their ancestors have utilized the northern part of the interior of the Québec-Labrador Peninsula for the past several thousand years (see Section 5.2.2). Traditionally, the Naskapi were a nomadic people who followed the migrations of the George River caribou herd across what is now northeastern Québec and northwestern Labrador (Weiler, 1992). The Naskapi settled near Schefferville, Québec after several key factors altered their traditional land and resource use activities, including their increased participation in the fur trade (beginning in the 1800s) as well as twentieth century mining developments near the Québec-Labrador border (Weiler, 1992).

The *NEQA* outlines the NNK's traditional territory within Québec, which encompasses much of the northern portion of that province. Land, water and resource use occurs throughout the lands set out in the *NEQA*, although some travel routes and campsites have also been identified within parts of Labrador, including in the Smallwood Reservoir area (Henriksen, 1978). Activities such as hunting, trapping and fishing remain important to the culture and economy of the Naskapi, whose members continue to pursue these activities near Kawawachikamach, along the TLH and QNS&L Railway, and occasionally at outpost camps (CAM, 1983; Weiler, 1992, 2009). This includes reports of large and small game hunting, fishing, trapping and other activities in and around the Howell's River Valley in Labrador (Weiler 2009).



LEGEND

Schedule 4 Northeastern Quebec Agreement 1978

Outstanding Land Claim - Labrador

Basemap

Road

Railroad

Watercourse

Waterbody

Provincial Boundary

Figure 5.7

Naskapi Nation of Kawawachikamach Land Claim Treaty Area in Quebec and Outstanding Land Claim in Labrador

0 50 100 150 200
Kilometers

SCALE: 1:5 500 000

UTM 19N Nad 83

FILE, VERSION, DATE, AUTHOR:
GH-0471, 2014-01-09 , E.D.

SOURCES:

Base map
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec.
Aboriginal datas
Adapted from Alderon Iron Ore Corp (2012)

GroupeHemispheres

After they began to reside in the Schefferville area more permanently during the twentieth century, Naskapi land use and harvesting activities focused increasingly upon areas adjacent to the community, and the most concentrated land use currently occurs within a radius of between approximately 30 and 50 km around Kawawachikamach (Weiler, 1992). Recent studies have indicated that the NNK members undertake traditional activities such as hunting (large and small game), fishing and gathering and associated travel and camping throughout an overall region that encompasses the lands and waters to the north and west of their community, including areas that are accessible through existing access road networks and adjacent areas in Quebec and Labrador (Weiler, 2009). In particular, the Howells River Valley and the hills on both sides of it are reportedly used extensively by Naskapi throughout the year for hunting, fishing and for gathering plants. This is primarily due to this area's proximity to the community, year round accessibility and its relative abundance and diversity of wildlife and plant resources, which has made it of increasing importance for the NNK members (Weiler, 2009).

5.7.2.5 Takuaikan Uashat mak Mani-Utenam

The ITUM reside on the Uashat and Mani-utenam reserves in the Sept-Îles, Québec area, and have a total population of approximately 3,000 persons (AANDC, 2013c). Uashat is located on the western outskirts of Sept-Îles and Mani-Utenam is located approximately 16 km to the east near the mouth of the Moisie River. These Québec Innu communities are located well over 500 km to the south of the proposed Project area. The Uashat and Mani-Utenam reserves constitute a single Band governed by a Band Council.

The ITUM share their ancestral territory with the NIMLJ (as described earlier), which stretches from the Québec Lower North Shore to north of Matimekush-Lac John, encompassing much of eastern Québec and western Labrador (Figure 5.6). Traditionally, this group was involved in nomadic hunting, fishing and gathering activities, spending the winter in their hunting grounds in the interior and returning to the coast in spring, notably via the Sainte-Marguerite and Moisie Rivers During the 1950s, Innu families and other persons were assigned trapping lots within the Saguenay Beaver Reserve under Québec legislation (Alderon Iron Ore Corp, 2012). These lots cover an extensive area which overlaps most of western Labrador and eastern Quebec, with one such lot encompassing the portion of Labrador within which the proposed Project will be located.

Although the ITUM have indicated that they still engage in traditional activities such as hunting, trapping, and fishing within this large traditional territory (Alderon, 2012), current activities are practiced mainly along the coast, at the mouth of rivers and along the existing highway (Uashaunnuat et Conseil Innu Takuaikan Uashat mak Mani-Utenam, 2010). Data on current land, water and resource use in western Labrador by the Innu indicates that travel and harvesting activities are strongly focused on the Ashuanipi River and Menihek Lake (Nalcor Energy, 2010). Therefore, while the ITUM continue to use their traditional territory, contemporary activities are focussed primarily on the southern portions and other areas that are accessible by railway and road.

5.7.2.6 Labrador Inuit

The Inuit of Labrador reside primarily on the Labrador North Coast in the communities of Nain, Hopedale, Makkovik, Postville, and Rigolet (see Figure 5.8), as well as in other Labrador communities and elsewhere. The *Labrador Inuit Land Claims Agreement* was signed by the Labrador Inuit and the provincial and federal governments in January 2005 and came into effect on December 1st of that year. The Agreement is a modern comprehensive treaty, and sets out the details of land ownership, resource sharing and self-government in the area it covers in Northern Labrador (NLIAAS, 2013). The proposed Project does not overlap or otherwise interact with land areas that are covered under the treaty.

5.7.3 Current Land, Water and Resource Use

This section mainly focuses on municipal, commercial and recreational use of land, water and natural resources in the LSA and in the larger region of western Labrador. Residents may also use land and resources in the LSA and Quebec and this usage is described where information is available.

5.7.3.1 Quebec

The communities of Schefferville (24 km), Matimekush (24 km), NNK (24.7 km), and Lac John (25 km) are all located between 24 and 25 km from the Howse Property. This section discusses land, water and resource use by non-Aboriginal residents of Schefferville.

Commercial Land, Water and Resource Use

- Mining

North eastern Quebec has various mining projects and a history of iron mining since 1954. ArcelorMittal currently operates the Mont-Wright Mining Complex in Fermont and Fire Lake Mine, which is located 55 km to the south (ArcelorMittal, No Date: [*Operations*]). Cliffs Natural Resources, Bloom Lake Mine iron mine is located between the Labrador border and Fermont.

Mining companies are reactivating operations in the Schefferville area using existing mine infrastructure that remained following IOC's closure. LIM is developing direct shipping ore (DSO) iron ore projects on deposits, which are in both Labrador and Quebec mainly within 50 km of Schefferville. Production at the James Mine began in 2011 on Labrador deposits closest to the mine infrastructure. Quebec mine sites to be potentially developed in the future include the Malcolm, Denault and Star Creek deposits (LIM, 2013).

TSMC is developing the TSMC's DSO Project 1a on deposits in the brownfield site remaining from the IOC operations, some of which are located in Quebec. NML and TSMC are planning to develop taconite resources in the Schefferville area. The KéMag deposit is located on the Quebec side of the border, while the LabMag deposit is on the Labrador side, within the Howells River valley. NML is exploring for other taconite resources in the Millennium Iron Range (MIR) which is in both provinces (NML, 2013).

Champion Iron Mines Limited (CIML) has 12 properties including the Attikamagen Property in the Schefferville region and the Fire Lake North Project located to the north of the Fire Lake Mine. CIML is in the process of conducting feasibility studies on its properties (CIML, 2012).

- Outfitting

As outfitting camps are prohibited in Zone 23 North, no Quebec cottages or facilities for sport hunting and fishing are located with Howells River Valley (NML and PFWA, 2010).

- Forestry

The Schefferville area is north of the limit of commercial forestry in Quebec (Rousseau, 2011).

Known Resource Harvesting

Non-Aboriginal residents of Quebec also engage in outdoor pursuits such as hunting, trapping, fishing, berry picking for recreational and / or subsistence purposes. Consultations shall be held with the local non-Aboriginal population to obtain accurate information about the exact locations of, timing and number of individuals who participate in those activities and ways to address any concerns they may rise with respect to the Project. Aboriginal land use is discussed in the following section.

- Fishing

Schefferville is located within hunting and fishing Zone 23 (north). Sport fishing is permitted from early June to early September but rivers in the general area are not well-stocked. Non-Aboriginal residents of Schefferville may participate in ice-fishing on Annabel and Vatcher Lakes between December 1 and April 30. However, these lakes are at least 40 km distant from the Howse Property (NML and PFWA, 2010).

- Hunting and Trapping

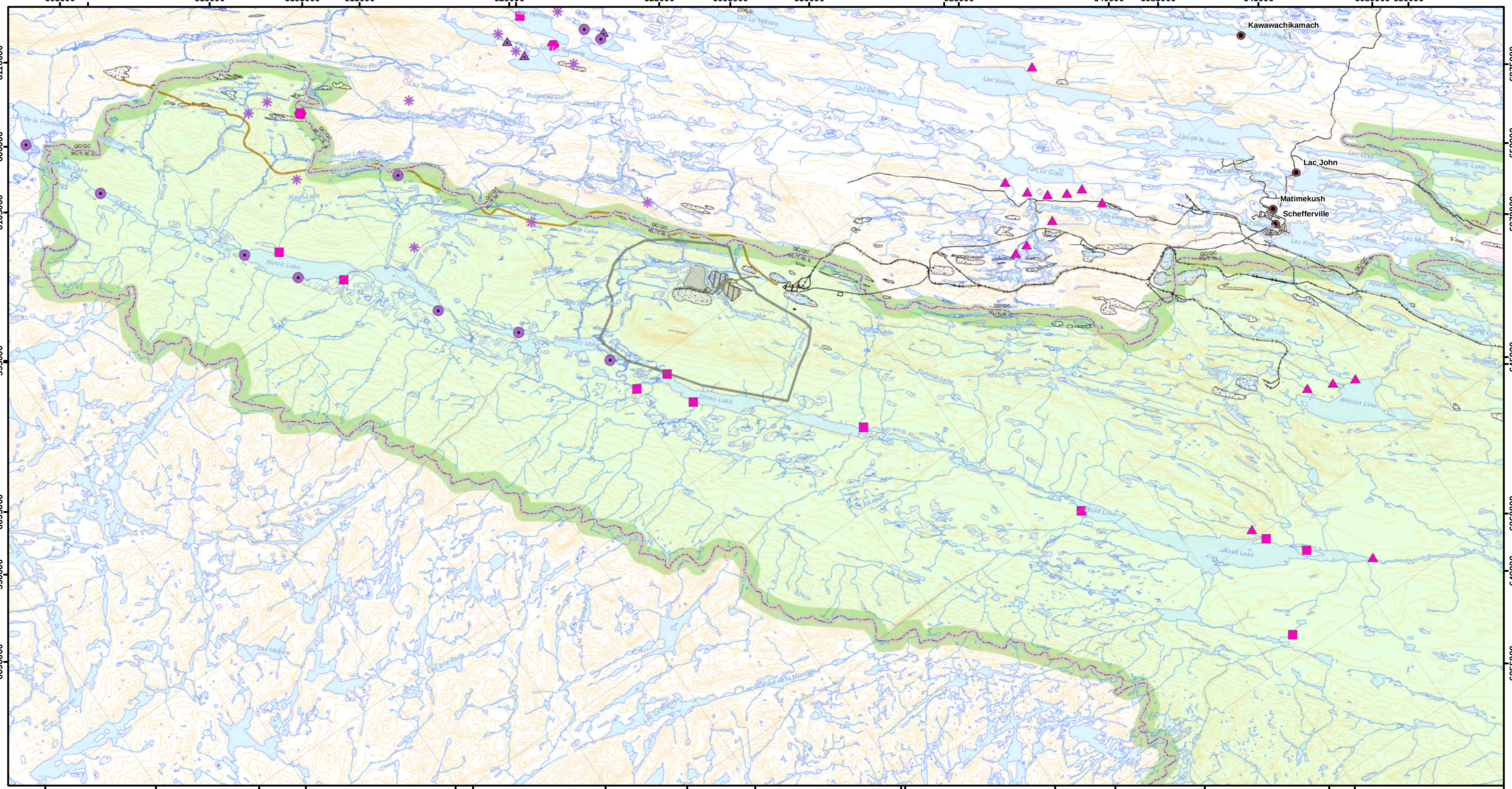
Quebec non-Aboriginal residents are permitted to hunt caribou in Zone 23 but hunting does not appear to have a high success rate in the Schefferville area. There are many other areas to hunt but access is better in and near the town (NML and PFWA, 2010).

- Domestic Wood Cutting

In or close to the Project footprint, there is little opportunity, if none, for domestic wood cutting. Nevertheless, some large white spruces are found downhill close to the Howells River.

- Protected Areas

Protected areas and proposed protected areas are located at the Labrador border near Fermont (MDDEFP, 2013). No protected areas or proposed protected areas have been identified in the Schefferville area.



LEGEND

Recreational Land Use

- Town
- Innu Cabin
- Naskapi Cabin
- Other Cabin
- Labrador Small Game/Fur zone
- Labrador Black Bear Management Area
- Bustard Observation And Hunting Site
- Beaver Lodge And Observation Site
- Picking Site (Cloudberry, Lingonberry, Bog bilberry, Blueberry, Labrador tea)

Infrastructure And Mining Components

- Existing Road
- Potential Road To DSO Area 4
- Proposed Railroad
- Deposit
- Proposed Howse Pit
- Proposed Topsoil/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Mine Haul Road

*Hydronyms are oriented along the direction of water flow

Basemap

- Contour Line (15 m)
- Provincial Border
- Watercourse
- Waterbody
- Wetland
- Local Study Area

0 2,5 5 10
Kilometers

SCALE: 1:150 000

UTM 19N NAD 83

FILE, VERSION, DATE, AUTHOR:
GH-0478-03, 2014-03-26, E.D.

SOURCES:

Basemap and Land Use Components
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Land Use Atlas, 2009
Daniel Clement, 2009.

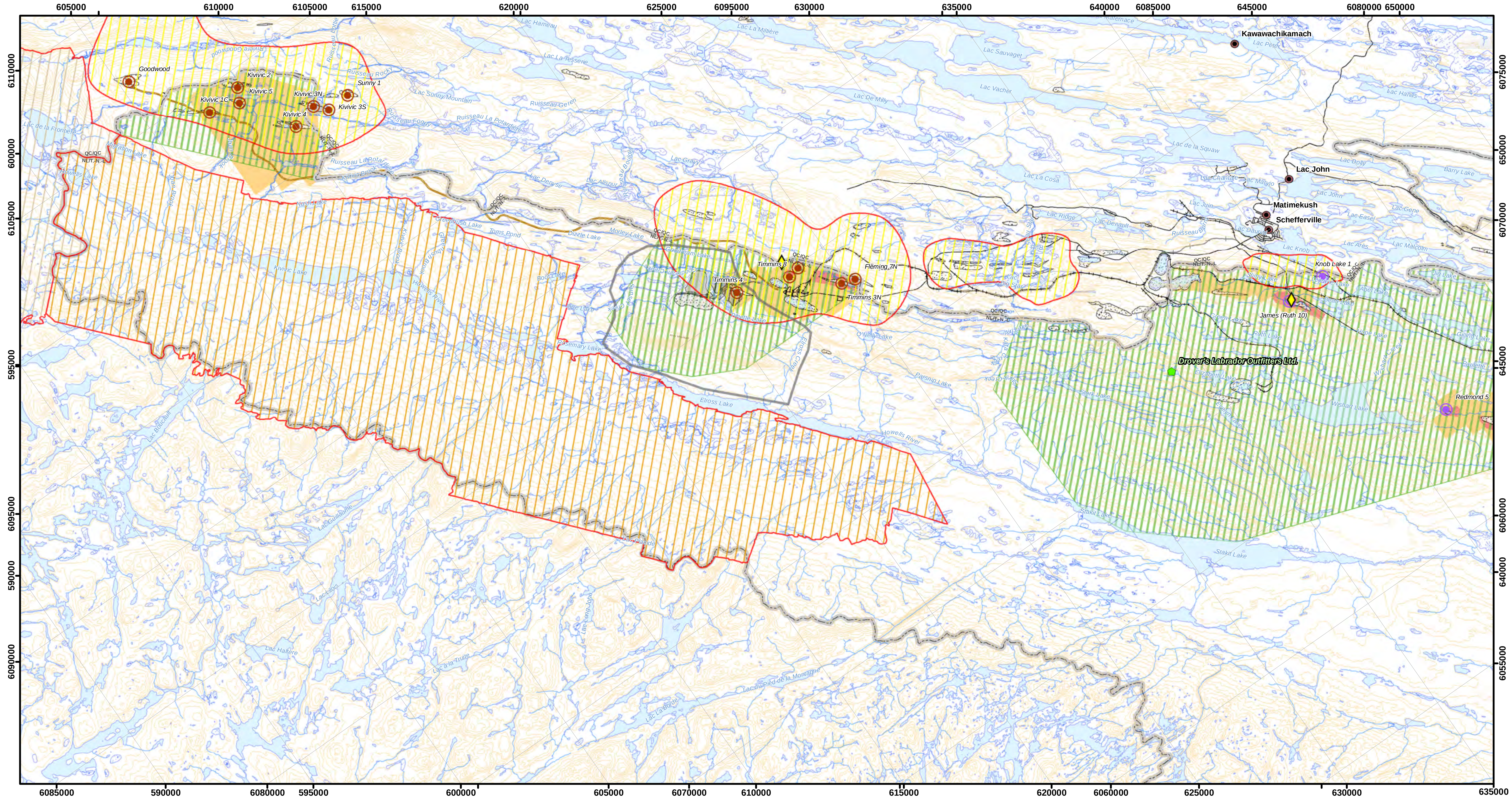
Mining Components
TATA Steel Minerals Canada Limited/
MET-CHEM Howse Deposit Design
for General Layout., 2013
Groupe Hémisphères, Hydrology and update, 2013

Known Resource Harvesting

DSO Howse Property

Figure 5.8

GroupeHemispheres



LEGEND

Commercial Land Use

- Town
- Outfitter
- Existing Mine Site
- LIM Project
- TSMC Project

Private Land

- Mining Lease
- Surface Lease
- Crown Reserve Mining

Exploration Area/Other Mining Project

- Taconite - LabMag
- Taconite - KeMag
- DSO - Other Site

Infrastructure And Mining Components

- Existing Road
- Potential Road To DSO Area 4
- Proposed Railroad
- Deposit
- Proposed Howse Pit
- Proposed Topsoil/ Overburden Stockpile
- Proposed Crushing/ Screening Facility
- Proposed Waste Rock Dump
- Proposed Mine Haul Road

Basemap

- Contour Line (15 m)
- Provincial Border
- Watercourse
- Waterbody
- Wetland
- Local Study Area

*Hydronyms are oriented along the direction of water flow

FILE, VERSION, DATE, AUTHOR:
GH-0478-03, 2014-02-25, E.D.

0 2,5 5 10
Kilometers
SCALE: 1:150 000
UTM 19N NAD 83

SOURCES:

Basemap and Land Use Components
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec, Land Use Atlas, 2009
Daniel Clement, 2009.

Mining Components
TATA Steel Minerals Canada Limited/
MET-CHEM Howse Deposit Design
for General Layout., 2013
Groupe Hémisphères, Hydrology and update, 2013

Commercial Land Use

DSO Howse Property

Figure 5.9

GroupeHemispheres

5.7.3.2 Labrador

The LSA and Howells River Valley are located in western Labrador but distant from any communities in Labrador. Thus no municipalities or local service districts are located within the Howse Property LSA.

Commercial Land, Water and Resource Use

This section discusses Labrador non-Aboriginal land, water and resource use in the LSA and in western Labrador as shown in Figure 5.8.

- Mining

To a great extent, the economy of western Labrador is dependent on iron ore mining, processing and shipping from resources of the Labrador Trough. In Labrador West, producing mines are located at Labrador City (IOC's Carol Lake) and Wabush (Cliff's Natural Resources' Scully Mine). A developing project, Alderon's Kami Mine, is located in both Labrador City and Wabush. Other potential mines, such as Julienne Lake, Lac Virot and Iron Horse (near Churchill Falls) projects, are located in the region (NLDOF, 2013).

Various projects are located near the Howells River Valley. TSMC's DSO Project 1a and Labrador Iron Mines' Direct Shipping Ore projects are currently producing iron ore in this area. Other potential Labrador iron ore mining projects in and near the Howell's River area include Joyce Lake; Block 103; Howells Lake, LabMag, Perault Lake and Astray / Grenville (NLDOF, 2013).

Investment in Newfoundland and Labrador mineral exploration reached an all-time high of $194 million in 2012. Most of this activity was in Labrador and about 50% ($90 million) was spent on iron ore exploration (NLDOF, 2013). Exploration licences cover large areas of land in Labrador West and in the Howells River Valley area including the LSA.

- Outfitting

Newfoundland and Labrador is a popular destination for hunting and fishing and the province has a large number of outfitters who are mainly engaged in salmon fishing and big game hunting. In western Labrador, outfitting has been mainly dependant on caribou hunting with some angling. However, due to the ongoing decline of caribou populations, the Province of Newfoundland and Labrador has placed bans on all caribou hunting in Labrador (NLDEC, 2013c).

Outfitters are located throughout north western Labrador near Schefferville and along various lakes including Astray Lake, Petitsikapau Lake and Attikamagen Lake which are all east of Howells River Valley. None have been identified in the LSA, which is near an active mining area (Figure 5.8). The closest outfitting camp, located near Schefferville and thus approximately 25 km from Howse Property, may no longer be operational as it is not currently listed with the Department of Tourism (NLDOT, 2013).

- Forestry

The LSA is entirely contained within Forest Management District (FMD) 22 which allows commercial harvesting and domestic cutting. FMD 22 is the largest (8 million ha) district in Newfoundland and Labrador but it is unsuitable for extensive commercial forestry activity (NLDNR, 2011).

Known Resource Harvesting

Residents of Newfoundland and Labrador regularly engage in outdoor pursuits such as hunting, trapping, fishing, berry picking for recreational and / or subsistence purposes. These activities may also be conducted commercially but not on a large scale. Hunting, trapping and fishing occur in regulated areas. In Labrador West, most activities occur around cabins and snowmobile trails, none of which are located in the Howell's River Valley area.

- Fishing

Angling in the Howell's River Valley has increased as a result of outfitting (NML and PFWA, 2010). Angling activity may have been reduced along with the reduction in outfitting due to the decline of the caribou population and introduction of caribou hunting bans.

- Hunting and Trapping

With the January 2013 five-year hunting ban on the George River caribou herd, all Labrador caribou hunting zones are closed (NLDEC, 2013c). Labrador has seasonally open areas for hunting moose and black bear. Several moose management areas are located in western Labrador but none are located in Howells River Valley, which contains the Howse Property (NLDEC, 2013d).

Western Labrador, including Howells River Valley, is part of the "Labrador South" black bear hunting zone (see Figure 5.9). It is also part of the "All of Labrador" small game management zone which has open seasons for willow and rock ptarmigan, ruffed and spruce grouse, snowshoe and Arctic hare and porcupine. The "Western Labrador" migratory game bird hunting zone has open seasons for ducks, geese and snipe species. Western Labrador is part of the "Labrador South" fur zone. Trappers may target beaver, muskrat, otter, mink, coyote, red and white fox, lynx, wolf, ermine, squirrel and marten (NLDEC, 2013d). These large areas include the LSA around Howse Property.

- Domestic Wood Cutting

Domestic cutting is permitted throughout FMD 22 but most of the activity occurs near Labrador City and Wabush (NLDNR, 2011).

- Protected Areas

The only protected areas in western Labrador are located within the municipal planning areas of the Towns of Labrador City and Wabush (NLDEC, 2013e). No existing or proposed protected areas are located within the LSA.

6 CONSULTATION AND ISSUES SCOPING

Consultation is the cornerstone of the Environmental Assessment (EA) process, and a key aspect of the Proponent's approach to its project planning and development activities.

6.1 Consultation Activities and Outcomes to Date

A number of consultation initiatives have been undertaken in relation to the proposed Project to date and included the provision of information to, and discussions with, relevant government departments and agencies, Aboriginal and stakeholder groups and the public.

6.1.1 Government Departments and Agencies

The Proponent has provided Project overview information to, and corresponded and met with, the provincial and federal governments on various occasions.

Relevant government departments and agencies will participate in the review of this EA Registration and associated regulatory decisions.

The Project will also eventually require a range of additional environmental permits and other authorizations (see Section 8). The post-EA permitting process will provide the opportunity for relevant regulatory authorities to receive and review additional Project design information, and to establish specific terms and conditions to avoid or reduce environmental effects. The Proponent and/or its contractors will identify, apply for and adhere to all required permits and other authorizations that are required for Project construction and/or operations.

In the case of benefits to the province of Newfoundland and Labrador, TSMC will be responsible for compliance with all applicable obligations under its Newfoundland and Labrador Benefits Plan.

6.1.2 Aboriginal Communities and Organizations

Integrating the environmental and human components of sustainable development in mining is important for HML. The company is committed to working with Aboriginal communities impacted by its activities. It ensures that Aboriginal communities and organizations are consulted appropriately on the proposed Project and where warranted, meaningfully accommodate their rights and interests as required by Section 35 of the *Canadian Constitution Act (1982)* and as per IBAs signed with them.

As a result of their past and on-going presence and development activities in Labrador West and elsewhere, TSMC and LIM have established long-standing and productive relationships with relevant Aboriginal communities and organizations in Labrador and Quebec. This includes a number of project-related IBAs and other Agreements signed with individual Aboriginal groups, as follows:

Labrador Iron Mines (LIM)

- Innu Nation : IBA dated July 17, 2008
- NNK: IBA dated September 2, 2010
- NIMLJ: IBA dated June 6, 2011;
- ITUM: IBA dated February 13, 2012; and
- NCC: Economic Partnership Agreement, dated December 14,2012

Tata Steel Minerals Canada (TSMC)

- NNK: IBA dated June 10, 2010
- NIMLJ: IBA dated June 6, 2011
- Innu Nation: IBA dated November 11, 2011
- ITUM: IBA dated February 9, 2012
- NCC: Cooperation Agreement dated August 14, 2013.

The responsible development of the Howse Property is provided for in the LIM agreements. The spirit of these agreements is embodied in the provision of mechanisms for full and effective participation and involvement of said groups in the planning and implementation of the Howse Property Project so that socioeconomic benefits flow to them, that their traditional activities and knowledge are respected and that environmental impacts are minimized. These mechanisms include: Aboriginal employment and training measures during the construction and operations phases; accommodations for culturally- and gender- specific needs; targets and processes that encourage and facilitate the participation of Aboriginal businesses in contracting opportunities; environmental monitoring; and support of community initiatives and structuring projects.

Proper implementation is essential towards meeting the objectives of these agreements, which is why timely and open communication, reporting, and the support and involvement in the joint management of matters important to the communities through a joint implementation committee and a health, safety and environment committee are vital aspects of our relationships.

Although the specific nature and provisions of these Agreements are and will remain confidential, in general they define how the Aboriginal group in question will participate and be involved in the relevant development project, as well as establishing processes for continued consultation and cooperation throughout the planning, construction and operations phases.

Each of LIM's agreements with Aboriginal groups is project specific, in which the "Project" is defined in each case to include the Howse Property. LIM's IBA with ITUM provides that some of the claims making up the Howse Property, and particularly those near Irony Mountain ("Kauteitinat"), are sensitive areas that require meaningful participation and involvement of ITUM respecting development activities, including exploration work.

As explained in Section 1.2, an unincorporated Joint Venture Agreement was signed in August 2013 by LIM, TSMC, HML, a wholly-owned subsidiary of TSMC and LIM Holdings Ltd. While HML is assigned as the operator for all technical, management and administrative activities, the Joint Venture Agreement provides for LIM's continual assumption of all obligations and liabilities under its existing agreements with Aboriginal groups.

Support has been and will continue to be provided by LIM and TSMC for local infrastructure (local arena and pool, healing centre, training, education, environmental protection, economic development, traditional activities, arts and music, and revenue sharing). Furthermore, there are clear measures identified for safe, healthy, respectful and culturally cognizant work conditions and arrangements as these relate to counselling, transportation, rotation schedules, cultural leave, harvesting restrictions by workers staying at Camp and country food.

The Proponent has been engaged in Project-related consultation activities with the aforementioned groups, through which it has provided information on the proposed Project and attempted to identify and discuss the nature of any associated interests, questions or concerns on the part of each group, for consideration as Project planning proceeds.

6.1.3 Stakeholder Groups and the Public

The proponent, through HML, holds on a regular basis different meetings with various local stakeholders either from the region or in Schefferville and participates extensively in various conferences where the public can stay informed of actual and planned mining projects operated by HML. On regular basis, various meetings are held with municipal councils, local authorities and the business community from the Quebec-Labrador region (Labrador West, Happy Valley Goose Bay, and Sept-Iles).

For this project specifically, further consultations will be held with the local non-Aboriginal organizations from Schefferville whose recreational or hunting activities are likely to be impacted by the Howse Property Project as listed in Table 6.1. In addition to the meetings planned, an Information Centre is located in the HML Schefferville office since January 2014 informing and welcoming comments of visitors from the local non-Aboriginal population.

Table 6.1 Planned Consultation with Non-Aboriginal local stakeholders specifically for Howse Property Project

NON-ABORIGINAL LOCAL STAKEHOLDERS	MEETING LOCATION AND DATE	MEETING FOCUS
Town Administration of Schefferville	Town Hall, Schefferville date to be confirmed in April 2014	Presentation of Howse Property Project
Provincial Health Clinic	Health Clinic, Schefferville, to be confirmed in April 2014	Presentation of Howse Property Project
Non-Aboriginal Harvesters	NML/HML's office, Schefferville, , to be confirmed in April 2014	Presentation of Howse Property Project

6.2 On-going and Planned Consultation Activities

6.2.1 Government Departments and Agencies

A summary of the various Government Departments and Agencies consultation initiatives completed to date is provided in the Table 6.2.

Table 6.2 Consultations with Government Departments and Agencies to Date

GOVERNMENTS / AGENCIES	MEETING LOCATION AND DATE	MEETING FOCUS
Newfoundland and Labrador Department of Environment and Conservation	St-Johns, January 22nd, 2014	Presentation of Howse Property Project
Newfoundland and Labrador Water Resource Management Division	St-Johns, January 22nd, 2014	Presentation of Howse Property Project
Newfoundland and Labrador Pollution Prevention Division	St-Johns, January 22nd, 2014	Presentation of Howse Property Project
Newfoundland and Labrador Intergovernmental and Aboriginal Affairs Secretariat	St-Johns, January 22nd, 2014	Presentation of Howse Property Project
Canadian Environmental Assessment Act Agency (CEAA)	Halifax, January 23rd, 2014	Presentation of Howse Property Project
Quebec's Ministère des Ressources naturelles du Québec	Quebec, January 15th, 2014	Informational meeting on : ▪ Status of DSO project including latest developments ▪ Introduction to the Howse Property Project
Quebec's Ministère des finances et de l'économie	Quebec, January 15th, 2014	Informational meeting on : ▪ Status of DSO project including latest developments ▪ Introduction to the Howse Property Project
Quebec's Secrétariat of Développement nordique	Quebec, January 15th, 2014	Informational meeting on : ▪ Status of DSO project including latest developments ▪ Introduction to the Howse Property Project
Newfoundland & Labrador' Department of Natural Resources Assistant Deputy Minister	Toronto (PDAC), March 4th, 2014	Discussions on the Howse Property Project

In addition, a draft copy of this Project Description was sent out and a comment period of 30 days was allowed to the following government and agencies:

- Canadian Environmental Assessment Act Agency (CEAA)
- Newfoundland and Labrador Pollution Prevention Division

- Newfoundland and Labrador Water Resource Management Division
- Newfoundland and Labrador Department of Environment and Conservation
- Newfoundland and Labrador Wildlife Division

6.2.2 Aboriginal Consultations

HML has determined, based on the company's owner's (TSMC) previous work with the concerned Aboriginal groups, that the groups most impacted by the Howse Project planned activities are ITUM, the NNK and the NIMLJ. This is due to the fact that family trapline holders in the area around Howse (lot #211 – Jean-Marie Mackenzie family; and lot # 207 – Louis (Sylvestre) Mackenzie family, Figure 6.1) are ITUM members and the area near the Kauteitinat Mountain has been identified as a sensitive area in the ITUM Impact and Benefit Agreement with Labrador Iron Mines, while members of the NNK and the NIMLJ actively use the land near the Howse Property (Irony Mountain / Kauteitinat and the Howell's River valley). Members of Innu Nation and NCC are not known to use the land in the Howse area. Therefore engagement, in keeping with the spirit of the agreements signed, will be carried out with all five groups, but will be more extensive with the three former groups. As indicated in Table 6.1, a draft copy of this Project Notice was sent out to all five Aboriginal organizations the week of January 26th, 2014 for review and comment within a 30 day timeframe.

A summary of the various Aboriginal consultation initiatives completed to date is provided in the Table 6.3, which also highlights any key questions and issues identified through these activities, and the manner in which these have been or will be addressed by the Proponent. Contact information for each Aboriginal group is provided in Table 6.4.

Table 6.3 Consultations with Aboriginal Groups to Date and Key Outcomes

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
NIMLJ	Montreal, June 3, 2013	▪ Presentation of information on the Joint Venture and plans to mine the Howse Deposit. ▪ No concerns were raised
Innu Nation	Montreal, July 18, 2013	▪ Provision of a Project update, including information on the Joint Venture and plans to mine the Howse Deposit. ▪ No comments were received
ITUM	Montreal, August 8,2013	▪ Provision of a Project update, including information on the Joint Venture and plans to mine the Howse Deposit. ▪ Indicated that further discussion on the mining of Howse will be required at a later time
IBA Implementation Committee represented by the NIMLJ, NNK, ITUM, Innu Nation, NCC and TSMC	Schefferville, August 28, 2013	▪ Provision of a Project update, including information on the Joint Venture and plans to mine the Howse Deposit. ▪ No concerns were raised
TSMC Community HSE Committee, represented by the NIMLJ, NNK, ITUM and Innu Nation	Uashat, October 7, 2013	▪ Provision of information on planned mining activities relating to the Howse Deposit, including details on the Exploration Plan ▪ NIMLJ and ITUM representatives expressed concern with the proximity to Irony Mountain ("Kauteitinat"), which has spiritual and historical significance to the Innu, as

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
		well as the Project's planned production timeframe. ▪ It was explained that a separation (buffer) zone would be established and maintained between Kauteitinat and Project activities; ▪ Aboriginal groups will be kept informed of exploration and development activities as they progress, and TSMC will support the groups in the dissemination of information to their membership.
Correspondence (electronic mail) sent individually to NIMLJ, NNK, ITUM and Innu Nation representatives regarding the 2014 permit application for the Howse Deposit	October 15 2013	▪ No responses were received
NIMLJ Council	Howse Property Site, November 7, 2013	▪ Potential disruptions to goose hunting activities on the opposite (west) side of Kauteitinat in May as a result of noise from the proposed mining activities. ▪ HML adjusted Project layout to minimize visual impacts on Kauteitinat and ensure continuous access to harvesting grounds at Pinette Lake and the Howell's River Valley. ▪ HML to consider, and discuss with the NIMLJ, how to avoid or reduce any such potential disturbance through Project construction and operations planning.
ITUM delegation (including Council representatives and members of the Jean-Marie Mackenzie family and the Louis Sylvestre Mackenzie)	Howse Property Site, November 10, 2013	▪ The Howse deposit is situated on the trapline of the Jean-Marie Mackenzie family and the Louis Sylvestre Mackenzie family, presently residing in Uashat and Maliotenam. ▪ Before the commencement of its exploration program at Howse, TSMC brought an ITUM delegation which included members of the Mackenzie family, to the Howse site to evaluate and discuss the exploration works and its distance from Kauteitinat. ▪ The ITUM delegation requested that TSMC establish a sufficient buffer zone between Kauteitinat and the planned exploration and mining activities and make efforts to minimize any visual impact of these activities. ▪ HML adjusted Project layout to reduce waste pile height and thus the visual impact as well as increased the distance between Irony Mountain and the Project.
NIMLJ	By Email, January 24th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
ITUM	By Email, January 24th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
NNK Council	Kawawachikamach, January 28th, 2014	▪ HML presented information on the Howse Project including location, purpose, environmental assessment process, environmental effects, impact avoidance and reduction, maps. Handouts were also provided including maps and a pamphlet in French and Innu

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
		(Appendix IV). ▪ Question on harvesting ground access was raised. HML explained that the company will ensure that land users will continuously have access to harvesting grounds except for periods of blasting. ▪ Questions on the mechanics of the IBA were raised. HML explained that LIM will be responsible for revenue-sharing payments.
Innu Nation (Community HSE Committee)	Timmins Site (invited but could not participate due to schedule conflict), January 28th 2014,	▪ Provided information electronically on TSMC's DSO Project and on the Howse Project including location, purpose, environmental assessment process, environmental effects, impact avoidance and reduction, maps. ▪ No comments on Howse were received.
NunatuKavut Community Council (Community HSE Committee)	Timmins Site, January 28th 2014	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in English and Naskapi (Appendix IV). ▪ No concerns were raised.
Innu Takuaikan Uashat mak Maniutenam (Community HSE Committee)	Timmins Site, January 28th 2014	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in French and Innu. ▪ Concerns were raised on the cumulative impact of dust caused by mining activities in general. ▪ Although dust originates from multiple sources, it was agreed that HML and the communities will collaborate to take steps towards greater dust control in the Schefferville area, including the creation of a Steering Committee on air quality involving the Town of Schefferville, other mining companies active in the area, and which will require the support of the provincial and federal governments in the area of investment in the local road system.
NIMLJ (Community HSE Committee Meeting)	Timmins Site, January 28th 2014,	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in French and Innu. ▪ Concerns were raised on the cumulative impact of dust caused by mining activities in general ▪ Although dust originates from multiple sources, it was agreed that HML and the communities will collaborate to take steps towards greater dust control in the Schefferville area, including the creation of a Steering Committee on air quality involving the Town of Schefferville, other mining companies active in the area, and which will require the support of the provincial and

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
		federal governments in the area of investment in the local road system. ▪ The NIMLJ recommended hiring Innu environmental science graduates for environmental monitoring work. HML indicated that it previously has provided, though the TSMC DSO Project, job shadowing opportunities for students interested in environmental studies and is continuously seeking profiles of Aboriginal candidates for the position of Environmental Technician/Coordinator. The NIMLJ will forward résumés of Innus with the relevant education for consideration in future employment and work experience opportunities.
NNK (Community HSE Committee)	Timmins Site, January 28th 2014	▪ Provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in English and Naskapi. ▪ Concerns were raised on the cumulative impact of dust caused by mining activities in general. ▪ Although dust originates from multiple sources, it was agreed that HML and the communities will collaborate to take steps towards greater dust control in the Schefferville area, including the creation of a Steering Committee on air quality involving the Town of Schefferville, other mining companies active in the area, and which will require the support of the provincial and federal governments in the area of investment in the local road system.
Innu Nation	By Email, January 29th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
NNK	By Email, January 29th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ No comments have been received to date.
NCC	By Email, January 29th, 2014	▪ Submission of Draft Project Description and request for review and comment within a 30 day timeframe. ▪ NCC asked about the mechanics of the IBA obligations in relation to the joint venture between LIM and HML and the implications if LIM defaults on its revenue-sharing payments. HML explained that should LIM default on payments relating to the Howse Project, HML will assume responsibility for said payments.
NNK Community-at-large	Kawawachikamach, January 29th, 2014	▪ Information Centre held in which approximately 10-15 community members attended. Information was presented on location, purpose, nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Posters were made available, as well as handouts including maps and pamphlets in English and Naskapi. ▪ The following questions and concerns were raised by attendees: o Will Howell's River be impacted by the Project? HML

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
		indicated that it will not because it is sufficiently distant and on the other side of Irony Mountain. o Mining is destructive to the land and the people who use it and is occurring at an overly advanced pace. HML noted the comment. o What is the restoration plan? HML indicated that it will be progressive in nature and consist of laying topsoil that was set aside from preliminary mining works and the planting of vegetation, building safety barriers around pits, re-sloping waste dumps that will resemble the natural landscape, environmental monitoring 10 years following pit closure.
Members of the Jean-Marie Mackenzie family and the Louis Sylvestre Mackenzie (holders of Trapline no's 207 and 211)	Uashat, January 30th , 2014	▪ HML provided update on TSMC's DSO Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. Handouts were also provided including maps and a pamphlet in French and Innu. ▪ A Mackenzie family member asked why this location was chosen to mine and whether the mine couldn't be farther away. HML explained that this area specifically represents a high iron content ore body. ▪ A Mackenzie family member asked where the process water will be sent. HML indicated that no tailings process water is expected since the ore will be mined, crushed, screened and shipped without being processed at the plant. ▪ A Mackenzie family member indicated that many birds nested on Kauteitinat. HML confirmed that as a mitigation measure, clearing and stripping will be suspended during bird nesting periods which take place in the spring as stated in TSMC Environmental Protection Plan. ▪ A Mackenzie family member recommended hiring Innu environmental science graduates for environmental monitoring work. HML indicated that it previously has provided, though the TSMC DSO Project, job shadowing opportunities for students interested in environmental studies and is continuously seeking profiles of Aboriginal candidates for the position of Environmental Technician/Coordinator. ▪ A Mackenzie family member asked whether TSMC or HML test for mercury and other heavy metals in fish, given that there is some apprehension that fish that they eat from fishing could contain heavy metals as a result of mining. HML indicated that it does not have a procedure in place for monitoring of heavy metals in fish. ▪ Mackenzie family members raised concerns about possible dumping of wastewater into nearby lakes, as was witnessed and recorded by local residents near another mining operation. HML indicated that it did not have sufficient information on the matter to comment. ▪ A Mackenzie family member asked whether there was a possibility that blasting activities could cause cracks in Kauteitinat. HML indicated that such cracks would not occur given the measures taken to contain the blast to a

ABORIGINAL GROUP(S)	MEETING LOCATION AND DATE	MEETING FOCUS , INCLUDING ANY QUESTIONS / ISSUES RAISED AND PROPONENT RESPONSE
		very small area. ▪ A Mackenzie family member asked what the schedule was for workers. HML explained that schedules vary according to the employer/contractor, but that work schedules for Aboriginal workers can, depending on the nature of the work, be adjusted according to a mutually acceptable rotation.
ITUM Community-at-large	Uashat and Maliotenam, January 30th, 2014,	▪ Pamphlets on the Howse Project in French and Innu were distributed in public places in Uashat and Maliotenam.
NIMLJ and ITUM Councils	Matimekush, February 12th, 2014,	▪ Meeting to discuss the Howse Project and other matters. Project information including maps and pamphlets in French and Innu were distributed. ▪ ITUM asked about the mechanics of the IBA obligations in relation to the joint venture between LIM and HML and the implications if LIM defaults on its revenue-sharing payments. HML explained that should LIM default on payments relating to the Howse Project, HML will assume responsibility for said payments.
NIMLJ Council	Matimekush, March 14th, 2014	▪ HML gave presentation on Howse Project. Presented information including location, purpose, and nature of the partnership between HML and LIM and implications for IBA obligations, environmental assessment process, environmental effects, impact avoidance and reduction. ▪ NIMLJ asked about ownership of Howse and IBA responsibilities in the hypothetical event that LIM enters into bankruptcy. ▪ HML explained that HML/TSMC would have, in this situation, the possibility to acquire the Howse Project.

Table 6.4 Aboriginal Groups Contact Information

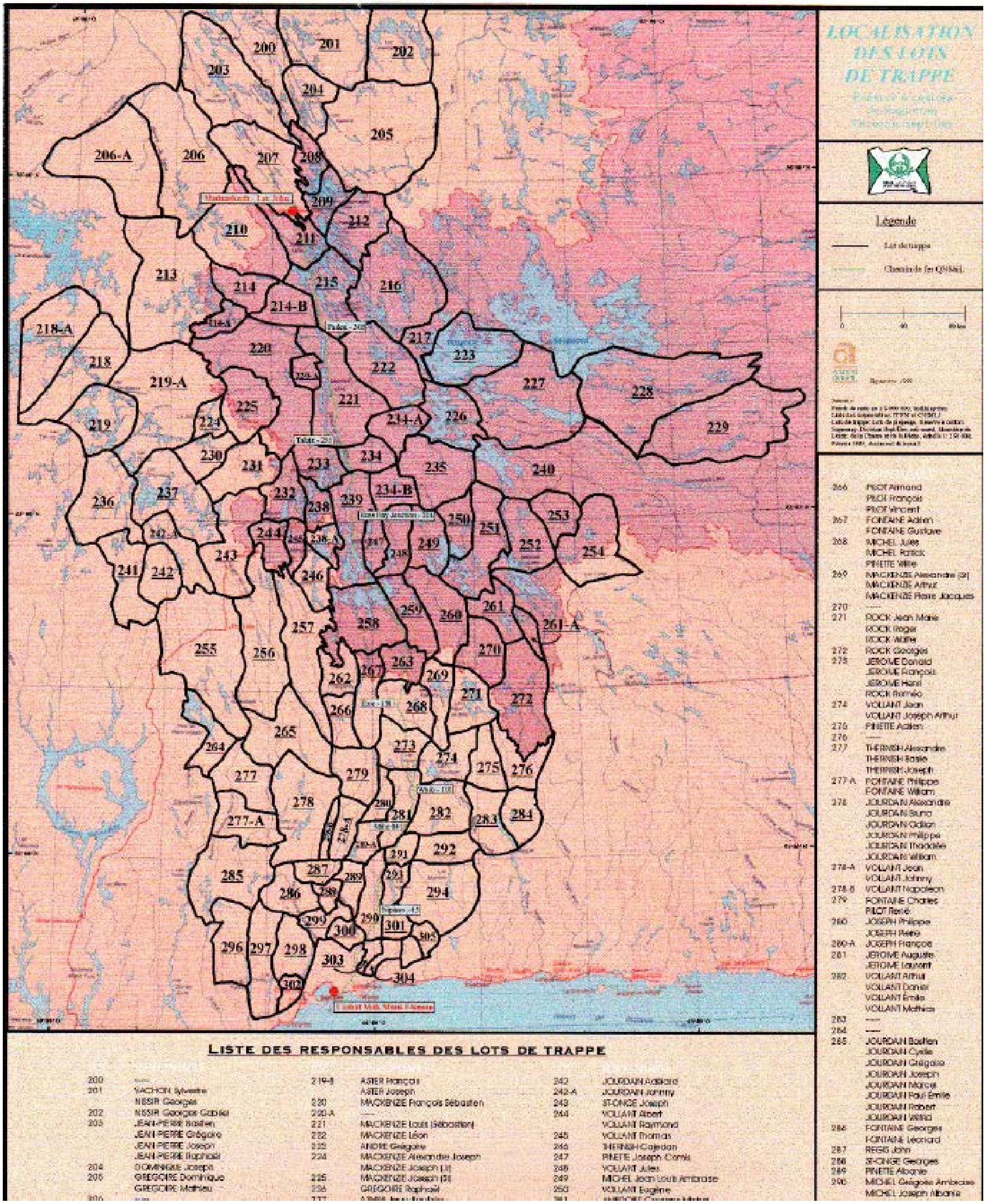
ABORIGINAL GROUP	CONTACT INFORMATION
NIMLJ	Chief Réal Mackenzie C.P. 1390 Schefferville, QC G0G 2T0 (418) 585-2601
ITUM	Chief Mike Mackenzie 265 Boul. des Montagnais Uashat, QC G4R 5R2 (418) 962-0327
NNK	Chief Noah Swappie 1009 Naskapi Road Kawawachikamach Nuchimiyuschiiy, Québec P.O. Box 5111 G0G 2Z0 (418) 585-2686
Innu Nation	Environmental Analyst Innu Nation PO Box 119 Sheshatshiu, NL (709) 497-8398
NCC	Todd Russell PO Box 460 Station C

ABORIGINAL GROUP	CONTACT INFORMATION
	370 Hamilton River Rd. Happy Valley-Goose Bay, NL A0P 1C0 (709) 896-0592

HML will continue with its communication and engagement activities (including meetings with committees, elected councils, local land users, an information centre, radio announcements), as per the following plan (Table 6.5 6.5):

Table 6.5 Howse Property Project Engagement Plan

ABORIGINAL GROUP	ORGANIZATION / INDIVIDUALS	MEANS	DATE AND LOCATION
Innu Nation	Innu Nation Representatives, Community HSE Committee	Meeting	Quarterly/ Timmins Site
NunatuKavut Community Council	NCC Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
Innu Takuaikan Uashat mak Maniutenam	ITUM Environment Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
	ITUM Council		Annually, Uashat
	Trapline Families (Lots #211, #207 – see Figure 6.1)		Annually, Uashat
Naskapi Nation of Kawawachi-kamach	NNK Environment Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
	NNK Council		Annually, Naskapi Nation Office
	Community at-large	Radio Program	Quarterly, Naskapi Radio
Nation Innu Matimekush-Lac John	NIMLJ Environment Representative(s), Community HSE Committee	Meeting	Quarterly, Timmins Site
	NIMLJ Council	Meeting	Annually, NIMLJ Nation Office
	Interested community members	Information Centre	March 2014, Matimekush Community Centre
	Community at-large	Radio Program	Quarterly, Matimekush



Source: Ministère du Loisir, de la Chasse et de la Pêche (1985)

Figure 6.1 Family Trapline Holders

Feedback obtained through all the above means will be gathered, recorded, compiled, shared with Project team members, and integrated into current and future Howse Project planning.

In the medium- and long-term, as Project planning advances from the current exploration phase to the preparation of a mine development plan, rehabilitation and closure plan, to the execution of mine development and closure activities, HML will regularly communicate the relevant and existing information on Project plans and activities by means that include those listed above.

The Proponent will continue to communicate Project information to the relevant Aboriginal organizations by way of:

- The Community Health, Safety and Environment (HSE) Committee, established in spring 2013, and represented by mandated officials of the NIMLJ, the NNK, ITUM, the Labrador Innu, the NCC and TSMC/HML. The Committee meets quarterly and its general responsibilities consist of:
    - serving as the formal mechanism for communication and cooperation between TSMC and said Aboriginal groups with respect to HSE-related matters pertaining to the Project;
    - serving as a monitor and facilitating the implementation of TSMC's HSE-related objectives or obligations under its respective IBAs, provincial and federal laws, and corporate policies with regard to HSE-related matters;
    - reporting in a timely manner on the environmental effects and TSMC's compliance with its HSE objectives and obligations;
    - facilitating, integrating and coordinating the involvement of said Aboriginal groups as well as appropriate and qualified organizations and businesses, in the environmental monitoring and mitigation of environmental effects;
    - reporting and making recommendations to TSMC and the said Aboriginal groups with respect to the environmental monitoring and mitigation of the Project;
    - serving as an accessible and public repository of environmental data, studies and reports relevant to the Project, subject to such confidentiality provisions as may apply;
    - carry out such other functions as are referred to it jointly by TSMC and said Aboriginal groups.
- An Implementation Committee, which was formed with Innu Nation, the NNK, the NIMLJ, ITUM and NCC, separately, beginning in 2011, and which meets jointly since summer 2013. The Committee meets twice yearly and its mandate is to ensure the proper implementation of the Agreements, including communication of Project information such as status of work activities, statistics (employment, contracting), future opportunities.
- There are provisions for annual meetings between Executives from HML and Chiefs of the Aboriginal communities, and the same exists for family trapline holders to discuss any issues related to the Project.
- The usual formal channels for specific permit applications and request for comments.
- TSMC personnel are available at all times to answer any questions.

6.2.3 Stakeholder and Public Consultation

The Proponent also understands that this EA Registration will be made available to all interested parties, including relevant Aboriginal organizations, for their information, review and comment as part of the EA process, and that any concerns or other input received will be considered in governmental decisions around whether the Project may proceed, and if so, under what terms and conditions.

7 POTENTIAL ENVIRONMENTAL EFFECTS AND THEIR MANAGEMENT

7.1 Effect Avoidance Strategies

The Proponent has developed a comprehensive strategy to minimize its negative effects on the biophysical and social environments and to maximize its positive effects. The same standard and special mitigation measures applied to the TSMC's DSO Project will also be reinforced for all of the Howse Property Project phases. A detailed version of this strategy and its related mitigation measures and monitoring program can be consulted in the TSMC'S DSO Project 1a (ELAIOM) EIS (NML, 2009). The following topics summarize the main elements of the proponent's strategy, which includes in the opinion of HML, a meaningful accommodation of Aboriginal rights, interests and concerns through the Project design and through an on-going flow of communication and information with Aboriginal communities to mitigate impacts:

- Ecological constraints were studied, highlighted and mapped, and the Project layout and activities will be adapted to minimize negative effects on these constraints;
- The proponent has been working in close collaboration with a team of mining engineers to develop an infrastructure layout that would minimize footprint and visual impacts of the project. (see Section 2.5 for details);
- Waste rock and other piles will be located as close to the pit as possible—but outside areas of mineralization to reduce the length of haul—and are designed to minimize energy-consuming lifts;
- Footprint of the waste rock dump and overburden stockpiles could be reduced by using this material, whenever possible, at Timmins 4 area and to build the Goodwood-Timmins haul road.
- The Project layout was designed to maximize the use of existing mining facilities (former IOC infrastructures and TSMC's DSO Project 1a) such as haul roads, access roads, right-of-ways, railways, waste dumps, camps, warehouses, landfills, and diesel, gas and explosive storage facilities;
- Dust control policy will be applied to reduce the release of fugitive dust and to eliminate runoff from rain and snow. All stockpiles will have a drainage system and water will be diverted to sedimentation ponds. Risks of accidents will be minimized;
- Instead of transporting pre-mixed explosives, the explosives manufacturer will manufacture them at the blast site, thereby eliminating the danger of an explosion during transportation;
- Best-available technology will be used so as to reduce effects and pollution;
- Many jobs and contracts during both the construction and the operations phases will be carried out by locally- and regionally-based firms and individuals, including Aboriginal and Labrador West workers and Aboriginal-owned and Labrador West businesses;
- Benefits for affected Aboriginal groups and residents of Newfoundland and Labrador, with special consideration for the residents of Labrador West, will be optimized. These include major investment in local and regional infrastructure (Tshiuetin Railway, Port of Sept-Îles, Schefferville arena) which in turn created additional employment opportunities, capacity-building (literacy and essential skills training, donations of thousands of new books to school children).
- Indirect economic spin-offs and future investment in the region led by government and First Nation organizations (i.e. fibre-optic communication from Emeril Junction to Schefferville; paving of local street and road network create additional employment opportunities);

The workers' camp is located in the Timmins 1 area so as to: avoid the socioeconomic effects associated with lodging a large and predominantly male labour force in a small, primarily Aboriginal community; eliminate the cost of daily transportation; and to optimize productivity.

7.2 Pollution Prevention and Control

In addition to the special mitigation measures developed for TSMC's DSO Project that will be applied to specific mining activities, the proponent commits to implementing, whenever possible, pollution prevention techniques such as:

Transportation and Equipment

- minimizing the use of outdoor lighting when it does not compromise safety and security. This will reduce light pollution and its potentially negative effects on migratory birds;
- utilizing fuel conditioner that reduces overall consumption;
- using less-polluting working methods or equipment (e.g. dust suppression equipment);
- using less-polluting raw materials or products (e.g. using diesel instead of Bunker C);
- equipping dust-producing equipment with baghouses;
- storing all equipment and machinery in designated areas, such as parking, washing and maintenance areas, which must be located no less than 60 m from any watercourse;
- spraying a polymer into the DSO product after it has been loaded into rail cars in order to control dust during transportation to Pointe-Noire;

Pit and Stockpiles Management

- installing an anti-erosion barrier to prevent earth, rocks or other materials from falling into a watercourse;
- stabilizing slopes produced by excavation or made from fill using native plants anywhere erosion is likely to cause an influx of sediments into a watercourse;
- whenever possible, preserving a 10 to 15 m riparian buffer strip along watercourses or wetlands;
- integrating environmental considerations into inventory management, such as minimizing the size of stockpiles and the quantities of fuel and explosives in storage at any given time;

Explosive

- choosing the proper type of explosive, depending on blasting conditions, since the type of explosive used can have a dramatic effect on overall explosives losses;
- developing an explosive material management program to ensure that the lowest possible quantities of ammonia and nitrates enter into the natural environment;
- having trained staff ensure that all bins, tanks, storage trailers and loading equipment are regularly maintained to prevent spills of explosive material;
- not using solid ammonium nitrate in the explosives; all of the ammonium nitrate will be in solution form, eliminating the use of solid prill in the boreholes and thus reducing the level of nitrates that might contaminate the groundwater;

Hazardous Materials

- immediately reporting all spills to the environmental personal including small amount in the event of a spill of hazardous material, marking the contaminated area and removing the surface soil for disposal in accordance with the regulations in force, so as to limit the contamination of any water body through run-off; such areas must be stabilized for revegetation;
- storing hazardous materials, including fuel, no less than 100 m from any water body or surface drainage channel;
- implementing the Hazardous Material Management Plan in case of spills of fuel or other hazardous substances;
- providing each vehicle and machine on the work site with spill kit to ensure a rapid response in case of a spill;

The applicable standard mitigation measures developed for TSMC's DSO Project 1a (ELAIOM) will also be implemented at the Howse Property. It is possible to consult Appendix 5 of the TSMC's DSO Project 1a EIS (NML and PFWA, 2009) for all the details regarding these measures. An Environmental Protection Plan was developed for TSMC's DSO Project and will be used as a reference for this project.

7.3 Best Management Practices

HML is directed by the environmental best practices of Tata Group, Tata Steel and TSMC as well as best practices adopted by Labrador Iron Mines.

Throughout its long history, the Tata Group has been recognised as an organisation committed to good corporate citizenship – long before the term was invented. This philosophy was encapsulated by its founder, Jamsetji Tata (1839-1904), who viewed the creation of wealth not as an end in itself, but as the means by which his company could make a positive contribution to the communities it served.

In the modern world, a good corporate citizen recognizes that it has important social and environmental, as well as financial responsibilities. To help ensure a good quality of life, for all, both now and for generations to come, we need to balance economic prosperity and social progress with care for your planet.

Tata Steel understands and recognizes:

- Responsible practices and procedures ensure that all aspects of Tata Steel's business are conducted with the utmost respect for the environment.
- Every major business has an impact on the communities and societies in which it operates. In all its operations throughout the world, Tata Steel contributes to local and regional economic and social development in myriad ways.
- Making sure that our employees and contractors return home from work safely each day is more important than anything else
- Ethical behaviour is intrinsic to the way we conduct our business and is part of our legacy from the founder of the Tata Group, Jamsetji Tata, who believed that business must operate in a way that respects the rights of all its stakeholders and creates an overall benefit for society.
- Regulatory compliance is part of the business.

TSMC is a member of the Canadian Institute of Mining, Metallurgy & Petroleum – Newfoundland and the Quebec Mining Association, and adheres to the Equator Principles and follow the Environmental Guidelines for mining operations compiled by the United Nations Department of Economic and Social Affairs or by the Article 8j) of the United Convention on Biodiversity with respect to the protection of indigenous knowledge and lifestyle, including the CBD's Akwé: Kon voluntary guidelines for the conduct of cultural, environmental and social impact assessments regarding developments proposed to take place on indigenous lands and territories. Moreover, TSMC is an active player in a number of different environmental initiatives, including in wildlife protection (Ungava project) and in vegetation restoration (program with Université Laval).

7.4 Cross-border Effects

The Project is adjacent to the provincial border between Labrador and Quebec. The closest projected infrastructure is about 950 m from this border. Given the proximity of the Project, there is a potential for changes to the environment to occur in Quebec essentially in relation to air quality and noise.

Also, as described in section 2.6.7, an increase in traffic is expected between both provinces. On average, one train per day will depart from the TSMC loading facility for a period of 7 months when iron ore is extracted simultaneously at the Howse Property and at the TSMC DSO Project. During this period the traffic will be increased on NL (WLR2013) and on Qc (KeRail, TSH, QNSL and CFA) provincial railways.

Most of the dust emissions will be generated by haul truck traffic and blasting. Moreover, since the proposed access road is the closest infrastructure to the border, this source is the most likely to have an impact on the other side of the border. Nonetheless, the border is close to being 1 km away from the pit and is 80 m higher than the mine's closest infrastructure, making it unlikely that any noteworthy dust contamination would occur on the Quebec side.

Other air pollution will also be generated; mainly by blasting and running generators. Given the proximity to the border, some air pollution will most probably reach Quebec territory. However, the ambient air concentrations of all the pollutants evaluated should respect the air quality standard for all the identified receptors (Section 7.5.1). Therefore, effect of the air pollution reaching Quebec territory is deemed negligible. Finally, some noise will also probably be perceivable from Quebec territory. This concerns primarily blasting which will be perceived by all identified receptors (Section 7.5.1). On the other hand, this noise emission will last only a few seconds per week. Because of the distance to the border, other noises should not have an effect on the Quebec side.

No cross-border effect on ground and surface water quality and quantity is possible since water flow direction is north-westerly (in Howells River direction) in both cases (Section 3.4.2). Also, pit dewatering drawdown will not reach Quebec territory since drawdown radius will be below 1 km and the projected pit is more than 2 km from the border (7.6.2).

Overall, some air pollution and noise will reach Quebec territory but no considerable cross-border effect is expected.

7.5 Environmental Effects Assessment: Air Quality and Noise

This section contains information regarding the anticipated environmental effects of the Project on the atmospheric environment, including air quality and noise.

7.5.1 Construction

Activities taking place during the construction phase may result in the emission of pollutants and noise. However, the mitigation measures listed above (sections 7.1 and 7.2) will be incorporated into the Project design as to diminish pollution and dust emissions, as well as noise.

Because the study area of the TSMC's DSO Project 1a already encompasses the Project LSA, the same sensitive receptors are used and are listed below:

- The communities of Schefferville, Matimekush and Lac John, located in the south-east sector of the LSA;
- An outfitting camp (Wishart Lake);
- Ten Innu camps (near Denault, La Cosa and Star lakes);
- Four Naskapi camps (near Elross Lake); and
- The TSMC's DSO Project 1a workers' camp.

The noise generated by construction phase activities should not affect the receptors in the region given their distance from the construction sites. The greatest sources of noise will be associated to generators used as power supplies. The noise they generate only surpasses the maximum noise level for residences in industrial zones located within a radius of a little more than 1 km according to the TSMC's DSO Project

1a EIS (1a). Therefore, since the TSMC's DSO Project 1a worker's camp is more than 6 km away from the Project, it should not be affected.

During site preparation and construction, the dust generated by traffic on unpaved roads and by site preparation work could affect air quality. Vehicles transporting equipment and construction materials (roads, crushing and screening facility) and the machinery used for site preparation/construction could also cause atmospheric pollution. However, these particulate emissions are expected to be limited to the construction sites and will not affect air quality at the receptors.

7.5.2 Operations and Maintenance

During the operations phase, the principal sources of noise will be blasting, transportation and handling activities. Ore transportation by truck between the deposit, the primary crushing facility and, most importantly, the rail loop loading area will constitute a source of noise that might be a nuisance for workers residing in the camp. This activity will be carried out on a continual basis for 12 months of the year, but will be more intense between April and October while most of the ore extraction will occur. For a stationary receptor, the noise generated by the passage of trucks is noticeable for only a short period, but the frequency of passing vehicles is relatively high and this activity will be occurring 24 hours a day. The crushing and screening facility will also generate noise. Noise generated by blasting will be perceptible by all the receptors. Blasting is expected to occur approximately once a week.

The results obtained for the TSMC's DSO Project 1a EIS show that the level of noise generated by the various Project activities (excluding blasting) will be perceptible only at the TSMC's DSO Project 1a workers' camp. For all other receptors, there will be no increase from current noise levels, or the increase (less than 1 dBA) will be imperceptible. Since the Howse Property is farther away from the workers' camp, the noise generated should not be perceptible over the noise generated at the TSMC's DSO Project. As for the noise generated by blasting, it will be perceptible by all receptors, but this level of noise will occur over very short periods (a few seconds). Its anticipated frequency is relatively low (once a week), and blasting will occur during the day and at a set hour.

The highest level of noise will be perceived at the workers' camp, but the application of the 128 dBL maximum air pressure criterion used for the TSMC's DSO Project 1a renders the effect acceptable in the context of a mining operation. Since the same equipment will be used for the Howse Property located about 3 km farther away than Timmins 4, the same conclusions should apply.

The following standard mitigation measures will be applied to limit the effects associated with the noise environment:

- An equipment selection criterion was adopted: all equipment will have to be designed so that the noise level generated is less than 85 dBA at one meter, except for the generators;
- Blasting will be carried out in such a way as to ensure that air pressure at the receptors (workers' camp) is lower than 128 dBA.

The atmospheric emissions related to the operations phase will consist mainly of particulate matter (dust). Particulates will be emitted from fugitive sources related to the blasting, transporting, handling and stockpiling of unprocessed ore and waste rock. Transporting ore by truck on unpaved roads between the deposits and the processing complex constitutes a source of dust emissions. Some dust control measures will be implemented. The emission of particulates generated by drilling and blasting are related to the number of holes drilled and the number of explosions at each site, which will depend on the tonnage to be extracted annually. The creation of waste rock piles also constitutes a source of fugitive particulate emissions. However, once the pile is in place, the material tends to aggregate, and emissions caused by wind erosion decrease progressively.

Blasting and the generator for the crushing facility will produce carbon monoxide (CO) and small quantities of nitrogen oxides (NO_x), sulfur oxides (SO_x) and hydrogen sulfide (H_2S). The results of the modelling done for the TSMC's DSO Project 1a EIS show that, even in the worst meteorological conditions of dispersion, the ambient air concentrations in the communities of Schefferville, Matimekush and Lac John are always lower than the air quality standards for all the pollutants evaluated. Since the same equipment will be used for the Project, the same conclusions should apply as the LSA is slightly further from these receptors. The same model states that under certain meteorological conditions, the ambient air concentrations of TPM and PM10 generated by the TSMC DSO Project could exceed the air quality standards of the Government of Newfoundland and Labrador (GNL) at the workers' camp. Since the Howse Property is a few kilometers farther from the project, the ambient air concentrations of TPM and PM10 from the Project will most probably not exceed the air quality standards at the workers' camp either.

Nevertheless, mitigation measures developed for the TSMC DSO Project will be incorporated into HML design to reduce effects related to noise and air quality.

7.5.3 Decommissioning and Rehabilitation

Activities during the decommissioning and rehabilitation phase will have similar effects to those listed for the construction phase.

7.5.4 Potential Accidents and Malfunctions

Machinery malfunctions and accidents should not have any noteworthy effect on air quality and noise.

7.5.5 Potential Resource Conflicts

The main potential resource conflict expected relates to the noise produced by the Project. Indeed, noise can be a deterrent to terrestrial fauna, which could conflict with hunting activities in the vicinity of the Project. This applies particularly to caribou and waterfowl, which are easily driven away by noise disturbance. More details on this effect are presented in Section 7.7.

7.5.6 Environmental Effects Summary and Evaluation

Table 7.1 summarizes main environmental effects on air quality and noise and presents associated special mitigation measures. HML avoidance strategies (Section 7.1), pollution prevention and control measures (Section 7.2) and TSMC DSO Project standard mitigation measures will also be used to reduce the importance of environmental effects on air quality. The reader can also consult the environmental effects assessment on water quality and water balance (Section 7.5) and on terrestrial fauna (Section 7.7) for complementary indirect environmental effects associated with noise and air quality.

Table 7.1 Environmental Effects Summary and Evaluation on Air Quality and Noise

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
Construction	Site preparation (pit and stockpiles) Construction of access and haul roads Construction of crushing and screening facility Traffic and transportation	Pollution emission	Regular maintenance of pollution control equipment
		Dust emission	Dust control measures
		Noise	All equipment will be designed to generate less than 85 dBA of noise at 1 m, except generators.

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
Operations and maintenance	Waste rock management Mining Blasting Transportation of ore and other traffic	Pollution emission	
		Dust emission	Control dust emissions from aggregate storage and handling. Use blasting mats when required to prevent excessive flyrock. Take the necessary precautions to control dust emissions from blasting. Fill bore hole collars with clean crushed stone to help suppress dust and gases during blasting. Use explosives in a manner that will minimize the scattering of blasted material beyond the limits of the area.
		Noise	Blasting will generate air pressure lower than 128 dBA at all receptors.
Decommissioning and rehabilitation	Site restoration Demobilization of crushing and screening facility and heavy machinery	Same as construction	Same as construction

Noise will be mainly generated by traffic, crushing, generators and blasting. Noise levels between blasting should only affect one receptor, the workers' camp. Blasting noise will affect all identified receptors and might drive caribou away if any were to come close to the Project. Overall, dust emission will mainly be generated by haul truck traffic and blasting, but proper mitigation measures will minimize the impact. Air pollution from combustion will also be generated, but no considerable impact is expected on identified receptors.

7.6 Environmental Effects Assessment: Water Quality and Water Balance

This section describes any Project activity that could affect the quality and quantity of water within the LSA.

In addition to the implementation of effect avoidance strategies (Section 7.1), the standard pollution prevention and control measures listed in Section 7.2 as well as the standard mitigation measures implemented for the TSMC DSO Project will be deployed and will greatly reduce the risk of a pollutant having an impact on water quality.

It is important here to highlight that two different sedimentation ponds will be used for this project. The sedimentation pond 3 (originally constructed for the Timmins 4 pit) is upstream of the Project infrastructure and will receive dewatering and sump waters before discharging into the upstream section of Goodream Creek. The proposed sedimentation pond is located downstream of the Project infrastructure and will receive surface drainage waters intercepted by the peripheral ditches constructed around all infrastructure before discharging into the downstream section of Goodream Creek.

7.6.1 Construction

The construction activities will have an effect on water quality since the project infrastructures will be located close to some water bodies (mainly the Goodream Creek system) and, given the local topography, suspended matter may be generated by surface run-off. Some coloration of the water might also occur at this stage. Standard mitigation measures related to erosion and sedimentation proposed for the TSMC DSO Project will be deployed and should greatly reduce the effects of construction activities on water quality. Additionally, no crossing of natural watercourses is planned for the construction of the road and water quality is not expected to be affected as a result of this activity. One of the ditches will cross a watercourse (GDR3) by means of conduit in such a way as to prevent any contamination of the stream.

Since suspended matter is the only contaminant that could be found in the water during this phase, and because no pumping or deep digging (pit operation) will be performed, no impact on groundwater quality is expected.

Surface run-off will be intercepted by a ditch network, redirecting some water to an adjacent sub-watershed. However, the water will always stay within the Howells River watershed. Since water will be intercepted all around Two Ponds and GDR3, water levels could decrease in those water bodies. A decrease in water level could also occur in Goodream Creek, upstream of the discharge point of the projected surface drainage sedimentation pond, since most of the surface drainage coming from the south-western section of the watershed will be intercepted (refer to Figure 2.2 to see the ditch network design location). On the other hand, as explained in Section 3.4.2 on hydrogeology, the LSA's wetlands correspond to groundwater discharge areas and input by surface run-off could be negligible, since most of the water bodies lie in wetland areas located downstream of the Project footprint. In such a case, the water level would not change substantially during this phase.

The restoration of the temporary work area will limit surface run-off and reduce the possibility of suspended matter reaching water bodies. Since no water crossing is planned and all of the water coming from the cleared areas will be redirected to a sedimentation pond, traffic and transportation should not have any impact on water quality given that the roads do not pass near water bodies.

7.6.2 Operations and Maintenance

The effects that are expected to occur during the construction phase will continue during this phase, but other effects are expected, as highlighted below.

Some of these effects will derive from dewatering. As explained in Section 3.4.2 on hydrogeology, dewatering the ore body will require substantial efforts because it is located in a groundwater recharge area. Water from the dewatering and sump pumps will be piped to the existing Timmins 4- Sedimentation Pond-3. Sump water pumped from the pit might be contaminated by hydrocarbons and oils from machinery and by nitrogen compounds derived from the incomplete combustion of explosives. Only 2% of the emulsion used is expected to survive blasting operations (Hoos, 2007) and some chemicals from explosives (ammonium nitrates and some metals) could be pumped with sump water or leach into the groundwater through the bottom of the Howse pit. This 2% of residual chemicals from explosives will be diluted by precipitation and, since solid ammonium nitrate will not be used, the risk of contamination will be reduced. Oil and fuel will be captured by a separator before the dewatering water reaches the Timmins 4- Sedimentation Pond-3. It will not be possible for these substances to infiltrate and contaminate the settling ponds. Only nitrogen compounds present a risk, but dilution from precipitation, and at the point of entry to the receiving environment, should ensure meeting of the criteria for the protection of aquatic life.

Seepage from waste rock piles is another potential effect on water quality. However, risks of acidification and seepage from waste rock are considered to be very low or non-existent, since the sulfur content of the soil and ore samples analyzed for the TSMC DSO Project (1a) never exceeded 0.02% (see Table 3.12). With respect to a possible release of metals, geological data indicates that the ore and waste rock are already naturally leached and should therefore not meaningfully increase leach in the local environment (Lafleur, 2007).

Dewatering the pit will lower the water table: firstly, water will be pumped from dewatering wells located around the periphery of the pit; secondly, the pit itself will modify the local groundwater gradient. Some water bodies run a high risk of drying out locally, particularly around the pits. Since the hydrogeological study has not yet been completed, it is impossible at this time to know the water table's drawdown radius inside which the water bodies could dry out. Nonetheless, previous hydrogeological studies conducted for other ore bodies in the vicinity (Timmins and Ferriman sectors) suggest a drawdown radius between 450 and 775 m around the pits (Envir-Eau, 2009; Groupe Hémisphères, 2010; Geofor Environnement and Groupe Hémisphères, 2012). To remain cautious, a radius of 775 m will be retained for effect assessment. The drying out of Two Ponds and the upstream sections of GDR3, PIN1 and Burnetta Creek are therefore probable (see Figure 4.2 for water bodies locations). None of these water bodies are considered as fish habitat. Recent photo-interpretation of the areas formerly used by the IOC revealed that watercourses are more likely to dry out than wetlands. Therefore, Two Ponds might be less affected than the streams. In all cases, the streams are intermittent and drying out should not have a noteworthy impact on the rest of the hydrology outside of the drawdown radius. Since groundwater pumped for the dewatering will be reintroduced into Goodream Creek, upstream of the Project (Timmins 4-Sedimentation Pond-3) (Figure 3.1) the reduced flow expected from run-off interception should be compensated for at this phase. Furthermore, Goodream Creek is located more than a kilometer away from the pit, most probably outside of the drawdown zone. In the end, the pumped water will be returned to the environment through Goodream Creek and will stay in the Howells River watershed, so overall water balance will not be modified.

The transportation of ore and other traffic will produce atmospheric pollution that might reach some water bodies. Mitigation measures are discussed in Section 7.5 on air quality.

Since onsite processing of ore will not occur at the Howse Property Project, no tailings or process water will be generated. However, process water from low grade material treated at the DSO process complex will be, as described in the DSO Project 1a EIA, discharged into an abandoned pit and not into the environment.

7.6.3 Decommissioning and Rehabilitation

Some positive effects are expected during this phase. Indeed, dewatering will stop at this phase and some of the dried out water bodies should regain their former water levels since they are all located in potential resurgence areas. Run-off interception will continue to occur, but the associated potential contamination should be reduced by rehabilitation works that will plant vegetation on piles, thereby reducing the suspended matter content of run-off water. The cessation of traffic and crushing activities will stop almost all dust emissions and the risk of surface water contamination from this source will be rendered negligible.

Seepage into groundwater will keep happening but, as explained above, waste rocks are already naturally leached and very low (if any) concentrations of contaminants are expected to leach.

7.6.4 Potential Accidents and Malfunctions

The negative effect most likely to occur would be a heavy machinery malfunction (oil spill). Nevertheless, all of the standard pollution prevention and control measures listed in Section 7.2 as well as the standard mitigation measures implemented for the TSMC DSO Project will greatly reduce the risk of a pollutant having a substantial impact on the ecosystems. Moreover, all heavy machinery and equipment will be maintained at the TSMC DSO Project facilities, largely reducing the probability of an oil spill at the Project site.

7.6.5 Potential Resource Conflicts

The dry-out resulting from dewatering could temporarily or permanently prevent the aquatic fauna from using those habitats. Fortunately, the only water bodies found inside the hypothetical drawdown radius of 775 m (see Section 7.5.2) are Two Ponds, PIN1, Burnetta Creek and GDR3, none of which are considered fish habitats (Groupe Hémisphères, 2014b). Therefore, the lowering of the water table should not have a substantial effect on fish.

7.6.6 Environmental Effects Summary and Evaluation

Table 7.2 lists Project activities and their relation to water quality and water balance, along with the expected environmental effects. HML avoidance strategies (Section 7.1), pollution prevention and control measures (Section 7.2) and TSMC DSO Project standard mitigation measures will also be used to reduce the importance of environmental effects on water quality and water balance. It also summarizes the special mitigation measures that will be deployed to limit or eliminate these effects. The environmental effects assessment on air quality (Section 7.5) can also be consulted for complementary indirect effects on water.

Table 7.2 Environmental Effects Summary and Evaluation on Water Quality and Water Balance

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
Construction	Pit development Construction of crushing and screening facility Construction of access and haul roads	Contamination of surface water	Peripheral ditches around all infrastructures Vegetated buffer zone of at least 15 m around all water bodies Sedimentation ponds properly designed to precipitate suspended matter
		Modification of water regimen	Infrastructures positioned to minimize hydrographic and hydrologic modifications
Operations and maintenance	Waste rock management	Contamination of surface water Contamination of groundwater	Same as construction phase
	Mining	Contamination of surface water Contamination of groundwater	Maintain equipment to minimize oil leakage Extraction of oils and hydrocarbons from sump water Use of emulsion explosives to reduce incomplete explosions Prepare charges so that they are as powerful as possible to minimize the quantity of blasting residue
	Mineral processing	Indirect contamination of surface water through dust emission	See Section 7.5 on air quality

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
	Dewatering	Localized dry-out	Optimize dewatering efforts to avoid pumping unnecessary groundwater Pump water uphill into Timmins 4-SP-3 Sedimentation Pond-3to prevent modifications to the Goodream Creek water balance
	Transportation of ore and other traffic	Indirect contamination of surface water through dust emission	See Section 7.4 on air quality
Decommissioning and rehabilitation	Cessation of traffic Cessation of crushing Demobilization of crushing and screening facility Cessation of dewatering Rehabilitation of piles Site restoration	Indirect reduction of water contamination through reduction of dust emission Reduction of the drawdown radius Reduction of suspended matter generation	N/A

Overall, water contamination effect on the environment is considered to be unlikely since no onsite processing is planned and therefore, no tailings or process water will be generated. Other contaminants will be in low concentrations and suspended matter will settle out in sediment ponds. Localized dry-out will probably occur, but the water balance will not be modified and these effects should be of medium importance.

7.7 Environmental Effects Assessment: Terrestrial Ecosystems

This section includes all of the relevant components of the terrestrial ecosystem, including vegetation, its interactions with the non-living environment (soils, surficial deposits, and climate), wetlands and riparian habitats. No ecosystem that is locally or regionally unique or of special interest will be affected. In addition, no plant species at risk was inventoried within the LSA despite exhaustive surveys.

7.7.1 Construction

The construction phase activities that will affect the terrestrial ecosystems include the construction of the mine haul road and the crushing/screening facilities The clearing, stripping and mine development for the Howse Property Project, as well as the creation of overburden and topsoil stockpiles and waste rock dumps will also be carried out during this phase.

As mentioned in Section 7.1, the design of the road is such that the destruction or disturbance of wetlands, riparian and other sensitive ecosystems will be reduced to a minimum. As such, 1.10 ha of wetlands and no riparian wetland ecosystems will potentially be destroyed or disturbed, as highlighted in Table 7.3. All of the wetlands that will be disturbed or destroyed for road construction are common both locally and regionally. Moreover, no plant species with status were inventoried in the ecosystems of the LSA despite exhaustive surveys.

The construction of the crushing/screening facility will affect 3.07 ha of ecosystems, none of which are wetlands.

The clearing, stripping and site preparation for the open pits and their related stockpiles occupy most of the project footprint, affecting a total area of 208.88 ha (of which 20.86 ha are wetlands). It is important to mention that the Howse Property and its surrounding area are affected by previous mining activities, with 3.74 ha having already been disturbed by mining exploration. Only 0.35 ha of riparian habitat will be affected by the Project.

Topsoil and organic deposits will be removed from the Project footprint, properly stored and used as follows during the restoration phase: the topsoil (fertile layer) will have to be separated from the rest of the surficial deposits and preserved in 4 m high windrows, on a site selected for this purpose. The selected site should be flat or gently sloping and located farther than 20 m from any water body. The organic deposits should be stored in the same manner as the topsoil, but in separate windrows. Separate storage is necessary to preserve the seed bank in the topsoil. The topsoil and organic deposits should be used, if possible within two years, to restore disturbed areas.

No other Project activities potentially affecting the terrestrial ecosystems are planned during the construction phase. As mentioned in Section 2.6.7, the TSMC's DSO Project 1a railway, plant complex, camp, warehouse, explosive storage and access road from Schefferville will be used for the Project, considerably reducing its footprint.

Table 7.3 Terrestrial Ecosystem Area Disturbed

INFRASTRUCTURE	ECO.[1] CODE	ECOREGION	ECOSYSTEM NAME	AREA ECO.[1] (ha)	AREA INF.[2] (ha)
Haul road	01	MSF	Labrador Tea – Feathermoss	0.28	11.77
	05	MSF	Black Spruce – Lichen – Open Forest	5.17	
	08	MSF	Black Spruce/Tamarack – Glandular Birch – Swamp	0.21	
	10	MSF	Black Spruce Forested Bog	0.53	
	12	MSF	Uniform Herb Fen	0.14	
	01	HST	Alpine Shrub – Glandular Birch – Mesic	1.92	
	03	HST	Low Alpine Shrub/Lichens – Subxeric	0.66	
	05	HST	Alpine Shrub – Seepage	0.23	
	Anthropogenic		–	2.65	
Crushing screening and facility	05	MSF	Black Spruce – Lichen – Open Forest	3.06	3.07
	01	HST	Alpine Shrub – Glandular Birch – Mesic	0.01	
Howse Pit	01	MSF	Labrador Tea – Feathermoss	22.06	71.74
	05	MSF	Black Spruce – Lichen – Open Forest	7.62	
	12	MSF	Uniform Herb Fen	1.09	
	01	HST	Alpine Shrub – Glandular Birch – Mesic	15.60	
	03	HST	Low Alpine Shrub/Lichens – Subxeric	25.37	
Overburden stockpile	01	MSF	Labrador Tea – Feathermoss	7.90	66.31
	05	MSF	Black Spruce – Lichen – Open Forest	54.80	
	08	MSF	Black Spruce/Tamarack – Glandular	3.61	

INFRASTRUCTURE	ECO.[1] CODE	ECOREGION	ECOSYSTEM NAME	AREA ECO.[1] (ha)	AREA INF.[2] (ha)
			Birch – Swamp		
Topsoil stockpile	05	MSF	Black Spruce – Lichen – Open Forest	3.44	3.80
	15	MSF	Uniform Fluvial Shrub Fen	0.35	
	Anthropogenic			0.002	
Waste rock dumps	05	MSF	Black Spruce – Lichen – Open Forest	22.20	67.03
	08	MSF	Black Spruce/Tamarack – Glandular Birch – Swamp	14.06	
	14	MSF	Uniform Shrub Fen	1.74	
	01	HST	Alpine Shrub – Glandular Birch – Mesic	26.79	
	03	HST	Low Alpine Shrub/Lichens – Subxeric	1.15	
	Anthropogenic			1.09	
Total				**223.72**	**223.72**

N.B.: Wetland ecosystems are highlighted in blue
[1] Ecoregion
[2] Infrastructure

7.7.2 Operations and Maintenance

Since all of the clearing and stripping will take place during the construction phase, resulting environmental effects occurring during the operations and maintenance phase will be minimal. Nevertheless, pit dewatering may alter the moisture regime of wetlands adjacent to the Howse pit, considering the drawdown of the water table that will be created by the pit dewatering (see Figure 4.1 to locate wetlands close to the Howse pit). As mentioned in Section 3.4.2, the Howse Property area is surrounded by a series of wetlands corresponding to a groundwater discharge area. The dewatering drawdown radius was estimated at 775 m (see Section 7.6 for details). Therefore, pit dewatering might temporarily disturb approximately 86 ha of wetlands. The subsequent disturbance level is hard to estimate and is related to the hydrological and moisture regime change caused by the dewatering drawdown. Hydrogeological data and information on the resurgence zone location and the permeability between the surface and deep water tables would be necessary to evaluate the effect of dewatering on local wetland disturbance. The hydrogeology study, currently being conducted, will be available in the coming months and will answer these questions. Drainage ditches located within wetlands might also affect the latter's water flow and moisture regime. However, all effects on wetland related to dewatering are temporary and reversible.

7.7.3 Decommissioning and Rehabilitation

No further negative effect is expected during the decommissioning and rehabilitation phase. Instead, ecosystems similar to the one disturbed during Project operations will be created on the overburden and low grade stockpiles, waste dump and haul road. All actions and techniques enclosed in the TSMC DSO Project rehabilitation plan will also be implemented for the Project. As mentioned in Section 7.3, TSMC and NML are involved in a revegetation research program with Université Laval as part of restoration activities for the TSMC DSO Project.

7.7.4 Potential Accidents and Malfunctions

The negative effect most likely to occur would be a heavy machinery malfunction (oil spill). Nevertheless, all of the standard pollution prevention and control measures listed in Section 7.2 as well as the standard mitigation measures implemented for the TSMC DSO Project will greatly reduce the risk of a pollutant having an impact on the ecosystems. Moreover, all heavy machinery and equipment will be maintained at the TSMC DSO Project facilities, largely reducing the probability of an oil spill at the Project site.

7.7.5 Potential Resource Conflicts

The terrestrial ecosystems area disturbed by the Project is not substantial enough to create resource conflicts with other biophysical or socioeconomic components. Noise disturbance is more likely to create a resource conflict with caribou and caribou hunting than the ecosystem disturbance itself.

7.7.6 Environmental Effects Summary and Evaluation

Table 7.4 summarizes the main environmental effects on terrestrial ecosystems and shows associated special mitigation measures. HML avoidance strategies (Section 7.1), pollution prevention and control measures (Section 7.2) and TSMC DSO Project standard mitigation measures will also be used to reduce the importance of environmental effects on terrestrial ecosystems. Moreover, the environmental effects assessment on dust (Section 7.5) and on water quality and water balance (Section 7.6) can also be consulted for an additional, indirect environmental effect assessment on terrestrial ecosystems.

Table 7.4 Environmental Effects Summary and Evaluation on Terrestrial Ecosystems

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
Construction (road and crusher)	Site preparation Construction of access and haul roads Construction of primary crushing facility Accidents and failures	Destruction or disturbance of 1.10 ha of wetlands Destruction or disturbance of 13.74 ha of non-humid natural ecosystems Risk of oil spill contamination	Topsoil and organic matter will be properly removed, stored and reused for rehabilitation.
Construction (clearing and stripping of pit, stockpiles and dump)	Removal and storage of overburden and waste rock management Mining Accidents and failures	Destruction or disturbance of 20.86 ha of wetlands Destruction or disturbance of 188.02 ha of non-humid natural ecosystems Risk of oil spill contamination	Topsoil and organic matter will be properly removed, stored and reused for rehabilitation; TSMC DSO Project infrastructures (warehouse, camp, railway facilities, high grade ore stockpile, haul road) will be used to minimize Project footprint; Waste rock dump, overburden stockpile and temporary working area will be progressively restored into natural ecosystems using local indigenous plant species.
Operations and maintenance	Open pit dewatering Mining Accidents and failures	Potential disturbance of 86 ha of wetlands Risk of oil spill contamination	Same as during the Construction phase
Decommissioning and rehabilitation	Site restoration Demobilization of	Progressive restoration of 140 ha of degraded	The implementation of effect avoidance strategies (Section 7.1),

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
	crushing facility and heavy machinery	ecosystems (topsoil stockpile, overburden stockpile, waste rock dump, crushing screening and facility)	pollution prevention and control measures (Section 7.2) and TSMC's DSO Project standard mitigation measures are sufficient to mitigate any effect during the decommissioning and rehabilitation phase.

7.8 Environmental Effects Assessment: Terrestrial Fauna

This section includes all of the relevant components of terrestrial fauna, including: caribou, other large mammals, furbearers, small mammals, micromammals, chiroptera, herpetofauna and avifauna. Table 7.5 lists the components that were considered during the effects assessment.

Table 7.5 Terrestrial Fauna and Components Selected for the Environmental Effects Assessment

GROUP	SELECTED COMPONENT	JUSTIFICATION
Large mammals	Caribou (migratory and sedentary)	A species of great importance for the local populations (migratory ecotype). A protected ecotype (forest-dwelling/sedentary ecotype) may be present in the LSA.
Furbearers and other small mammals	Mammals harvested	Considered important because they are harvested and valued by the local communities.
	Wolverine	Species protected by federal and provincial legislation.
Micromammals	—	Not considered because of their very low population density. They do not have a special socio-cultural value for the Innu or the Naskapi.
Chiroptera	—	Not considered because of their very low population density. They do not have a special socio-cultural value for the Innu or the Naskapi. No data confirming the presence of species at risk in the LSA.
Herpetofauna	—	Not considered because of their very low population density. They do not have a special socio-cultural value for the Innu or the Naskapi.
Avifauna	Species at risk and migratory species	Some avifauna species are protected under federal and provincial legislation (see Section 4.3.6 for complete list). Two species are known to nest in the LSA (migratory bird, grey-cheeked thrush and rusty blackbird). Migratory species (including goose and other waterfowl) are protected under federal legislation.

7.8.1 Construction

7.8.1.1 Loss of habitat

Caribou and Harvested Mammals

The construction phase, which includes the construction of the roads and the crushing and screening facility, as well as stripping for the pit and stockpiles, will affect 223.72 ha of ecosystems (see Section 7.6). Some of these ecosystems are potential habitats for species at risk or for other species of interest.

The disturbance to the most suitable habitats for migratory caribou (MSF05: Black Spruce — Lichen — Woodland) represents 96 ha. These habitats could be used during winter, but proximity to other ongoing active mining projects highly limits this probability. However, considering the thousands of square kilometers that migratory caribou cover each year, the loss associated with the Project is altogether small.

For sedentary caribou, a loss of habitat might result in increased predation and hunting rather than a reduction of available food (Courtois, 2003). In the boreal forest, the quantity of food available to sedentary caribou is not a limiting factor. However, as mentioned in Section 4.3.1, the Project LSA does not encompass any known ranges of sedentary caribou.

No substantial habitat loss is expected for the various harvested mammals. Several species are associated with riverine forests or aquatic habitats, none of which will be affected by the Project. However, a mature coniferous forest is also an important habitat for several species. The loss of approximately 118 ha of forest (MSF01 and MSF05) is expected during the operations phase. These habitats are very common in the region. It should also be noted that the First Nations do not practice much trapping in this sector, except at Pinette Lake, an area not directly affected by the Project.

Migratory Birds and Bird Species at Risk

All habitat loss will occur during the construction phase. As mentioned above, the construction of the roads and the crushing and screening facility, as well as stripping for the pit and stockpiles will affect 223.72 ha of ecosystems (see Section 7.6 for more information on potential effects on ecosystems).

It is 223.72 ha of potential bird nesting habitats that will be lost during the Project construction phase. According to the KéMag mining project nesting bird survey technical report (Groupe Hémisphères, 2012d) done in similar biotopes, a potential loss of 2.6 (tundra) to 4.4 (open wetland) breeding pairs/ha could be expected within Project footprint. Some of those breeding pairs will be migratory birds since the most common birds were migratory species.

The nesting habitats of two bird species at risk will be affected by the construction phase. The migratory bird, grey-cheeked thrush is associated with various forest habitats and the rusty blackbird is linked to wetlands. These habitats are very common elsewhere in the region. To prevent any loss of broods of those two species as well as all other migratory birds, clearing and stripping should not be carried out during the breeding bird season (from May through August).

The habitat loss will also locally reduce staging areas availability for birds during the migration periods. The important staging area for waterfowl and shorebirds is located in the Howells River valley, located more than 3 km away from any Project footprint, in large, flat and open wetlands. One exception was Triangle Lake, but it is still located more than 1 km away from any Project footprint. Loss of habitats during the construction phase should therefore not considerably disturb migratory bird during their migration as the majority of high quality habitats (staging areas) are located down in the Howell's River valley. Moreover, the Project layout was designed to avoid as much as possible wetlands and aquatic habitats.

As for passerines using the study area during their migrations, loss of habitat during construction might not affect them. These birds are less demanding with respect to habitat during their migration than they are at nesting time. Also, avoiding clearing and stripping from May to August will reduce the negative effect on passerines during migration.

7.8.1.2 Noise and Other Types of Disturbance

Caribou and Harvested Mammals

Noise disturbance will affect both the caribou and the wolverine, if present. It will mostly be caused by transportation, use of explosive and traffic.

For migratory caribou, noise disturbance might result in a modification of their migratory pattern. Their movements and distribution are believed to vary according to the size of the population and its use of the resources in wintering areas (Schmelzer and Otto, 2001; Payette et *al.*, 2002). A reduction in the size of the herd could explain why very few caribou have been seen in the Schefferville region in the past few years. The most direct consequence of migratory caribou avoiding the LSA would be a decrease in hunting success by Aboriginals in this sector.

The sedentary caribou is particularly sensitive to disturbances during the calving season. However, since there is no evidence that sedentary caribou calve in or near the LSA and no caribou have been seen in or near the Project area in recent years (see Section 4.3.1), it is not expected that the Project will disturb sedentary caribou.

Habitats used by the wolverine vary greatly, ranging from the boreal forest to the taiga and the tundra. Its presence is not linked to a specific habitat but to the abundance of prey, particularly caribou in northern regions (Moisan, 1996). Ongoing projects in the vicinity are already a deterrent for caribou and the Project is not expected to increase disturbances substantially. Therefore, it is not expected that the migratory caribou will change their migration route to avoid the LSA. Consequently, the odds that wolverines would use the LSA remain unchanged, i.e. really low. The effects of the Project on that species should be very low, if not negligible, given the unlikely chance of finding wolverines (see Section 4.3.3.3) within the LSA.

TSMC and LIM have already implemented a series of measures to minimize noise disturbance effects on caribou in their ongoing projects. These measures will also be applied to the Howse Property Project:

- Implementation of a workers' awareness program;
- Speed limit and preventive maintenance program for mufflers;
- Interruption of noise-generating activities should a group of approximately 100 migratory caribou approach within 5 km or when a group of approximately 10 caribou approaches within 3 km;
- Prohibition of hunting for workers.

No special mitigation measures will be specifically implemented for wolverines. The measures proposed to mitigate the effects of noise disturbance on caribou and migratory birds will also be beneficial to wolverines.

Several measures have been implemented by TSMC and LIM for their ongoing projects. They will also be implemented for the Howse Property, as presented below.

In cooperation with GNL and Government of Québec, TSCM and HML will participate actively in the Caribou Ungava Research Program a large research program on the ecology and population dynamics of migratory caribou of the Quebec-Labrador peninsula in a context of climate change. TSMC renewed its agreement in February 2014 to be an official partner of the Ungava research program. This research program was launched in 2009 and is supervised by researchers of Université Laval, Université de Sherbrooke and the Ministère des Resources naturelles et de la Faune du Québec. Also, TSMC and HML will participate in different initiatives (Canadian Boreal Initiative, First Nations initiative, etc.) to minimize adverse effects of projects on caribou populations.

Species at risk and Migratory Birds

Noise disturbance have a potential effect on migratory birds, especially during the breeding season. It might cause birds to avoid the area. The rusty blackbird is one of the few documented cases of a bird disturbed by human activities and is potentially present within or close to the Project footprint (Nadeau, 1995). Rusty blackbirds might thus avoid the project footprint area after the construction phase. High quality habitats for the rusty blackbirds are common regionally. Since it was recommended to proceed with the clearing and stripping outside the breeding bird period, it might lessen the noise disturbance for birds during the construction period.

Noise disturbance effect on migrating birds is not well documented. A study designed to simulate traffic noise in a natural area showed a substantial decline in bird abundance when traffic noise were emitted (McClure et al., 2013). Noise generated during the construction might cause birds to avoid the Project footprint. The Project footprint is not considered a staging area for waterfowls and shorebirds. Passerines may use the area for migration stopovers, but similar habitats are plentiful locally and regionally.

Lighting within Project footprint could have an effect on bird behavior. Nevertheless, towers or lighting are planned for the Project, eliminating any risk of collision or flight disturbance during bird migration.

7.8.2 Operations and Maintenance

7.8.2.1 Noise and Other Type of Disturbance

Caribou and Harvested Mammals

Noise disturbance will affect both ecotypes of the caribou and the wolverine. It will mostly be caused by mining, transportation and traffic. The measures that will be applied are the same as those mentioned for the construction phase.

Migratory Birds

Noise disturbance and lighting effects on migrating birds described for the construction phase will also occur during the operation and maintenance phase. Moreover, presence of sedimentation ponds could specifically attract birds within Project footprint. Contaminants present in these ponds may have an effect on bird health. However, no noteworthy effect on bird is expected since the sedimentation pond will only receive drainage and dewatering water, both with a low level of contaminants, and due the residence time of these visitors will be few days.

7.8.3 Decommissioning and Rehabilitation

No further negative effect is expected during the decommissioning and rehabilitation phases. The noise disturbance will cease when the decommissioning is over. Some of the disturbed areas will be restored to recreate ecosystems that were present before the implementation of the Project. Even with the rehabilitation, some of the habitats that will be destroyed will not return completely to their initial state. If present, water in the sedimentation pond will be of good quality.

7.8.4 Potential Accidents and Malfunctions

Potential accidents and malfunctions are not expected to affect any terrestrial fauna components.

7.8.5 Potential Resource Conflicts

The noise disturbance and loss of habitat may create a resource conflict for caribou hunting. The LSA and its surrounding area will be less suitable for the caribou and in the worst case scenario; they might not use it anymore. The most direct consequence of migratory caribou avoiding the LSA would be a decrease in their successful hunting by Aboriginals in this sector. Goose hunting is also performed on the opposite side of Irony Mountain, at the bottom of the Howells valley. As highlighted above, the distance between the Project footprint and the bottom of the Howells River valley should prevent for any adverse effect on goose hunting.

7.8.6 Environmental Effects Summary and Evaluation

Table 7.6 summarizes the main environmental effects on terrestrial fauna and lists associated mitigation measures. It should also be noted that besides the special mitigation measures listed in Table 7.6, the Proponent will implement effect avoidance strategies (Section 7.1), pollution prevention and control measures (Section 7.2) and TSMC DSO Project standard mitigation measures. The reader can also consult the environmental effects assessment on terrestrial ecosystems (Section 7.7) for an additional, indirect environmental effect assessment on terrestrial fauna.

Table 7.6 Environmental Effects Summary and Evaluation on Terrestrial Fauna

PROJECT PHASE	SOURCE OF ENV. EFFECT	COMPONANT AFFECTED	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
Construction	Site preparation (stripping and clearing of pit and stockpiles areas) Construction of access and haul roads Construction of primary crushing facility	Caribou Mammals harvested Bird species at risk and migratory bird species	Loss of habitat	During clearing, special attention should be paid to the limits of work areas so as not to needlessly damage caribou habitats. Stripping, clearing, excavation and filling should be kept to a strict minimum so as to use the smallest possible area. Stripping and clearing should not be carried out during the bird nesting season (June through August). Plant species used and habitats created for restoration should be targeted for caribou As part of the Ungava Research program, migratory caribou will be monitored via radio satellite collars, and the on-site Environmental specialist / permitting manager will be notified when caribou are within 100 km of the DSO Project area. The following monitoring measures will be employed: • within 100km - activities will continue with caution; and •within 20 km - ground level surveys may be initiated from fixed points or via snowmobile and ATVs by trained local monitors employed by TSMC. If this is not feasible, aerial surveys will be employed during snow covered conditions.
	Transportation and traffic	Caribou Wolverine Waterfowl	Noise disturbance	Implementation of a workers' awareness program Speed limit and muffler preventive maintenance program Interruption of noise-generating activities should a group of approximately 100 migratory caribou approach within 5 km

PROJECT PHASE	SOURCE OF ENV. EFFECT	COMPONANT AFFECTED	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
				or when a group of approximately 10 caribou approaches within 3 km Hunting prohibited for workers
Mining	Transportation of ore and other traffic	Caribou Wolverine Waterfowl	Noise disturbance	Same as during the construction phase
Decommissioning and rehabilitation	Transportation and traffic	Caribou Wolverine Waterfowl	Noise disturbance	Same as during the construction phase

7.9 Environmental Effects Assessment: Aquatic Fauna

This section includes all of the potential effects on elements relevant to the aquatic fauna, including fish and benthos, and their habitats. It also includes indirect impacts from water quality and water balance modifications. Since impacts on water quality and water balance along with mitigation measures have been treated in Section 7.5, they will not be repeated here and only mitigation measures for activities directly impacting the aquatic fauna or benthic habitat variables will be discussed in this section. Howells River is unique or of special interest to the local population (Aboriginal and non-Aboriginal alike) in terms of aquatic fauna and its habitat. However, none of the Project activities will affect this water body. Furthermore, no species at risk was recorded in the water bodies of the LSA despite exhaustive surveys. As mentioned in the effect avoidance strategies section, the layout of the Project was designed to minimize the impact on water bodies.

In addition to the implementation of effect avoidance strategies (Section 7.1), standard pollution prevention and control measures listed in Section 7.2, as well as the standard mitigation measures implemented for TSMC's DSO Project, will be deployed and will greatly reduce the risk of a pollutant having an effect on the aquatic habitats.

7.9.1 Construction

None of the construction phase activities are expected result in the destruction of fish habitat. Indeed, no activity of the construction phase directly overlaps with any of the water bodies (see Figure 4.6), and no major modification of the water regime is expected.

Nevertheless, potential effects from some activities like pit development, construction of crushing and screening facility and construction of access and haul road taking place close to some water bodies and proper erosion and sediment control measures will be deployed to prevent contamination. As explained in Section 7.5, suspended matters will be dealt with by sedimentation in ponds and only coloration is expected to reach natural water bodies. Since Goodream Creek offers a decent dilution at the discharge point, coloration is expected to be minimal and noteworthy effect on fish and fish habitat is unlikely.

Nevertheless, potential effects from some activities like pit development, construction of crushing and screening facility and construction of access and haul road taking place close to some water bodies may occur. It is possible for some suspended matter to reach the receiving environment with the potential to adhere to gills and scales of fish, which can directly lower their fitness and potentially lead to death (Newcomb and MacDonald, 1991). Sedimentation of redds can also occur, potentially smothering eggs and fry. Siltation can also be an issue for filter feeding benthic invertebrates by decreasing ingestion rates to potential starvation levels (Arruda *et al*, 1983). Finally, the increased turbidity and coloration could somewhat impair the feeding behavior of trout, which are known to be visual feeders (Barrett *et al*, 1992).

Still, some mitigation factors are expected to reduce the potential effects. Indeed, Goodream Creek offers a decent dilution at the discharge point of the peripheral ditch network, low concentrations of suspended matter and low coloration are expected. Considerable effect on fish and fish habitat is therefore unlikely from this source. As for the Timmins 4 Sedimentation pond-3 discharge, it is located in a low flow section of the Goodream Creek, but the high quantity of pristine ground water will ensure low concentrations of contaminants. Moreover, brook trout is known to live and spawn in other water bodies having turbidity and coloration issues like, the Elross Creek and the decommissioned Timmins 1 pit (AMEC Earth & Environmental, 2009; Groupe Hémisphères, 2013c).

Nonetheless, some mitigation measures will be deployed. Particularly, proper erosion and sediment control measures will be utilized to prevent contamination. As explained in Section 7.5, all run-offs will be intercepted by peripheral ditches, vegetation buffer zones will be preserved around water bodies and suspended matters will be dealt with by grit settling and sedimentation ponds.

A potential indirect effect will be through water balance modifications (see Section 7.6). Indeed, interception of runoff from the west side of Goodream Creek could lower the water level of the section upstream of the Timmins 4 Sedimentation Pond-3 discharge point. This could have an effect since this part of the stream is already intermittent and lowering its water level could reduce its availability to fish. This impact is undefined since the proportion of Goodream Creek's water coming from western lateral runoff is unknown and the extent of the draw down will be documented in the hydrogeological study to be completed this summer.

The restoration of the temporary work area should limit surface runoff and reduce the possibility of sediments reaching water bodies. Since no water crossing is planned, traffic and transportation should not have any effect on the aquatic fauna and its habitat.

7.9.2 Operations and Maintenance

Mining and dewatering are the main activities potentially affecting the aquatic fauna or its habitat while operations and maintenance are ongoing. Indeed, blasting near water bodies may injure or kill fish from all life stages. Given that the Howse Property is close to some water bodies considered fish habitats (Pinette Lake, Goodream Creek and Triangle Lake), fish mortality may occur as a result of blasting depending on the size of the charge used.

Also, dewatering could indirectly cause the disappearance of aquatic habitats by lowering the water table, as explained in Section 7.6, and result in the drying-out of nearby habitats. Lastly, some suspended matter and coloration could reach the receiving environment with potential consequences similar to those elaborated for the construction phase in relation to siltation and transparency of water. Waste rock management, mineral processing and transportation of ore and other traffic do not represent direct effects on the aquatic fauna and its habitat. Potential effects are indirect through water quality and mitigation measures are presented in Section 7.6. Overall, effect should not be noteworthy since proper surface water management is planned. Solid waste management, hazardous waste management and treatment of sanitary wastewater will take place outside of the LSA, i.e. at the TSMC's DSO Project 1a installations where proper environmental control measures are already in place.

Some mitigating factors will reduce the importance or the likelihood of the previously mentioned potential effects. Concerning the lowering of the water table, fortunately, none of the adjacent water bodies (Two Ponds, GDR3, PIN1 and Burnetta Creek) are considered fish habitats since no fish was caught in them and due to the low quality of the habitat. Moreover, groundwater from dewatering will be pumped to Timmins 4 Sedimentation pond-3 before being discharged into Goodream Creek, upstream of the Project, which should compensate for the potential lowering of the water level expected from interception of runoff described in the construction phase. As for the contaminants potentially reaching the environment, Timmins 4 Sedimentation pond-3's discharge is more than 500 m upstream of the closest caught fish and in an intermittent stream with medium substrate. Therefore, if suspended matter reaches Goodream Creek, it will be partly filtered by the substrate. In the end, coloration may be the only change to surface water reaching fish habitat.

To minimize potential effects, some mitigation measures will be developed. The disposal of dewatering and sump water should not have an important impact on fish and their habitats since proper water treatment methods will be implemented to ensure that the concentrations of contaminants comply with regulations before being discharged into the environment (see Section 7.6 for details). Mitigation measures put in place for the construction phase will continue to play their role in minimizing those impacts.

Since onsite processing of ore will not occur at the Howse Property Project, no tailings or process water will be generated. However, process water from low grade material treated at the DSO Project 1a will be, as described in the DSO Project 1a EIA, discharged into an abandoned pit and not into the environment.

Special measures will also be taken for the blasting operations. The guidelines prepared by Wright and Hopky (1998) provide equations to calculate the minimum distance required to respect the upper limit of instantaneous pressure change (i.e. positive pressure) in the air bladders of fish and the upper limit of the speed of particulates. The object of the first limit is to protect the fish, while the purpose of the second limit is to protect the incubating eggs at the spawning sites. The equation to calculate the maximum quantity of explosives to be used so as not to exceed the limit of 100 kPa is the following:

Maximum quantity of explosives to be used (kg) = $[\text{Distance (m)} / \text{Factor K}]^2$

where K = 5.03 (for rock)

The equation to calculate the maximum quantity of explosives to be used so as to respect the limit of 13 mm/s is the following:

Maximum quantity of explosives to be used (kg) = $[\text{Distance (m)} / 15.096]^2$

Table 7.7 shows the maximum quantity of explosives to be used in order to avoid the direct mortality of fish and eggs according to the relevant limits and the minimum distance between the deposits and the water bodies containing fish habitat that may be affected.

Table 7.7 Maximum Charge of Explosives to Be Used to Prevent Fish Mortality

WATER BODIES	DISTANCE FROM DEPOSIT* (m)	MAX. CHARGE OF EXPLOSIVES (kg)	
		100 kPa	13 mm/s
Pinette Lake	840	27,888	3,096
Triangle Lake	1,640	106,305	11,802
Goodream Creek	1,010	40,319	4,476

* Distances from deposits are the shortest distances between the projected pit and the water bodies in question

By limiting charges to 4,400 kg between August and January, the impact on fish eggs should not be substantial since it will ensure the protection of fish eggs in Goodream Creek, which is a known spawning ground. Since no spawning ground was identified in the western end of Pinette Lake (Groupe Hémisphères, 2014b), this charge should prevent the mortality of most fish eggs. Moreover, brook trout usually spawn in streams, and since no spawning ground was identified in PIN1, spawning most likely occurs in the outflow of the lake, on the eastern side, far from the egg mortality zone associated with the prescribed charge. The rest of the year (February to July), a maximum charge of 27,800 kg will prevent fish mortality in all water bodies.

7.9.3 Decommissioning and Rehabilitation

No further negative effect is expected during the decommissioning and rehabilitation phase except for runoff and sedimentation from use of heavy machinery. Indeed, some suspended matter and coloration could reach the receiving environment with consequences similar to those elaborated for the construction phase in relation to siltation and transparency of water.

Rehabilitation could allow access of previously dried-out habitats once dewatering cease. Also, rehabilitation and vegetation of piles, decreasing traffic and cessation of crushing activities should reduce suspended matter generation and dust emission, and hence reduce water contamination potential.

7.9.4 Potential Accidents and Malfunctions

The negative effects most likely to occur would be indirect through water quality degradation due to heavy machinery malfunction (oil spill). Potential impacts on water quality are discussed in Section 7.5 (Water Quality and Water Balance). Since risks are considered to be adequately controlled, no impact on aquatic fauna is expected.

7.9.5 Potential Resource Conflicts

The aquatic fauna affected by the Project is not substantial enough to create resource conflicts with other biophysical or socioeconomic components. Fish species found within the LSA are only sparsely used by locals are not subject to commercial fishing.

7.9.6 Environmental Effects Summary and Evaluation

Table 7.8 lists the project activities and their relation to the aquatic fauna and its habitat along with the expected environmental effects. It also summarizes the special mitigation measures that will be deployed to limit or eliminate these effects. The environmental effects assessment on water quality and water balance and on air quality (Sections 7.5 and 7.6) can also be consulted for complementary indirect effects on the aquatic fauna.

Table 7.8 Environmental Effects Summary and Evaluation on Aquatic Fauna

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
Construction	Pit development; Construction of crushing and screening facility; Construction of access and haul roads	Habitat degradation through surface water contamination Fish and benthos mortality through surface water siltation Habitat loss indirectly through interception of runoff	See Section 7.6
Operations and maintenance	Mining	Fish and fish egg mortality due to blasting shockwaves	Limit charge size to 4,400 kg to ensure the survival of eggs between August and January; Limit charge size to 27,800 kg to ensure the survival of fish; Divide large charges with delayed action blasting caps (>25 ms); Use directional charges to minimize shockwave propagation.

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
	Dewatering	Habitat loss indirectly through lowering of the water table; Habitat degradation through surface water contamination Fish and benthos mortality through surface water siltation	See Section 7.6
	Waste rock management	Habitat degradation through surface water contamination Fish and benthos mortality through surface water siltation	See Section 7.6
Decommissioning and Rehabilitation	Cessation of operations; Rehabilitation of piles	Habitat improvement Indirectly through reduction of dust emission and water contamination; Habitat gain by elevation of the water table;	N/A

Overall, temporary habitat loss might occur due to runoff interception, but that should be alleviated when groundwater starts to be pumped back into Goodream Creek. Blasting could cause fish mortality, but respecting charge size limits will prevent such eventuality from happening.

7.10 Environmental Effects Assessment: Socioeconomic Environment

Communities and their populations, economies and infrastructure may be affected by development projects. The following section discusses potential effects of the Project on the socioeconomic environment.

7.10.1 Communities and Economy

HML is planning to use TSMC's existing workforce and up to 50 new employees, including from the Aboriginal communities, and rotational workers to construct and operate the Howse Property. These workers are housed in TSMC camp accommodations near the work site and outside of municipalities to minimize their effect on communities. These commuting workers use local and regional air transportation, roads and accommodations as they travel to and from the camp site. Development and implementation of the Howse Property will sustain the local economy, including the Aboriginal economy, and create ongoing opportunities for employment and businesses (over $150 million have been invested in Aboriginal businesses and partnerships since the beginning of TSMC's DSO project). These may vary with project phases and activities but will make a positive contribution to the local area and the region as well as the provinces of Newfoundland and Labrador and of Quebec.

7.10.1.1 Construction

HML will use TSMC existing workforce and existing local labour to complete construction of the Howse Property. This means that the permanent population will not likely change as a result of construction.

HML uses a combined local and fly-in / fly-out workforce housed in an accommodations camp near the mine site. As this facility is self-contained and located outside of municipalities, it does not affect most community infrastructure and services used by permanent residents. However, temporary workforces on a rotational basis affect the capacity of local accommodations (i.e. hotels), traffic on local roads as well as air transportation at Wabush and Schefferville airports.

TSMC will engage external contractors for the construction phase of Howse Property. As per the IBAs, local people shall be hired by these companies and hence, communities shall benefit from increased employment. In addition, local and regional businesses will benefit from supplying goods and services (over $150 million have been invested in Aboriginal businesses and partnerships since the beginning of TSMC's DSO project). This would likely result in increased employment and an increase in economic activities, which would help to sustain the communities of the region. As per the Benefits Plan agreement signed with the Government of Newfoundland and Labrador, residents from this province will continue to make-up a majority of the workforce and Newfoundland and Labrador businesses and particularly Labrador West businesses will continue to supply goods and services to support the mining industry in the region (TSMC, 2013).

Such developments are generally beneficial and opportunities can be enhanced through local employment and procurement policies. For Aboriginal communities, business, training and employment opportunities are addressed through the Impact Benefit Agreements (IBAs) that TSMC / LIM has developed with affected Aboriginal groups.

7.10.1.2 Operations and Maintenance

The operations phase of the Project will result in ongoing employment and business opportunities. HML plans to make use of its existing workforce, both local and fly in-fly-out workers, at the new mine site and to hire an additional 50 staff to work on the Howse Property. Priority will be given to members of the First Nations communities in the region. Therefore, the Project is not likely to result in a permanent population increase. Ongoing employment opportunities in the area may help to retain population and prevent erosion of service availability that often results from the loss of permanent population. As per the Benefits Plan agreement signed with the Government of Newfoundland and Labrador, residents from this province will continue to make-up a majority of the workforce and Newfoundland and Labrador businesses and particularly Labrador West businesses will continue to supply goods and services to support the mining industry in the region (TSMC, 2013).

As production will increase over the previous project, ore train traffic will increase from one train every second day to one train per day during a period of 7-8 months per year (April to October). In addition, truck traffic will increase to 12 trucks per hour at the mine site. Increased road and rail traffic presents a nuisance to, and potentially a safety concern for, local residents. However, passenger trains are given priority on the portion of the rail line from Schefferville to Emeril Junction.

7.10.1.3 Decommissioning and Rehabilitation

Existing workers, including Aboriginal workers, will be employed in the decommissioning and reclamation phases of the Project. Following decommissioning and rehabilitation, mine closure could result in layoffs and subsequent loss of permanent population. If no new permanent residents have moved into the area to be employed by the Project, closure should not result in change to capacity and usage of community infrastructure and services. This Project phase may result in additional short term employment and business opportunities for Aboriginal-owned businesses as per the IBAs but these and others would cease with the closure of the Project. Road and rail traffic would return to normal with Project closure.

7.10.1.4 Potential Accidents and Malfunctions

Potential accidental events or malfunctions that may result in effects on communities include accidental release of fuels, chemicals or other substances into the environment, either of which could potentially occur during any phase of the Project. The potential environmental implications of any such occurrence would depend upon the nature, magnitude, location and duration of the event. Although communities are located throughout the region, the nearest community is more than 20 km from the Howse Property. Most Project-related accidents and malfunctions would be local to the mine site and not affect communities or their infrastructure and services.

The exception would be an event such as a forest fire, resulting from an incident at the mine site, which could potentially spread to communities. Such incidents would likely be managed at the site but a large scale event might draw upon community agencies, professionals and volunteers such as those in emergency response services (e.g., fire, policing, and healthcare) that could potentially compromise community needs at least for the short term. Such potential incidents will be addressed in the proponent's Environmental Management and Emergency Response Plans.

7.10.1.5 Potential Resource Conflicts

No phase of development or implementation of the Project is likely to result in a permanent population change. The Project is located more than 20 km from the communities of Matimekush-Lac John, Schefferville and Kawawachikamach. Thus it will have little effect on communities, their populations and services and infrastructure. However, additional temporary construction, or fly-in / fly-out workers may increase road traffic and affect the ability of regional infrastructure and services such as hotels and airports to accommodate these travellers and other business people.

Outfitters are located in the greater Schefferville area and may use wide ranging areas of Labrador and / or Quebec to conduct their activities. These businesses have been greatly affected by the decline of caribou populations and likely to a much lesser extent by increased mining activity in the area.

A potential large scale incident such as a forest fire caused by activities at the mine site could spread to communities. In responding to such an incident, emergency services could potentially be limited or unavailable to communities for a short term period.

7.10.2 Land, Water and Resource Use

Land, water and resource use activities may be affected by development projects both directly and indirectly. Direct effects occur where established activities are disturbed or interfered with by Project-related components or activities during their construction or operations phases (e.g., reduced access to harvesting areas; avoidance or reduced use of areas due to Project–related disturbances such as increased human presence, noise, dust; increased competition for land and resources due to the presence of additional population). Indirect effects to such activities can also occur when projects adversely affect vegetation, fish or wildlife, where such effects reduce the availability and / or quality of resources and thus, their use and enjoyment. In both cases, these direct and / or indirect effects may result in changes in the distribution (location and / or timing) or level of activities, as well as in the quality of these pursuits.

7.10.2.1 Construction

Construction will result in changes in access to particular sites within the Project area for defined periods, due to required site restrictions for safety reasons. It will also potentially affect activities through the alteration of the natural landscape following the development of the various Project components and other associated activities within the Project area as well as, potentially, within the larger zone of influence of the various Project-related disturbances (noise, dust, visual intrusions).

Changes that affect outfitting (decline of the caribou population and increased mining) have already occurred in the Howell's River Valley and this Project will not likely result in additional pressure on the outfitting industry.

The Project footprint and LSA represents a very small proportion of the overall area available for resource harvesting and commercial land use activities. As the Project is not likely to adversely affect the location or timing of current non-Aboriginal use of land, water and resources, nor the overall level of participation in activities, no associated decrease in the overall quality or value of these activities is anticipated.

7.10.2.2 Operations and Maintenance

Operations and maintenance of the Project will not result in additional ground disturbance and access restrictions than those which were implemented and completed during construction. Many of the potential issues and interactions between the Project and local land, water and resource use activities will essentially represent a continuation of those that occurred during the construction but for a longer time period.

Existing and available information does not indicate that the proposed Project site itself is used specifically for Non-Aboriginal resource harvesting or commercial activities other than mining, and it represents a very small proportion of the overall area available for such activities. The various mitigation measures (e.g., compact footprint and use of existing infrastructure) will further serve to avoid or reduce any Project-related disturbances or environmental effects that could potentially have implications for land, water and resource use in the region.

7.10.2.3 Decommissioning and Rehabilitation

Once operations activities cease, the decommissioning and reclamation phase of the Project will commence, as described in Section 2.9. For the most part, the Project area will again become progressively available to land, water and resource users. It is likely that Project related permitting will require a program of environmental monitoring at the site to monitor compliance with regulatory guidelines and standards, and which will therefore help to evaluate the future suitability of local lands and resources for such activities over time.

7.10.2.4 Potential Accidents and Malfunctions

Potential accidental events or malfunctions that may result in effects on land, water and resource use activities include a fire or the accidental release of fuels, chemicals or other substances into the environment. Although land, water and resource use activities do occur throughout the region, the proposed Project site again represents a very small proportion of the overall area available for such activities. Moreover, given the typically “mobile” nature of many of the land, water and resource use activities involved (e.g., hunting, fishing etc.), any participants may choose to use other areas during any temporary periods of disturbance. Therefore, no decreases in the overall levels of such pursuits would be anticipated in the unlikely event of such an accident or malfunction. HML has and will develop and implement comprehensive Environmental Protection and Emergency Response Plans for the various phases of the Project.

7.10.2.5 Potential Resource Conflicts

Construction or operations of the Project may result in loss of access to a relatively small area that may be currently used for land, water and resource use activities. However, this is a small proportion of the broader area used and resource users have access to large nearby areas where they may conduct these activities.

7.10.3 Aboriginal Land, Water and Resource Use

Land, water and resource use activities are an important and integral part of the culture and lifestyles of many Aboriginal people and communities, and may be affected by development projects both directly and indirectly. Any change in the distribution (location and / or timing) or overall level of such activities may translate into a change in the quality and cultural value of these pursuits by Aboriginal persons and communities.

7.10.3.1 Construction

As discussed previously, the Project will result in changes in access to particular sites within the Project area for defined periods over the life of the Project. It will also potentially affect such activities through the alteration of the natural landscape following the development of the various Project components and other associated activities within the Project area as well as, potentially, within the larger zone of influence of the various Project-related disturbances (noise, dust, visual intrusions).

As a way to mitigate the impacts the Project may have on Aboriginal harvesting activities, the Proponent has provided through IBAs community funds for the support of traditional activities. In any event, the disturbances on Aboriginal harvesting activities caused by the Project will be localized and minimal as other areas of Labrador and / or Quebec will still be accessible for the pursuit of traditional activities of each of the Aboriginal groups under consideration. The Project site and adjacent area represents a very small proportion of the overall area used (and available) for such activities. The Project is therefore not likely to adversely affect the overall level of participation in such activities by any Aboriginal community, no associated and consequent decrease in the overall quality or underlying cultural value of these activities by any Aboriginal community or organization is therefore anticipated. As another measure to accommodate local Aboriginal harvesting, the Proponent has already in place a fund for the support of traditional activities of the local Aboriginal communities most impacted by the Project.

During consultations related to this Project (See Section 6), NIMLJ and ITUM representatives described the presence of Irony Mountain ("Kauteitinat") site near the Project area, and discussed its importance to the Innu. In doing so, the First Nation representatives expressed concern with the Project's proximity to this site, which has spiritual and historical significance. To help address this concern and to accommodate Aboriginal interests, the Proponent will establish and maintain a separation (buffer) zone between Kauteitinat and the Project, and there will be on-going dialogue and cooperation with the relevant Aboriginal groups in defining and implementing this separation area and other associated mitigation measures. The initial Project layout was also greatly modified to reduce visual effects of the Project on local landscape. As HML is still maintaining an on-going dialogue and cooperation with the relevant Aboriginal groups in defining and implementing this separation area and other associated mitigations, the finalized Project layout map has not been issued yet.

As described in Section 6, TSMC has in place a Community Health, Safety and Environment Committee composed of the five concerned Aboriginal groups who meet together with TSMC on a quarterly basis. With a view to supporting a holistic approach, the Committee acts as an avenue for meaningful exchanges between the groups on all matters relating to the communities' health, safety and the environment as they pertain to the TSMC's and HML's activities, planned works, impacts and mitigation measures. When deemed useful, guests are invited to participate, including Elders and other experts in order to seek and integrate expert advice into day-to-day procedures and strategies. In addition to community and company experts in safety and the environment, community health and social services representatives will be invited to participate in meetings that address community health matters that might be linked to mining activities.

In its on-going and planned future engagement with relevant Labrador and Quebec Aboriginal communities and organizations related to the Project (Section 6), HML will continue to provide Project information and updates on on-going and planned activities, as well as to facilitate discussion of any issues that may become evident and potential means of addressing them throughout Project design, implementation and closure.

7.10.3.2 Operations and Maintenance

The operations and maintenance phase of the Project will not result in considerable additional ground disturbance and access restrictions from those that were implemented and completed during construction. Many of the potential issues and interactions between the Project and local land, water and resource use activities will essentially represent a continuation which occurred during construction.

Again, existing and available information indicates that the proposed Project site itself represents a very small proportion of the overall area used (and available) for such traditional activities. By the time of operations, the Project and its associated components and activities will become a part of the overall (and known) landscape of the region, to which local residents and users will have had adjusted (if and as required) their activities. The various environmental effects mitigation measures outlined earlier will further serve to avoid or reduce any Project-related disturbances or environmental effects that could potentially have implications for traditional land, water and resource use in the region. Therefore, no decreases in the overall levels of such pursuits by an Aboriginal community or their value are anticipated as a result of the Project.

The ELAIOM EIS (2009) outlines a monitoring program for Valued Ecosystem Components, including air quality, noise, water quality, birds, fish and habitat, caribou subsistence hunting, family and interpersonal relationships, community cohesion, and maintenance of community populations. Said monitoring will be adjusted to include the Howse Property Project. HML will collaborate with the relevant agencies, including local community health and social services, to carry-out the necessary monitoring.

7.10.3.3 Decommissioning and Rehabilitation

For the most part, the Project area will again become progressively available to land, water and resource users, including any Aboriginal persons who may choose to do so. It is likely that Project related permitting will require a program of environmental monitoring at the site to monitor compliance with regulatory guidelines and standards, and which will therefore help to evaluate the future suitability of local lands and resources for such activities over time.

7.10.3.4 Potential Accidents and Malfunctions

Possible accidental events or malfunctions that may result in effects on traditional land, water and resource use activities include a fire or the accidental release of fuels, chemicals or other substances into the environment. Although traditional land, water and resource use activities do occur throughout the overall region, proposed Project area represents a very small proportion of the overall area available for such activities. The proposed Project site presents no evidence of such use by Aboriginal communities, and again, this proposed Project represents a very small proportion of the overall area available for such activities. Moreover, given the typically “mobile” nature of many of the land, water and resource use activities involved (e.g., hunting, fishing etc.), any users may choose to access other areas during any temporary periods of disturbance, which will certainly be possible given the overall land area available for such pursuits within the larger region.

The proponent has and will develop and implement comprehensive Environmental Protection and Emergency Response Plans for the various phases of the Project, in order to prevent such incidents from occurring and to respond to and limit the effects of any such accidental events or malfunctions should they occur.

7.10.3.5 Potential Resource Conflicts

Based on consultations carried out on the Project, construction or operations of the Project are not expected to result in a decrease of land, water and resource use activities. However, HML will adjust its activities in order to ensure continued land, water and resource activities by the local communities.

7.10.4 Environmental Effects Summary and Evaluation

Table 7.9 lists the project activities and their relation to the socioeconomic environment with the expected environmental effects. It also summarizes the mitigation measures that will be deployed to limit or eliminate these effects.

Table 7.9 Environmental Effects Summary: Socioeconomic Environment

PROJECT PHASE	SOURCE OF ENV. EFFECT	POTENTIAL EFFECT	SPECIAL MITIGATION MEASURE
Construction	Transportation and accommodation of temporary construction workers; Loss of access to an area of land; Proximity to Irony Mountain	Reduction of capacity at Wabush and Schefferville airports and in local accommodations; Loss of access to project area for use of land, water and resources by Aboriginal and non-Aboriginal people; Construction activities could affect use of an important traditional area.	Addressed in IBA; Communicate with stakeholders such as airports, hotels and recreational users; Communicate with Aboriginal groups; Maintain a distance buffer around Irony Mountain.
Operations and maintenance	Transportation and accommodation of fly-in / fly-out workers; Project operations activities causing increased road and rail traffic; Loss of access to an area of land; Proximity to Irony Mountain	Reduction of capacity at Wabush and Schefferville airports and in local accommodations; Nuisance effect, and potential safety concern, regarding increased road and rail traffic; Loss of access to project area for use of land, water and resources by Aboriginal and non-Aboriginal people; Mining activities could affect use of an important traditional area.	Addressed in IBA; Communicate with stakeholders such as airports, hotels, communities and recreational users; Communicate with Aboriginal groups; Maintain a distance buffer around Irony Mountain.
Decommissioning and rehabilitation	Loss of employment.	Potential population decline; Potential erosion of services.	Other projects may be developed in the area.
Accidents and malfunctions	Major emergency event such as a forest fire originating at the mine site	Temporary use of emergency response services and infrastructure could potentially reduce access and timeliness for communities.	Develop and implement comprehensive Environmental Protection and Emergency Response Plans.
Cumulative effects	Transportation and accommodation of fly-in / fly-out workers for this and other projects; Road and rail traffic increases due to this Project as well as other existing and new mines and mine expansions	Reduction of capacity at Wabush and Schefferville airports and in local accommodations. Increase in traffic on local roads; Increased ore train traffic on rail lines.	Communicate with stakeholders such as airports, hotels, communities and railway operators.

7.11 Cumulative Effects Assessment

This section presents foreseeable cumulative effects of the Howse Project in conjunction with past, present and future projects in the Schefferville/Labrador West region. The following information remains general and qualitative as few reliable data is available to perform a comprehensive cumulative effects assessment. Past mining projects in the Schefferville region (IOC) were not required to complete any environment effects assessment. Moreover, cumulative effect assessments for current projects are fractional for the same reason highlighted in this section. For evident business reasons, therefore, technical and environmental data on future projects remains secret, very limited, and sometimes non-existent. The proponent believes that a Strategic Environmental Assessment including all ongoing and future mining projects of the Labrador Trough region is essential to provide comprehensive cumulative effects evidences to the Provincial and Federal governments and to support the various companies in their environmental and sustainable development planning.

Large industrial projects in the Labrador Trough region are all related to the mining sector. Selected cumulative effects associated with this industry are air quality, water quality, caribou and goose populations and the Newfoundland and Labrador and First Nations benefits.

Projects selected for this partial assessment are listed in Table 7.10, along with their status and relevance to the cumulative effects assessment. A brief description of the cumulative effects is presented afterward and is sorted by selected environmental and socioeconomic components.

Other relevant information on environmental and socioeconomical cumulative effects are also available in TSMC's DSO Project 1a (ELAIOM) (NML, 2009) and LIM (2008) EIS.

Table 7.10 Projects Retained for Cumulative Effects Assessment

PROJECT	STATUS	RELEVANCE
IOC, Schefferville Region	Past	Sedentary and migratory caribou
Mining Projects of the Labrador West and Fermont Area	Current	Sedentary caribou Availability of workers Newfoundland and Labrador benefits First Nations benefits
Tshiuetin Rail Transportation Inc.	Current	Availability of workers Sedentary caribou
Quebec North Shore & Labrador Railway	Current	Newfoundland and Labrador benefits Sedentary caribou
Lower Churchill Hydroelectric Project	Current	Availability of workers
TSMC DSO Project	Current	Migratory caribou Newfoundland and Labrador benefits

PROJECT	STATUS	RELEVANCE
		Firsts Nations benefits Availability of workers Air quality Water quality
Labrador Iron Mines Limited, Schefferville Area Iron Ore Mine	Current	Migratory caribou Newfoundland and Labrador benefits Firsts Nations benefits Availability of workers Air quality Water quality
LabMag Iron Ore Project	Hypothetical	Migratory caribou Newfoundland and Labrador benefits Firsts Nations benefits Availability of workers Air quality Water quality
KéMag Project	Hypothetical	Migratory caribou Newfoundland and Labrador benefits Firsts Nations benefits Availability of workers Air quality Water quality
Adriana Mining Projects	Hypothetical	Migratory caribou Newfoundland and Labrador benefits Firsts Nations benefits Availability of workers

7.11.1 Air Quality and Noise

Cumulative environmental effects are expected with the TSMC DSO Project nearby. Indeed, the study area for the purposes of modelling the dispersion of pollutants used for the TSMC's DSO Project 1a EIS covers an area of 600 km², and largely encompasses the Project's LSA. Related information is presented in section 7.4. LIM project is located approximately 25 km southeast of the Howse Project, far enough not to increase substantially air pollutant level targeted respectively in the LIM and ELAIOM EIS. Nevertheless, LIM project is located much closer to the town of Schefferville and is therefore more at risk to impact the local community, particularly for dust emission. The LabMag Project closest infrastructure is located about 4.6 km west from the Howse Project footprint, within dominant wind direction. Synergy in the air pollution emission between these two projects is therefore highly probable. Nevertheless, there isn't any detailed data on air quality from the LabMag project to quantify this synergy. However, AECOM (Lucie Boisjoly, Personal Communication, 2014) mentioned that cumulative air quality effect could occur if the two projects are less than 10 km apart. The implementation of required mitigation measures by the proponents as well as the Provincial and Federal air quality standards should diminish any cumulative effects on the air quality in the region.

Noise disturbance cumulative effect on the caribou population is discussed in section 7.11.3.

7.11.2 Water Quality

Several other projects operate in the same sector, thus increasing the probability of cumulative environmental effects. At the local scale, the exploitation of Timmins 4 during the TSMC DSO Project would cause a cumulative environmental effect since there are plans to discharge dewatering and sump water into Goodream Creek. Therefore, if both pits operate at the same time, water and contaminants in Goodream Creek would originate from two different projects and levels could reach undesirable values without proper management. According to TSMC, this scenario is very unlikely since operations at Timmins 4 will end before the Howse Property Project starts.

At the regional scale, four projects (Howse, TSMC DSO, LIM and LabMag) will reject their effluents in the upper portion of the Howells River watershed, increasing the probability of cumulative effects in this sector. Bare land left by the IOC from past mining project could also impact the Howells River water quality. LabMag is by far the largest project susceptible to degrade the Howells River water quality. Since LabMag EIS is not available at this time, the quantity and quality of the effluent cannot be determined. It is too early to evaluate the effect of LIM and TSMC DSO projects on the Howell's River water quality. Nevertheless, this effect was evaluated of low importance in both ELAIOM (NML, 2009) and LIM (2008) EIS. Considering the implementation of the required mitigation measures by the proponents as well as the Provincial and Federal water quality standards, water quality should remain acceptable in the upper portion of the Howells River.

The Howse Project is located far enough from the other projects, for that reason cumulative environmental effects are not expected except for the operation of Timmins 4 as explained above.

7.11.3 Caribou and Goose

Several other projects operate in the same sector, thus increasing the probability of cumulative effects on caribou. The increased disturbance and hunting pressure, as well as the loss of habitats could be considerable for the caribou. It could eventually drive the caribou to avoid the region. Several studies done within the Slave Geological Province, Northwest Territories tend to demonstrate moderate to medium negative cumulative effect from the mining exploration and exploitation industry on caribou. Using computer model, Johnson *et al.* (2005) suggested a 37% reduction of migratory caribou occurrence during the post-calving period in the area of the highest quality habitats and an 84% increase in the area of the lowest quality habitats. This study was done over a 190,000km^2 territory. Boulanger *et al.* (2011) mentioned that caribou mortality greatly increases along pick-up truck access roads and trails. According to this study, the use of this type of vehicle is much more efficient to harvest caribou compared to the use of a snowmobile. However, pick-up truck access is already widespread in the Schefferville region due to the presence of many exploration trails built by the IOC. Road access to the current mining sites (TSMC DSO, LIM, LabMag) where therefore in place long before these projects where planned.

The increased number of trains on the Schefferville–Sept-Îles railway might cause additional disturbances to the sedentary caribou. The railway overlaps known ranges of sedentary caribou around the latitude of Labrador City and Fermont. Sustained or repeated disturbance can result in the avoidance of areas and a reduction in the use of suitable habitats by the caribou (Environment Canada, 2012). However, train activity is already intense in the Labrador City and Fermont area, and the marginal traffic increase associated with the Howse Property Project would contribute little if at all to the cumulative effects of disturbance to the sedentary caribou.

Cumulative effect may also occur for waterfowl, especially goose. Multiplication of mining projects in the sector, especially the LabMag one, will increase the overall noise and traffic levels. This cumulative disturbance increase is likely to affect the presence of waterfowl in the LIM-DSO-Howse-LabMag projects sector. However, as highlighted in section 7.8.1.2, Howse Project should contribute little to this cumulative effect, because the high quality habitats for waterfowl are located within the bottom of the Howell's River valley, 3.3 km from the closest Project infrastructure, on the other side of Irony Mountain.

7.11.4 Socioeconomic Environment

7.11.4.1 Newfoundland and Labrador benefits

The proposed Project will contribute little if at all to any adverse cumulative effects on permanent population in the region. However, other existing and proposed projects and activities may have implications for permanent population. Measures such as using existing workers mean that the Project, in combination with other projects and activities that have been or will be carried out, will likely result in no substantial cumulative environmental effects on permanent population in the Schefferville area.

The Project is not likely to adversely affect community infrastructure and services except for particular regional services such as air transportation. This, in combination with the mitigation measures being proposed by HML and those being implemented by other proponents (including housing workers at the site), means that the Project, combined with other projects and activities, will likely result in no adverse cumulative effects. However, during the construction phase of the project, additional temporary workers from outside of the communities near to the Howse Property may result in cumulative effects on road traffic and on the capacity of accommodations and air transportation in Labrador West and Schefferville. Increased ore train traffic will have an effect on the Schefferville area but the larger cumulative effects of increased mining activities will be felt in Labrador West and along the rail line to Sept-Îles.

The Project will contribute to the overall success of the mining industry in the provinces of Newfoundland and Labrador and Quebec and to the economies of the Schefferville and Labrador West region. Other existing and proposed projects and activities in the region may, due to their larger size, have greater implications for the economy of Labrador West. This, in combination with the mitigation measures being proposed by HML and those being implemented by other proponents (including IBAs with Aboriginal groups), means that the Project will likely result in no adverse cumulative environmental effects, but rather be beneficial throughout the region.

In its on-going and planned future engagement with relevant Labrador and Quebec communities with an interest in the Project (Section 5.4), HML will continue to provide Project information and updates on on-going and planned activities, as well as to facilitate discussion of any issues that may become evident and potential means of addressing them throughout Project design, implementation and closure. Cumulative infrastructure effects such as those on regional transportation are being addressed by government and organizations like for example the Labrador West Regional Task Force, which was formed to support sustainable development of the region and communities from Wabush to Schefferville. The Task Force has a special interest in the cumulative effects of increased mining activity on infrastructure.

7.11.4.2 First Nations Benefits

The same cumulative effects presented in section 7.10.4.1 also apply to the First Nation communities. Nevertheless, the First Nation communities are closely linked with natural resources use, especially for hunting and fishing. The potential cumulative effect on migratory caribou occurrence in the region (7.10.3) is therefore more likely to impact First Nation communities. However, as highlighted in section 4.3.1, very few migratory caribou have been seen in or near the Project area in recent years. It is therefore not expected that the Project will further disturb First Nation communities hunting habits.

Beside caribou, the proposed Project is not likely to materially affect current land; water and resource use activities for traditional purposes, and will therefore contribute little if at all to any cumulative effects on such activities in the region. Although other existing and proposed projects and activities in the region may, to varying degrees, have implications for such activities by Aboriginal people, the total area covered and affected by these projects is still relatively small given the overall size of the region, and especially, the overall (and core) areas used by each group. There are also mitigation measures being proposed by HML and which have been implemented by other proponents (including consultation initiatives and benefits agreements) which will further reduce any such adverse interactions.

7.11.5 Other Issues Related to the Cumulative Effects Assessment

7.11.5.1 Terrestrial Ecosystems

Several other projects operate in the same sector, thus increasing the probability of cumulative environmental effects. However, the Project's environmental effects on terrestrial ecosystems are site-specific and should not generate cumulative effects outside the LSA. TSMC DSO Project infrastructures are sufficiently capable of integrating the Project's additional operational requirements. No new infrastructures or footprint increase is therefore planned at the TSMC DSO Project site to accommodate the Project operation.

7.11.5.2 Aquatic Fauna

The exploitation of Timmins 4 of the TSMC's DSO Project 1a would cause a cumulative environmental effect since dewatering and sump water are planned to be discharged at the same location, i.e. into Goodream Creek. Therefore, if both pits are operated at the same time, contaminants in Goodream Creek would originate from two different projects and concentrations of contaminants could reach high enough levels to substantially degrade aquatic habitat.

According to TSMC, this scenario is very unlikely since operations at Timmins 4 are scheduled to end before the Howse Property operation begins.

7.12 Environmental Monitoring and Follow-up

At the provincial level, there is a difference between the compliance, the effectiveness and the environmental effects monitoring. The following definitions differentiate the objectives of these three types of monitoring:

- Compliance monitoring is to determine whether applicable legislative measures have been followed and whether the commitments made in the EIS or in related documents, such as IBAs, have been respected;
- Effectiveness monitoring is to assess the degree to which the mitigation measures developed during the EA process and followed by the proponent attained their purposes, and;

- Effects monitoring is to make sure that predicted positive effects during the EA process actually occur and whether negative effects were mitigated.

As TSMC is now operating the DSO Project 1a (ELAIOM) and completed the EA processes for 2a and 2b, comprehensive monitoring mechanisms are already in place to ensure that the above objectives are attained. HML will use and, if required, adapt these monitoring mechanisms to the Project by:

- Modifying the Environmental Protection Plan developed for the Construction and Operation Phases of TSMC's DSO Project 1a in order to incorporate the Project monitoring objectives;
- Adapting the Environmental Effects Monitoring (EEM) study design to the Project environment. It should be noted that Elross Creek and Goodream Creek are already covered by TSMC's DSO Project 1a EEM study design;
- Adapting the GNL/EC Real-time Monitoring Program to the Project environment (Elross Creek and Goodream Creek water quality instant monitoring is already effective and measures all main water quality parameters);
- Including the Project monitoring objectives in the community Health, Safety and Environment (HSE) Committee, established in spring 2013, and represented by mandated officials of the NIMLJ, the NNK, ITUM, the Labrador Innu, the NCC and TSMC. The HSE Committee monitor and facilitate the implementation of TSMC's (and eventually HML) obligations under its respective IBAs, provincial and federal laws, and corporate policies.

HML is confident that the above environmental monitoring measures will adequately monitor all essential biophysical and socioeconomic effects as well as the effectiveness of their related mitigation measures.

8 APPROVAL OF THE UNDERTAKING

In addition to approval under the provincial and federal EA process, the proposed Project will also require a number of other environmental permits and authorizations.

A preliminary listing of some of the main permits, licences, approvals and other authorizations that may be required for the Project is provided as Appendix II.

9 PROJECTS SCHEDULE

The construction phase for the Howse Property is expected to start in 2016, subject to regulatory and environmental approvals.

The duration of the construction phase which includes pit development, construction of access and haul road and construction of crushing and screening facility is estimated to be roughly seven to ten months based on a 12-hour shift.

HML is planning to start extracting iron ore at the Howse Property by 2016. Mining activities at the Howse Property are expected to go on until 2027, for a total of twelve years. The mine will be operational year-round, however the ore will be extracted, crushed and screened, and shipped by train only from April to Mid-October or November, weather depending. For the remaining months, crews will be working on restoring the overburden and waste rock stockpiles/dump.

10 FUNDING

The Project does not depend on a grant or loan of capital funds from a federal, provincial or other government agency. It will be financed solely by private investment.

March 28, 2014

Date

Original copies signed by Loic Didillon

Signature of Manager of Environment

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APPENDICE

Appendix I

List of Migratory Birds

Species Code	Latin name	English name	At-Risk status	Migrating Species
SPAN	-	Anatid (Duck or Swan)		
BECA	*Branta canadensis*	Canada Goose		X
SAHI	*Anas crecca*	Green-winged Teal		X
SPFU	*Aythya sp.*	Aythya sp.		
FUCO	*Aythya collaris*	Ring-necked Duck		X
PEFU	*Aythya affinis*	Lesser Scaup		X
MABR	*Melanitta fusca*	White-winged Scoter		X
SPGA	*Bucephala sp.*	Bucephala sp.		
GAOO	*Bucephala clangula*	Common Goldeneye		X
BAPE	*Pandion haliaetus*	Osprey		
BUPA	*Buteo lagopus*	Rough-legged Hawk		
AIRO	*Aquila chrysaetos*	Golden Eagle		
FAEM	*Falco columbarius*	Merlin		
TECA	*Falcipennis canadensis*	Spruce Grouse		
LASA	*Lagopus lagopus*	Ruffed Grouse		
PLAR	*Pluvialis squatarola*	Black-bellied Plover		X
PLSE	*Charadrius semipalmatus*	Semipalmated Plover		X
SPCH	-	Plover		
CHGR	*Actitis macularius*	Spotted Sandpiper		X
CHSO	*Tringa solitaria*	Solitary Sandpiper		X
BEMI	*Calidris minutilla*	Least Sandpiper		X
SPGO	-	Gull		
GOAR	*Larus argentatus*	Herring Gull		X
STAR	*Sterna paradisaea*	Arctic Tern		X
SPPI	-	Woodpecker		
PICH	*Picoides villosus*	Hairy Woodpecker		X
SPMO	-	Flycatcher		
MOVJ	*Empidonax flaviventris*	Yellow-bellied Flycatcher		X
ALHC	*Eremophila alpestris*	Horned Lark		X
HIBI	*Tachycineta bicolor*	Tree Swallow		X
MECA	*Perisoreus canadensis*	Gray Jay		
COAM	*Corvus brachyrhynchos*	American Crow		
GRCO	*Corvus corax*	Common Raven		
METB	*Poecile hudsonica*	Boreal Chickadee		X
ROCD	*Regulus satrapa*	Golden-crowned Kinglet		X

SYSGIO (Système de gestion des inventaires d'oiseaux), ©2006-2009 Projet : DSO (New Millennium Capital Corp.) Requête : 26-10-2009

Species Code	Latin name	English name	At-Risk status	Migrating Species
ROCR	*Regulus calendula*	Ruby-crowned Kinglet		X
GRJG	*Catharus minimus*	Gray-cheeked Thrush	Vulnerable	X
GRSO	*Catharus guttatus*	Hermit Thrush		X
MEAM	*Turdus migratorius*	American Robin		X
PIAM	*Anthus rubescens*	American Pipit		X
PGGR	*Lanius excubitor*	Northern Shrike		X
PAVE	*Vermivora celata*	Orange-crowned Warbler		X
PAJA	*Dendroica petechia*	Yellow Warbler		X
PACJ	*Dendroica coronata*	Yellow-rumped Warbler		X
PARU	*Seiurus noveboracensis*	Northern Waterthrush		X
PACN	*Wilsonia pusilla*	Wilson's Warbler		X
BRHU	*Spizella arborea*	American Tree Sparrow		X
BRFA	*Spizella passerina*	Chipping Sparrow		X
BRPR	*Passerculus sandwichensis*	Savannah Sparrow		X
BRFV	*Passerella iliaca*	Fox Sparrow		X
BRCH	*Melospiza melodia*	Song Sparrow		X
BRGB	*Zonotrichia albicollis*	White-throated Sparrow		X
BRCB	*Zonotrichia leucophrys*	White-crowned Sparrow		X
JUAR	*Junco hyemalis*	Dark-eyed Junco		X
QURO	*Euphagus carolinus*	Rusty Blackbird	Vulnerable	
DUSA	*Pinicola enucleator*	Pine Grosbeak		X
BCBI	*Loxia leucoptera*	White-winged Crossbill		X
SIFL	*Carduelis flammea*	Common Redpoll		X

Appendix II

List of Potentially Applicable Environmental Permits and Authorizations

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
Government of Newfoundland and Labrador				
Development Plan and Rehabilitation and Closure (R&C) Plan Approval	*Mining Act* and *Mining Regulations*	Project development	Mines Branch, Department of Natural Resources	The *Mining Act* includes a number of key requirements which pertain to mine development in the province, including the preparation and approval of a Development Plan and a Rehabilitation and Closure (R&C) Plan, as well as the posting of appropriate Financial Assurances
Surface Lease	*Mineral Act* and *Regulations*	Any mining development on Crown Lands	Mineral Lands Division, Department of Natural Resources	A Surface Lease issued under Section 33 of the *Mineral Act* is required for development of a Mining Lease issued under the Act
Mineral Exploration Approval	*Mineral Act* and *Regulations*	Any mineral exploration and geotechnical activities within a Mining Lease or Mineral Licence	Mineral Lands Division, Department of Natural Resources	An application for Exploration Approval must contain a detailed plan and description of the proposed activities
Certificate of Approval for any Alteration to a Body of Water	*Water Resources Act*	Any activities which may alter a water body, including in or near water works	Water Resources Management Division, Department of Environment and Conservation	Permits are required for construction activities within 15 m of the high watermark of any water body as well as any in-stream activity. - Schedule A –Culverts - Schedule B –Bridges - Schedule C –Dams - Schedule D –Fording - Schedule E –Pipe Crossing – Water Intake - Schedule F –Stream Modification or Diversion - Schedule G –Small Bridges - Schedule H –Other Alterations
Certificate of Approval for Site Drainage	*Water Resources Act*	Drainage from work sites	Water Resources Management Division, Department of Environment and Conservation	Approval is required related to the management of on-site drainage
Water Use License	*Water Resources Act*	Water withdrawal for use in	Water Resources	Water use authorization is required

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
		construction and operation activities	Management Division, Department of Environment and Conservation	for all beneficial uses of water
Application for Permit for Constructing a Non-Domestic Well	*Water Resources Act*	Establishment of a water well	Water Resources Management Division, Department of Environment and Conservation	A license is required to establish a non-domestic water well in Newfoundland and Labrador
Policy Directives	*Water Resources Act*	Project activities	Water Resources Management Division, Department of Environment and Conservation	The Department has a number of potentially applicable policy directives in place, including those related to: Infilling Bodies of Water; Development in Wetlands; and others
Compliance Standard	*Water Resources Act, Environmental Control Water and Sewage Regulation*	Any waters discharged from the project	Department of Environment and Conservation	A person discharging sewage and other materials into a body of water must comply with the standards, conditions and provisions prescribed in these regulations for the constituents, contents or description of the discharged materials
Quarry Permit (if required)	*Quarry Materials Act* and *Regulations*	Extracting borrow material	Mineral Lands Division, Department of Natural Resources	A permit is required to dig for, excavate, remove and dispose of any Crown quarry material
Commercial Cutting Permit Operating Permit	*Forestry Act* and *Cutting of Timber Regulations*	Clearing land areas for the Project	Department of Natural Resources	A permit is required for the commercial cutting of timber on Crown Land
Permit to Burn (if required)	*Forestry Act* and *Forest Fire Regulations*	Any burning required during the Project	Department of Natural Resources	A permit is required to light fires outdoors between April and December. Permits are not issued during forest fire season
Certificate of approval for diesel generators	*Environmental Protection Act,* *Air Pollution Control*	Any diesel generators or other project components or activities with air emissions	Pollution Prevention Division, Department of Environment and Conservation	The Regulations outline specific ambient air quality standards and emission standards, as well as relevant engineering design (e.g.,

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
	Regulations			stack height) requirements and other provisions
Fuel Tank Registration - Storing and Handling Gasoline and Associated Products	*Environmental Protection Act*, and *Storage and Handling of Gasoline and Associated Products Regulations*	Storing and handling gasoline and associated products	Engineering Services Division, Service NL	Fuel Tank Registration is required for storing and handling gasoline and associated products
Mobile Fuel Storage Tank Relocation Request Form (if required)	*Environmental Protection Act* and *Environmental Guidelines for Fuel Cache Operations*	Temporary fuel storage	Engineering Services Division, Service NL	A permit is required for any temporary fuel storage in a remote location
Permit for Storage, Handling, Use or Sale of Flammable and Combustible Liquids	*Fire Prevention Act*, and *Fire Prevention Flammable and Combustible Liquids Regulations*	Storing and handling flammable liquids	Engineering Services Division, Service NL	This permit is issued on behalf of the Office of the Fire Commissioner. Approval is based on information provided for the Certificate of Approval for Storing and Handling Gasoline and Associated Products
Certificate of Approval for Collecting or Transporting Used Oil	*Environmental Protection Act, Used Oil Control Regulations*	Information on the equipment used for collecting and transporting used oil.	Engineering Services Division, Service NL	A person shall not engage in the collection, transportation and storage of used oil without first applying for a certificate of approval.
Widlife management license (if required)	*Wildlife Act*	Dealing with nuisance wildlife	Department of Natural Resources	The Department provides direction on handling nuisance animals. Details on the situation must be provided for a permit to be issued
Compliance Standard	*Fire Prevention Act, Fire Prevention Regulations*	On-site structures (temporary or permanent)	Engineering Services Division, Service NL	All structures must comply with fire prevention standards
Occupancy review and permit (if required) for building	*Occupational Health and Safety Act* and *Regulations*	Project-related occupations	Service NL	Outlines minimum requirements for workplace health and safety. Workers have the right to refuse dangerous work. Proponents must

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
				notify Minister of start of construction for any project greater than 30 days in duration
Compliance Standard	*Occupational Health and Safety Act, Workplace Hazardous Materials Information System Regulations*	Handling and storage of hazardous materials	Operations Division, Service NL	Outlines procedures for handling hazardous materials and provides details on various hazardous materials
Building Accessibility Exemption Registration	*Building Accessibility Act and Regulations*	Any buildings required to support the project that do not require public access.	Operations Divisions, Service NL	Exemption from building access requirements should be made for all buildings related to the project
Electrical Permit and Inspection	*Public Safety Act, Electrical Regulations*	Infrastructure for the project requiring electrical wiring	Program and Support Services Division, Service NL	Electrical work must be completed under permit by a registered contractor or the work must be inspected by Service, NL
Fire and Life Safety Plan Review	*Fire Protection Services Act*	Any building required to support the project	Engineering and Inspections Division, Service NL	All commercial building plans must be approved with regard to fire prevention and suppression systems
Compliance standards; permits may be required	National Fire Code National Building Code Life Safety Code	On-site structures (temporary or permanent)	Service NL	Compliance / approval is required for all Project related buildings
Government of Canada				
Letter of Advice or Authorization for Works or Undertakings Affecting Fish Habitat	*Fisheries Act*	Any activities in or near water that may support a fishery	Fisheries and Oceans Canada	DFO has established Newfoundland and Labrador Operational Statements for various activities. These are available online (*http://www.dfo-mpo.gc.ca/habitat/what-quoi/os-eo/nl/index-eng.asp*) and outline

PERMIT/AUTHORIZATION	LEGISLATION / REGULATION	PROJECT COMPONENT/ACTIVITY	DEPARTMENT/ AGENCY	NOTES
				environmental protection measures that, if followed during construction and maintenance activities, will result in no contravention of Section 35 of the *Fisheries Act* DFO will make a determination on the level of risk associated with the project activity. If it is determined to be a low risk then a Letter of Advice may be issued. If it is determined to be a higher level of risk an Authorization may be required
Explosives Purchase and Possession Permit (if required)	*Explosives Act*	Purchase and possession of explosives	Natural Resources Canada	A permit is required to purchase and possess explosives
Explosives Transportation Permit (Contractor)	*Explosives Act*	Transportation of explosives	Natural Resources Canada	A permit is required for transporting explosives
Compliance Standard	*Fisheries Act*, Section 36(3), Deleterious Substances	Any run-off from the Project site being discharged to receiving waters	Environment Canada	Environment Canada is responsible for Section 36(3) of the *Fisheries Act*. Discharge must not be deleterious and must be acutely non-lethal
Compliance Standard	*Migratory Birds Convention Act* and *Regulations*	Any activities which could result in the mortality of migratory birds and endangered species and any species under federal authority	Canadian Wildlife Service, Environment Canada	Prohibits disturbing, destroying or taking a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, and possessing a live migratory bird, carcass, skin, nest or egg. The Canadian Wildlife Service should be notified about the mortality of any migratory bird in the Project area
Policy	Federal Policy on Wetland Conservation	Any disruption of wetland habitat	Environment Canada	The goals of this policy should be considered where a project could affect wetland habitat

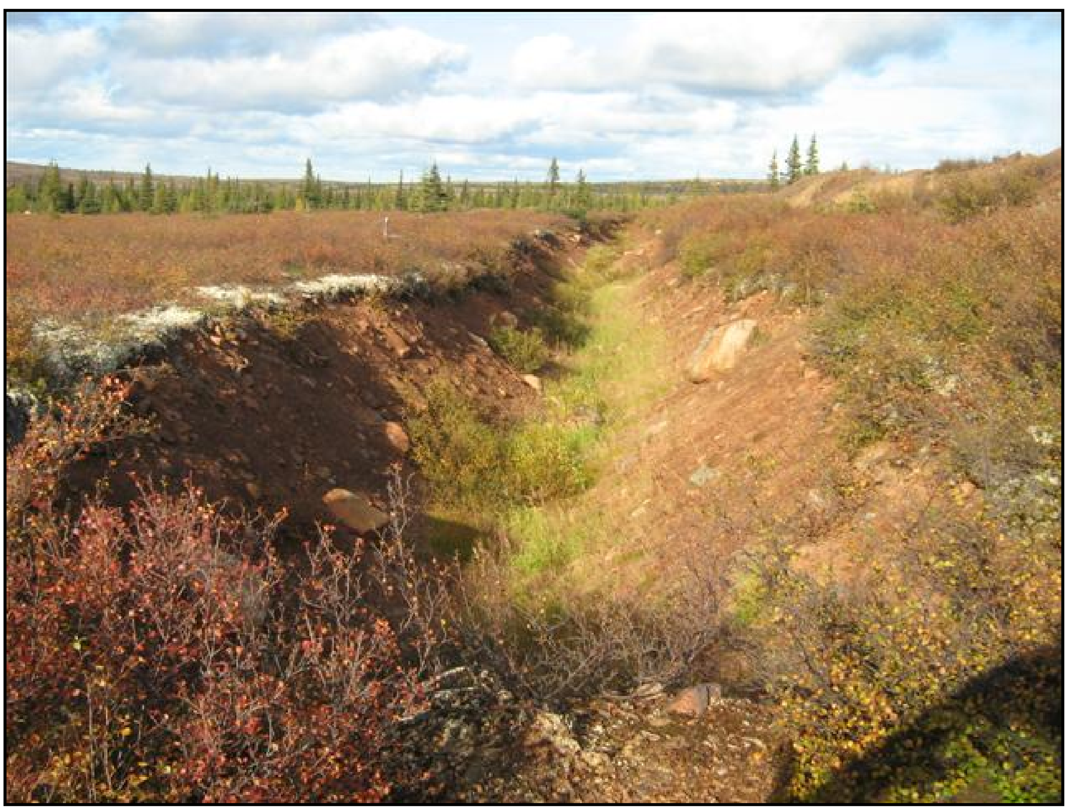
Appendix III

Photographs

Houston Property - Photo 5 - exploration trench on central portion of Site

Howse Property - Photo 1 - looking west from southern boundary of Site

Howse Property - Photo 2 - looking northeast from the central portion of the Site



Howse Property - Photo 3 - historical trenchline looking east on southern portion of Site

Howse Property - Photo 4 - looking north to northern portion of Site

Howse Property - Photo 5 - looking east from an access road on northwestern portion of Site

Appendix IV

Consultation Documents[1]

[1] These consultation documents shall be modified to reflect the new timeline of the project.

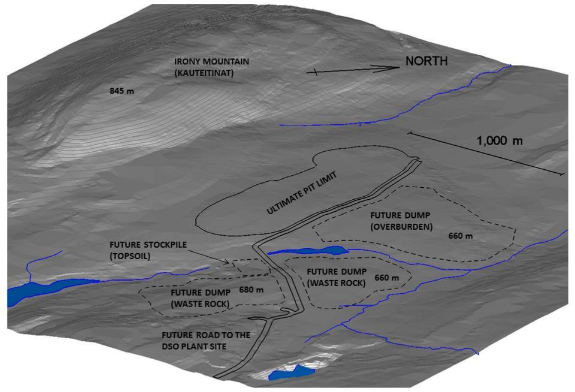
HML is planning to develop the iron ore deposit at the Howse Property (estimated production of 20 million tonnes), located between Irony Mountain (Kauteitinat), Pinette Lake and Timmins 4 .

ᑯᑎᑲᒃ ᑲᓄᑎᓯᓇᒃ ᐋᒋᒥᑕᒃ ᐊᓐᑕ ᓯᓂᔦᐤ ᒐᒧᓇᐃᑲᓄᐃᒃ ᐊᓐᑕ Howse Property (ᓴᓯᑲᓐ 21 ᓯᓂᔦᐤ ᒐᒧᓇᒧᒃ ᐊᔅᐱᓭᐃᔅ) ᐊᓐᑕ ᐊᑎᑳᒃ ᑲᐅᑕᐃᑎᓇᑦ ᑭᔦ ᐱᓇᑦᓴᑲᐃᑭᓐ ᑭᔦ ᑎᒥᓐᔅ

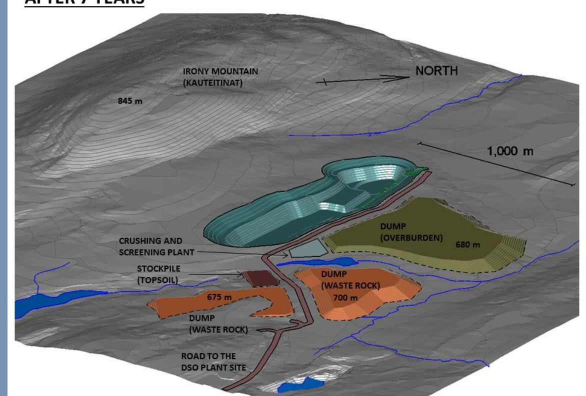
The Project will consist of/ᐊᓐᑕ ᐊᑐᔅᒐᐅᓐ ᒐᐃᓯᓈᑲᒃ :

- A 3.5 km haul road /3x5 ᒪᔅᑲᓄᐤ ᒐᐃᔅᐱᓭᒃ
- An open pit /ᒐᒧᓇᐃᑲᓄᒃ ᒐᐃᔅᐱᓭᒃ ᑭᔦ ᒐᐃᑭᔅᑲᒃ
- A crushing and screening facility (the ore will then be hauled to the TSMC's DSO Project loading area and then shipped by train to Sept-Îles to be sent overseas/ ᒐᐱᓯᐱᑕᑲᓄᒃ ᓯᓂᔾ ᑭᔦ ᒐᔦᐅᑕᑲᓄᒃ ᐃᔅᑯᑕᐅᑕᐸᓂᒃ ᐊᓐᑕ ᐋᓭᒃ ᑭᔦ ᒐᐃᑎᓭᐃᑲᓄᒃ ᑲᒥᔅᒋᒃx
- Stockpiles (overburden and waste rock dumps)/ ᓯᓂᔾ ᐊᑲ ᐊᐱᒋᑕᑲᓄᒃ ᒐᑐᑕᑲᓄᒃx
- Water management facilities and general site drainage works. /ᒍᒐᐳ ᑭᔦ ᓂᐱᔾ ᒐᐃᓯᑯᑕᑲᓄᒃ

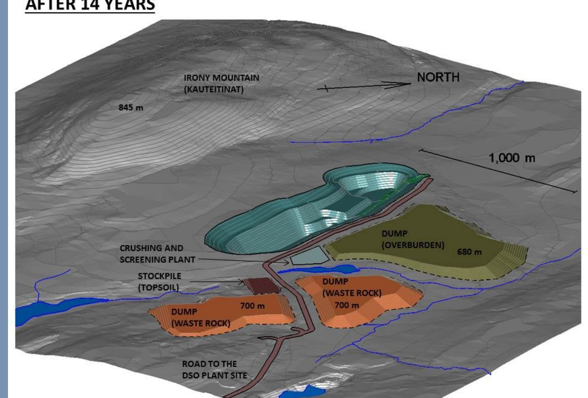
CURRENT SITUATION



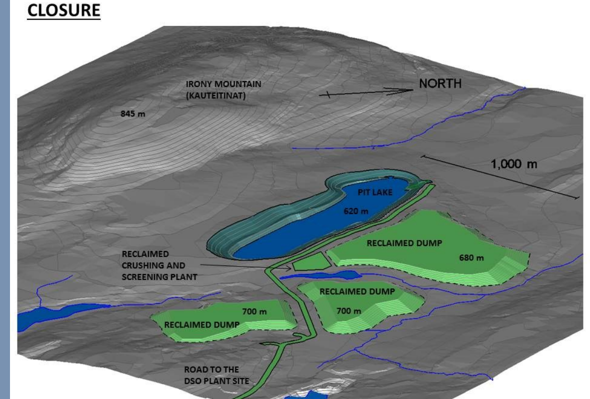
AFTER 7 YEARS



AFTER 14 YEARS



CLOSURE



Frequently Asked Questions/ᐊᓯᑳᑲᒋᒐᒧᓇᓄᒋ ᑳᑲᒋᒐᒧᐅᓇ :

What infrastructures will be constructed for the Howse Property Project?/ᒑᑳᓐ ᐊᓐᑕ ᒐᒋᒥᑕᑲᓄᒃ ᐊᓐᑕ ᓯᓂᔾ ᐊᑐᔅᒐᐅᓐ ᐋᑐᑕᑲᓄᒃx?

Apart from the Project components listed above in the brochure, the Project will optimize the use of existing infrastructures (e.g. the railway, access road, camps, mining equipment and explosive factory) at the nearby TSMC's DSO Project complex. /ᐊᓐᑕ ᑎᐸᓐ ᒪᓯᓇᑕᐃᑲᓄᒃ ᐊᑐᔅᒐᐅᓇ ᒐᑐᑕᑲᓄᒋ, ᐊᓐᑕ ᒑᑳᓐ ᐊᒋᒥᑕᒃ ᒐᐋᔦᐱᒋᑕᑲᓄᒃ ᐊᑲᓇᐤ ᑲᓂᑲᑕᑦ (ᐃᔅᑯᑕᐅᑕᐸᓐ, ᒪᔅᑲᓄᐋ, ᑯᔅᒐᐅᒍᐋᐸ, ᑎᐸᓐ ᑯᑎᑉ ᒑᑳᓐ) ᐊᓐᑕ ᐊᒋᒥᑕᒃ TSMC's DSO ᐅᑎᐸᐃᑎᒧᐅᓂᔦᐤ ᐊᑎᒋᒥᑕᒃ ᒑᑳᓐx

What will be the height of the stockpiles?/ᑕᐊᓐ ᒐᐃᔅᐱᓭᒃ ᓯᓂᔾ ᐊᑎᐸᓂᔅᑕᑲᓄᒃ?

The maximum height of the 3 stockpiles will be 50 m., significantly lower than Irony Mountain/ ᓴᓯᑲᓐ ᓂᔅᑐ ᑕᑎᐸᓐ ᒐᐃᑕᑎᓂᒋ ᐃᔅᒋᓵᑕᐤ 50 m

Do the existing IBAs apply to this project?/ᐊᓄᒃ ᐊᓐᑕ ᓂᔅᑯᒧᐅᓐ ᑲᑐᑕᑲᓄᒃ ᐊᔅᑕᐱᑎᓇ ᐊᑐᔅᒐᐅᓐ ᑭᔦ ᐋᔅᑲ ᐊᔅᒋᔾ ᒐᒋ ᐊᐱᒋᑕᑲᓄᒃ?

IBA obligations remain the responsibility of LIM under its Joint Venture agreement/ᓂᔅᑯᒧᐅᓐ ᑲᑐᑕᑲᓄᒃ ᐊᓐᑕ ᑎᐸᐃᑎᒧᐅᓐ ᐊᑎᑳᒃ ᑲᓄᑎᓯᓇᒃ ᓇᐱᑖᐤ ᑲᐱᓂᔾ ᑭᔦ ᒪᒧ ᑲᓂᔅᑯᒧᐅᒃ ᐊᓂᔦ

Will I have continued access to the land surrounding Howse Property?/ᒋᔦᐱᒋᑕᓇ ᐋᔅᑲ ᐊᔅᒋᔾ ᐊᓐᑕ ᐊᑐᔅᒐᐅᓐ ᐊᑐᑕᑲᓄᒃ ᐊᓐᑕ ᐊᑎᑯᓂᒃ ᐅᑎᐸᐃᑎᒧᐅᓐ ?

Yes. Road access to areas including Pinette Lake, Irony Mountain (Kauteitinat), Triangle Lake and the Howse River Valley will be maintained. /ᓂᔾ, ᒪᔅᑲᓄᐤ ᐊᓐᑕ ᒐᑎᑳᒃ ᒐᒋ ᐊᐱᒋᑕᑲᓄᒃ ᑲᐅᑕᐃᑎᓇᑦ ᑭᔦ ᑯᑎᑲ ᓴᑲᐃᑭᓇ ᐊᑎᑯᓂᒋx

How many jobs will be created by this project and in what areas?/ᑕᐊᓐ ᒐᐃᑕᑎᓂᒋ ᐊᑐᔅᒐᐅᓇ ᑭᔦ ᑕᓐᑕ?

Approximately 40 jobs will be maintained/created in the following sectors: mining, services and geology./ᓴᓯᑲᓐ ᓇᐅᐃᔦᐤ ᐃᔅᐱᔅ ᐱᑕᑕᒃᑕᑐᔦᐤ ᐊᑐᔅᒐᐅᓇ ᑭᔦ ᐊᑐᔅᒐᐅᓐ ᒐᑐᑕᑲᓄᒃx

Will this impact harvesting activities such as goose-hunting? /ᒋᑭᒪᒪᓯᑕᑲᓄᒃ ᐊ ᒐᓐᑐᔅᒐᓄᒃ?

Based on the topography of the area, harvesting activities should not be impacted; mining activities will be adapted if required. /ᐊᓐᑕ ᐊᔅᒋᔦᐤ ᓯᓇᐃᑭᓂᒃ ᑭᔦ ᐊᓐᑕ ᐊᑐᔅᒐᐅᓐ ᐊᑎᑳᒃ ᐊᑲ ᐃᓯᓈᑲᒃ ᒐᒋ ᒪᒪᓯᔦᑲᓄᒃ ᐱᔦᓱᒃ ᐊᓐᑐᐋᔅᒐᓄᒐ ᑭᔦ ᐃᔅᓈᑲᒐ ᒐᒋ ᒪᑕᐃᑖᑲᒃ ᑲᐤ ᒐᒋᑕᐸᑕᑲᓄᒃ ᒐᒋ ᒥᔦᔅᑕᑲᓄᒃx

How will this project impact dust in my community?/ᑕᐊᓐ ᒐᐃᔅ ᒪᑕᐃᑎᒪᒃ ᔦᑲᐤ ᐋᑲᐸᑕᒃ?

HML will apply a Dust Control Policy and will continue to implement innovative solutions./ᑲᓄᑎᓯᓇᒃ HML ᐊᓐᑕ ᒐᑐᑕᒃ ᒐᐃᓯᓇᓭᐃᑲᓄᒃ ᒐᐊᑲ ᐱᔅᑎᑳᐸᑕᐃᒃ ᑭᔦ ᑎᐸᓐ ᒑᑲᔦᐤ ᒐᒋ ᐊᐱᒋᑕᒃ ᒐᒋ ᒍᓇᑲᓄᒃ ᐊᑯᑳᐸᑕᒃ ᔦᑲᐤx

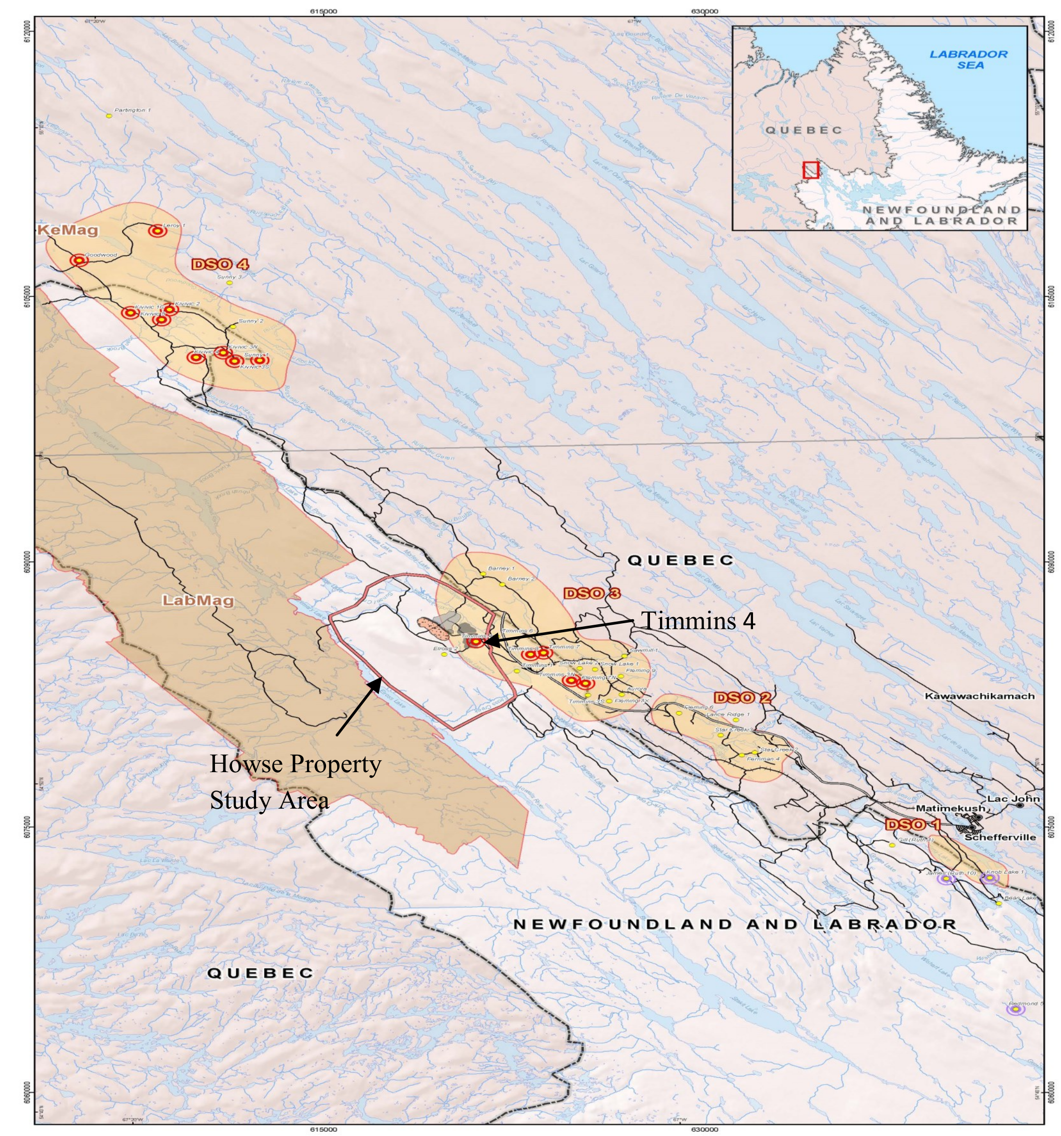
What is your company policy if a cultural property is found ?/ᒑᑳᓐ ᒐᑐᑕᑲᓄᒃ ᐅᑕᒃ ᐃᔦᒃ ᐊᓐᑕ ᑲᓂᑲᑕᒃ ᒑᑳᓐ ᐃᔦᐤ ᑎᐸᐃᑎᒧᐅᓐ ᒥᔅᑲᑲᓄᐃᒃ?

All work is stopped, the area is cordoned off and local and provincial authorities are contacted, as per our Cultural Policy Property Plan. /ᓄᑎᒻ ᐊᑐᔅᒐᐅᓐ ᒐᓂᑲᐱᐃᒃ ᑭᔦ ᒑᐃᑕᑲᓄᒃ ᑭᔦ ᐃᔦᐤ ᑎᐸᐃᑎᒧᐅᓐ ᐊᒋᑕᐸᑕᑲᓄᒃ ᐊᓇᑲᑐᐋᐃᑕᑲᓄᒃ ᒐᒋᑕᐸᑕᑲᓄᒃx

How can I voice my concerns?/ᑕᓐᑕ ᐸᔔᓯᐱᔅᑎᓇᓐ ᒑᑳᓐ ᐊᔦᐃᒪᐃᑎᒥᑯᔦᓐ?

Through your community Health, Safety and Environment (HSE) Committee representatives or contact HML: /ᒐᐱᔅᑎᓂᒍᑦ ᑯᐸᓇᔅ ᐊᓯᑐᔅᒐᑦ ᐋᑯᓯᐅᓐ ᑭᔦ ᒐᐊᑲ ᐅᓯᑯᑦ ᐊᐋᓐ ᐊᓇᑲᑐᐋᐃᑕᑲᓄᒃ ᑭᔦ ᐊᔅᒋᔾ ᑲᒪᒎᐃᓇᓄᐃᒃ ᐊᐱᔅᑕᑦ ᑭᔦ ᒪᑉ ᑲᓄᑎᓯᓇᒃ ᑯᐸᓇᔅ HMLx :coco.calderhead@tatasteelcanada.com

(514) 764-6716



DIRECT-SHIPPING ORE HOWSE PROPERTY PROJECT
ᑲᔦᐅᑕᑲᓄᒃ ᓯᓂᔾ ᐊᑐᔅᒐᐅᓐ - ᑲᓄᑎᓯᓇᓄᒃ ᐊᑐᔅᒐᐅᓐ

HML
Howse Minerals Limited

Minimizing Impacts/ᐋᒍᓇᑲᓄᒃ ᑕᐃᔅ ᒪᑕᐃᑖᒃ

- **Pit Optimization/ᐊᔅᑦᔾ ᐊᒧᓇᐃᑲᓄᒃ :**

  Activities will be adapted to minimize visual and environmental negative effects /ᓄᑎᒻ ᑕᐃᔅ ᓇᑐᔅᑕᐃᑕᓄᒃ ᐊᓐᑕ ᑕᐃᔅ ᒪᑕᐃᑕᒃ ᐊᑐᔅᑕᐅᓐ ᑭᔦ ᓇᔅᑕ ᑕᐊᑲ ᒥᔅᑎᒪᑕᐃᑖᒃ ᐊᓐᑕ ᐋᔅᑲ ᐊᔅᑦᒃ ᐋᑐᔅᑲᔅᑕᓄᒃ

- **Project layout/ᐊᑐᔅᑕᐅᓐ ᑕᐃᓯᓈᒃ :**

  Redesigned to respect Aboriginal interests and to protect Pinette Lake / ᑕᑦ ᑲᐤ ᑦᑕᐸᑕᓄᒃ ᐃᔮᒃ ᐊᓯᑦᑕᐸᑕᒃ ᐊᓐᑕ ᐋᔅᑲ ᐊᔅᑦᔮᐤ ᒥᑦᒪ ᑲᐅᑕᐃᑎᓇᑦ ᑭᔦ ᐊᓐᑕ ᐋᔅᑲ ᑕᑦ ᓇᑲᑐᐋᐃᑕᓄᒃ

- **Environmental Protection Plan and Dust Control Policy will be implemented /** ᐊᔅᑦᔾ ᑕᐃᔅ ᓇᑲᑐᐋᐃᑕᓄᒃ ᑭᔦ ᔦᑲᐤ ᐊᑯᐋᐸᑦᑦ ᑕᐃᔅ ᓇᔅᐃᑲᓄᒃ ᑕᐱᒧᑯᑕᒃ

- **Up to 30% of stockpiles will be re-used (restoration and road)/** ᐊᔅᑦᔾ ᑕᐃᔅ ᓇᑲᑐᐋᐃᑕᓄᒃ ᑭᔦ ᔦᑲᐤ ᐊᑯᐋᐸᑦᑦ ᑕᐃᔅ ᓇᔅᐃᑲᓄᒃ ᑕᐱᒧᑯᑕᒃ

- **Identification of sensitive zones/ᐋᒥᓇᑦᑕᑲᓄᑦ ᐊᔅᑦᔦ :**

Pinette Lake/ᐱᓇᑦᔅᑲᐃᑲᓐ

Goodream Creek/ᓯᐱᔅ

Rusty Black bird/ᐱᔦᓯᐤ

Grey-cheeked thrush nest /ᐱᔦᓯᐤ

Timeline/ᓇᐤ ᐊᑎᔅᑖᒃ ᐊᓐᑕ ᑌᔅ ᑲᒧᓇᐃᑲᓄᒃ :

- Project Description/Registration submission to the provincial and federal Environmental Assessment agencies : Early 2014
  ᐊᑐᔅᑕᐅᓐ ᑕᐃᓯᓈᒃ ᐊᓐᑕ ᐃᔥᒧᐅᓐ ᐊᔅᑦᔾ ᑕᐃᔅ ᒪᑕᐃᑖᒃ ᑕᐃᑎᔅᐃᑲᓄᒃ ᐊᑐᐋ ᑭᔦ ᑯᐸᒃ ᑦᔅᐅᑦᑲᓂᒃ 2014 ᐱᐳᓐx
- Pit development: Late 2014
  ᑕᒧᓇᐃᑲᓄᒃ ᓯᓂᔾ 2014 ᐱᐳᓐ
- Operations: June 2015-2028
  ᐊᑐᔅᑕᐅᓐ ᑕᐱᒧᑯᑕᒃ ᑕᑦᑦᐱᐃᓇᓄᒃ ᒉᓐᐱᓯᒻ 2015-2028 ᐱᐳᓐ
- Progressive site restoration, decommissioning and rehabilitation: 2033
  ᑕᔦᔅᑯᑕᑲᓄᒃ ᐊᔅᑦᔾ ᑲᐤ ᑕᑦ ᒥᔮᓇᑯᑕᑲᓄᒃ ᑭᔦ ᐊᑲ ᐊᑐᔅᑲᐋᑕᓄᒃ ᑭᔦ ᐋᔅᑲ ᒥᔮᓈᒃ ᐊᔅᑦᔾ

Socioeconomic Impacts of the Project/ᐊᓐᑕ ᐊᑐᔅᑕᐅᓐ ᑭᔦ ᐱᒪᑎᓯᔮᐅᓐ ᐊᑦᑕᐸᑕᓄᒃ ᐊᑐᔅᑕᐅᓂᒃ:

- Presence of temporary workforce in the Region/ᐋᔨᐱᔅᑦᓴ ᑕᑖᒃ ᑲᑐᔅᑕᓯᒡ
- Increased rail traffic/ᐊᒥᔅᑕᐱᑦᑕᑲᓄᒃ ᐃᔅᑯᑕᐅᑕᐸᓐ ᒪᔅᑲᓄᐤ
- Employment/ᐊᑐᔅᑕᐅᓐ
- On-the-job- Training/ᐊᑐᔅᑕᐅᓂᒃ ᐊᔅᑯᑎᒪᑕᓄᒃ
- Business Opportunities /ᐊᑐᔅᑕᐅᓐ ᐎᑦᒥᑕᑲᓄᒃ

  Investment in local infrastructures (airport, sports and commercial facilities)/ ᓲᓇᔦᐤ ᐊᓐᑕ ᑕᔅᑕᑲᓄᒃ ᑖᑲᓐ ᐊᓐᑕ ᐊᑦᒥᑖᒃ ᐊᑐᔅᑕᐅᓂᒃ (ᐋᑕᐅᓇᓂᒃ, ᒪᑐᐋᐅᒍᐋᐱᒃ, ᑕᐋᐅᒍᐋᐱᒃ)
- Revenue sharing/ᓲᓇᔦᐤ ᐊᑕᑎᐸᓇᑲᓄᒃ

Irony Mountain /Kauteitinat/ᑲᐅᑕᐃᑎᓇᑦ:

This mountain has spiritual and historical significance for the local population. To help address this concern, HML will/ᐊᔅᐱᑕᐃᑕᒃ ᑲᐅᑕᐃᑎᓇᑦ ᐱᔅᑯᑎᓇᐤ ᑭᔦ ᑕᑦ ᐋᐃᑕᓄᒃ ᐊᓐᒃ ᑲᓄᑎᓲᒃ ᐊᓐᑕ ᐊᑐᔅᑕᐅᓐ ᑕᑐᑕᑲᓄᒃ HML :

- establish and maintain a buffer zone for long-term protection of Irony Mountain (Kauteitinat) from the Project activities;/ ᑕᑐᑖᒃ ᐊᓐᑕ ᑕᐃᑎᓯᓇᑕᐃᑲᓄᒃ ᑭᔦ ᑕᐊᑲ ᒪᒪᓯᑕᑲᓄᒃ ᐊᔅᑦᔾ ᑭᔦ ᐱᔅᑯᑎᓇᐤ ᑕᒥᔮᓇᑲᑐᐋᐃᑕᓄᒃx
- maintain and open an on-going dialogue with the Aboriginal groups and other local land users in the planning and the development of the Project./ ᓇᑎᒻ ᑕᑦ ᑎᑖᒃ ᐃᔥᒧᐅᓐ ᐊᓯᐱᔅᑎᓂᒪᑐᓇᓄᒃ ᑭᔦ ᐃᔮᒃ ᑭᔦ ᑯᑎᑲᒃ ᐊᐋᓐᑦ ᔦᐱᑦᑖᒃ ᐊᓂᔦ ᐊᔅᑦᔮᐤ ᑭᔦ ᐊᑐᔅᑕᐅᓐ ᐋᑐᑕᑲᓄᒃ ᑕᐃᑎᑯᑖᒃ ᑭᔦ ᑕᐃᔅᐱᐃᒃx

Irony Mountain/ᑲᐅᑕᐃᑎᓇᑦ

Why are you receiving this brochure? ᑯᑖᑲᓐ ᐅᐋ ᐃᔥᒧᐅᓐ ᐋᑦᑲᔅᑎᓂᒪᑯ?

This brochure aims to inform the communities and organizations regarding Howse Property Project (exploration, operations, rehabilitation).

ᐅᐋ ᐃᔥᒧᐅᓐ ᐊᑦᑕᐸᑕᓄᒃ ᐃᔮᔅᑦᔦ ᑭᔦ ᐊᑐᔅᑲᔅᑖᒃ ᐊᑐᔅᑕᐅᓇ ᑕᑦ ᐊᔅᑕᐃᑖᒃ ᐊᓂᔦ ᑲᓄᑎᓯᓇᓄᒃ ᐊᑐᔅᑕᐅᓐ (ᐊᓇᑐᔅᑕᐃᑕᓄᒃ ᑭᔦ ᐊᑐᔅᑲᔅᑕᓄᒃ ᓯᓂᔾ ᑭᔦ ᑲᐤ ᑕᑦ ᒥᔮᓇᑯᑕᑲᓄᒃ ᐊᔅᑦᔾ)

Tata Steel Minerals Canada (TSMC):

Joint Venture between Tata Steel Ltd. and New Millennium Iron Corp. established in October 2010. TSMC is part of Tata Steel Group. TSMC is currently developing its DSO Project in Quebec and Labrador.

ᑲᓄᑎᓯᓈᒃ TSMC ᓯᓂᔾ ᐊᑐᔅᑕᐅᓐ ᒪᒧ ᐋᑦᑐᔅᑕᒪᒃ ᐊᓂᔦ ᑯᑎᑲ ᑲᓄᑎᓯᓇᐃᑦ New Millennium ᐊᓐᑕ ᐎᓴᑯᐱᓯᒪ, 2010 ᐱᐳᓐx ᑲᓄᑎᓯᓈᒃ TSMC ᐋᔅᑕᐱᓯᓐᑦ

Howse Property Owners/ᑕᐸᐃᑖᒃ ᐊᓂᔦ ᐊᑐᔅᑕᐅᓂᔮᐤ

Howse Minerals Limited (HML):

wholly-owned subsidiary of TSMC) based in St.-John's, Newfoundland signed an unincorporated joint venture agreement with LIM, TSMC and Labrador Iron Mines Holdings Limited to develop Howse Property. . HML is responsible to manage and operate Howse Property.

HMLᑲᓄᑎᓯᓇᓄᒃ ᐊᑐᔅᑕᐅᓐ, ᐊᑎᑖᒃ ᑎᐸᐃᑎᒧᐅᓐ Tata Steel ᑲᓄᑎᓯᓈᒃ (TSMC) ᐊᓐᑕ ᐅᒥᓯᓇᐃᑭᓐᒍᐋᐱᒧᐋᐤ ᐊᑎᑯᓂᒃ ᒥᔅᑎᒥᔅᑎᑯ ᐊᔅᑦᒃ (St.-John's, Newfoundland) ᑲᒥᓯᓇᑕᐅᑎᓲᒃ ᐊᑐᔅᑕᐅᓐ ᓂᔅᑯᒧᐅᓂᔮᐤ ᒪᒧ ᑕᑦ ᐅᒃ ᐊᑐᔅᑕᒪᒃ ᓇᐱᑖᐤ ᑲᓄᑎᓯᓈᒃ ᑲᒻᐱᓂᔾ LIM ᑭᔦ ᑕᔦᔦᑎᓂᒥᑦ ᐊᑐᔅᑕᐅᓂᔮᐤ Howse Propertyx

Labrador Iron Mines (LIM):

Canada's newest and only independently owned iron ore producer. LIM focuses on the development and production of its 20 direct shipping iron ore deposits located in the historic Schefferville area of the Labrador Trough.

ᓇᐱᑖᐤ ᑲᓄᑎᓯᓈᒃ ᑲᒻᐱᓂᔾ ᐅᑕ ᑲᓇᑕ ᓄᑦᑕ ᑲᐃᑲᐳᐃᑕᑲᓄᒃ ᓯᓂᔾ ᐋᒍᓇᐃᑲᓄᒃ ᐊᑐᔅᑕᐅᓐx ᓇᐱᑖᐤ ᑲᓄᑎᓯᓐᒃ ᑲᒻᐱᓂᔾ ᑲᑦᑕᐸᑖᒃ ᓂᓯᔮᐤ ᑕᑐᐎᒃ ᐊᓐᑕ ᓯᓂᔾ ᐋᓇᑐᔅᑕᐃᑕᓄᒃ

DIRECT SHIPPING ORE HOWSE PROPERTY PROJECT

ᑲᔭᐅᑕᑲᓄᑉ ᓯᓂᔾ ᐊᑐᕐᒪᐅᓐ - ᑲᓄᑎᓯᓇᓄᑉ ᐊᑐᕐᒪᐅᓐ

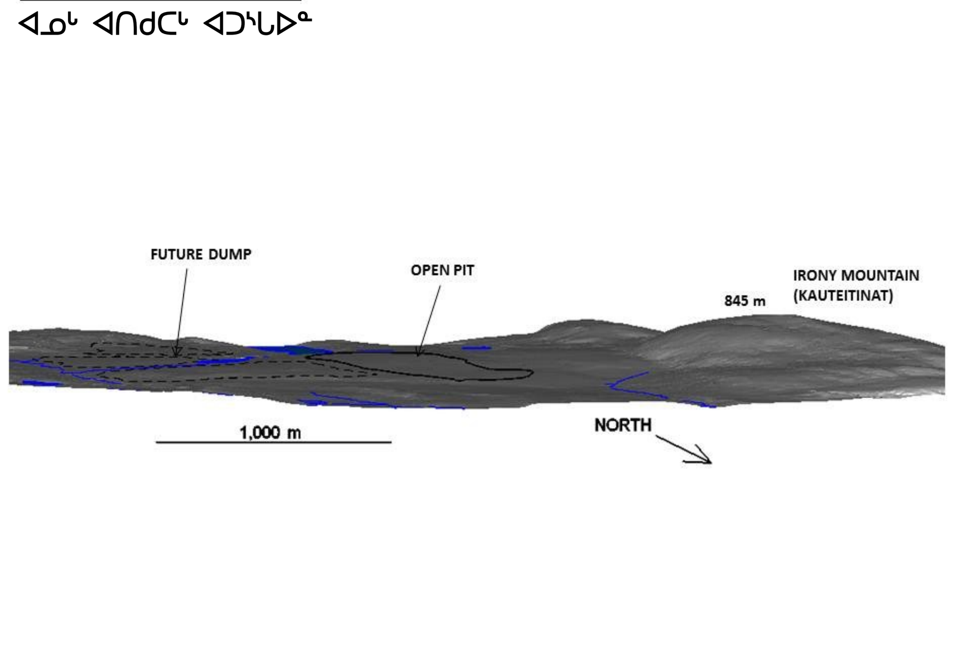
HML is planning to develop the iron ore deposit at the Howse Property (estimated production of 21 tonnes), located between Irony Mountain (Kauteitinat), Pinette Lake and Timmins 4./ᑯᑎᑲᑉ ᑲᓄᑎᓯᓇᑉ ᐋᒋᒥᑕᑉ ᐊᓐᑕ ᓯᓂᔪᐤ ᒪᒍᓇᐃᑲᓄᐃᑉ ᐊᓐᑕ Howse Property (ᓴᓯᑲᓐ 21 ᓯᓂᔪᐤ ᒪᒍᓇᒎᑉ ᐊᔅᐱᔅᐃᑉ) ᐊᓐᑕ ᐊᑎᐧᑲᑉ ᑲᐅᑕᐃᑎᓇᑦ ᑭᔭ ᐱᓇᑦ ᓴᑲᐃᑭᓐ ᑭᔭ ᑎᒥᓐᔅ (TSMC ᓇᐤ ᐊᑎᔅᑕᑉ ᐊᓐᑕ ᒐᔅ ᑲᒍᓇᐃᑲᓄᑉ)

Timeline/ ᓇᐤ ᐊᑎᔅᑕᑉ ᐊᓐᑕ ᒐᔅ ᑲᒍᓇᐃᑲᓄᑉ

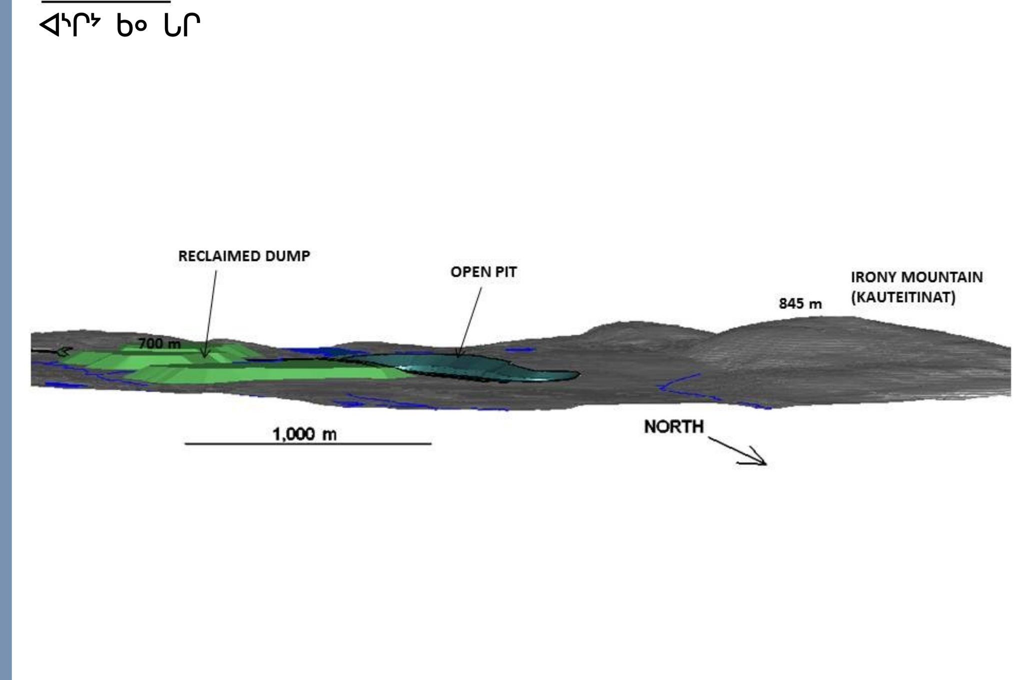
- Project Description/Registration submission to the provincial and federal Environmental Assessment agencies : Early 2014
  ᐊᑐᕐᒪᐅᓐ ᒪᐃᓯᓇᐧᑲᑉ ᐊᓐᑕ ᐃᔔᒍᐅᓐ ᐊᔅᒋᔾ ᒪᐃᔅ ᒪᑕᐃᑕᐧᑲᑉ ᒪᐃᑎᔅᐃᑲᓄᑉ ᐊᑐᐋ ᑭᔭ ᑯᐸᒃ ᒋᔅᐅᒋᑲᓂᑉ 2014 ᐱᐳᓐ
- Pit development: late 2014 / ᒪᒍᓇᐃᑲᓄᑉ ᓯᓂᔾ 2014 ᐱᐳᓐ
- Operations: June 2015 – 2028 / ᐊᑐᕐᒪᐅᓐ ᒪᐱᒍᑯᑕᑉ ᒪᒋᒋᐱᐃᓇᓄᑉ ᒍᓐᐱᔪᓪ 2015-2028 ᐱᐳᓐ
- Progressive site restoration, decommissioning and rehabilitation: 2017-2033 / ᒪᔭᕐᑯᑕᑲᓄᑉ ᐊᔅᒋᔾ ᑲᐤ ᒪᒋ ᒥᔪᓇᑯᑕᑲᓄᑉ ᑭᔭ ᐊᑲ ᐊᑐᕐᑲᐋᒪᓄᑉ ᑭᔭ ᐋᔅᑲ ᒥᔪᓇᐧᑲᑉ ᐊᔅᒋᔾ 2017-2033

Ground views:

CURRENT SITUATION
ᐊᓄᑉ ᐊᑎᑯᑕᑉ ᐊᑐᕐᒪᐅᓐ



CLOSURE
ᐊᔅᒋᔾ ᑲᐤ ᒪᒋ



TSMC is a joint venture between Tata Steel Ltd. and New Millennium Iron Corp. established in October 2010. TSMC is part of Tata Steel Group. TSMC is currently developing its DSO Project in Quebec and Labrador
ᑲᓄᑎᓯᓇᑉ TSMC ᓯᓂᔾ ᐊᑐᕐᒪᐅᓐ ᒪᒧ ᐋᒋᑐᕐᒪᒪᑉ ᐊᓂᔭ ᑯᑎᑲ ᑲᓄᑎᓯᓇᐃᒋ New Millennium ᐊᓐᑕ ᐃᐧᔅᑯᐱᓯᐧᒪ, 2010 ᐱᐳᓐ ᑲᓄᑎᓯᓇᑉ TSMC ᐋᔅᑕᐱᓯᓐᑦ ᐊᓐᑕ ᐊᔅᒋᑯᒪᓐ ᑲᐱᓂᔾ TSMC ᐊᓄᑉ ᐊᒋᒥᑕᑦ ᐊᓐᑕ ᓯᓂᔾ ᒪᒍᓇᐃᑲᓄᑉ ᑭᔭ ᑲᔭᐅᑕᑲᓄᑉ ᐊᑐᕐᒪᐅᓐ ᐊᓐᑕ ᑯᐸᒃ

Howse Property Project Owners
ᑕᐸᐃᑕᑉ ᐊᓂᔭ ᐊᑐᕐᒪᐅᓂᔪᐤ

LIM is Canada's newest and only independently owned iron ore producer. LIM focuses on the development and production of its 20 direct shipping iron ore deposits located in the historic Schefferville area of the Labrador Trough.
ᓇᐱᐧᑕᐤ ᑲᓄᑎᓯᓇᑉ ᑲᐱᓂᔾ ᐅᑕ ᑲᓇᑕ ᓄᒋᒐ ᑲᐃᑲᐳᐃᑕᑲᓄᑉ ᓯᓂᔾ ᐋᒍᓇᐃᑲᓄᑉ ᐊᑐᕐᒪᐅᓐ ᓇᐱᐧᑕᐤ ᑲᓄᑎᓯᓐᑉ ᑲᐱᓂᔾ ᑲᒋᑕᐸᑕᑉ ᓂᓯᔪᐤ ᑕᑐᐃᑉ ᐊᓐᑕ ᓯᓂᔾ ᐋᓇᑐᕐᒪᐃᑕᑲᓄᑉ

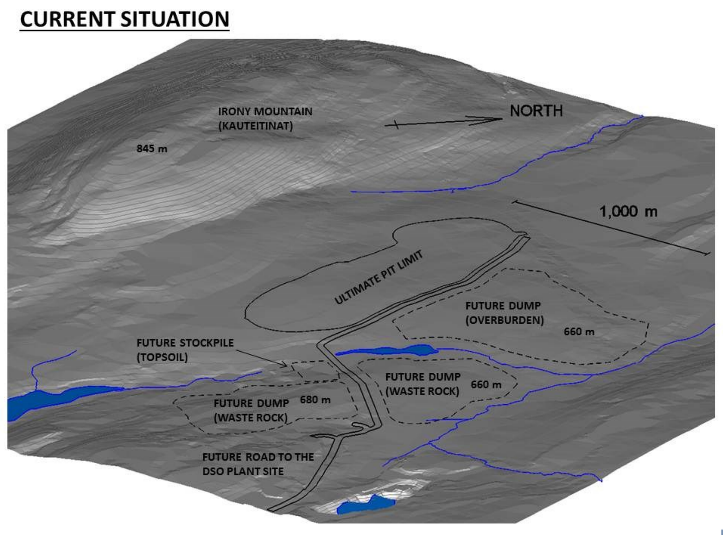
Howse Minerals Limited (HML), a wholly-owned subsidiary of Tata Steel Minerals Limited (TSMC) based in St.-John's, Newfoundland has signed an unincorporated joint venture agreement with LIM, TSMC and Labrador Iron Mines Holdings Limited to develop Howse Property. HML is responsible to manage and operate Howse Property.
HMLᑲᓄᑎᓯᓇᓄᑉ ᐊᑐᕐᒪᐅᓐ, ᐊᑎᐧᑲᑉ ᑎᐸᐃᑎᒍᐅᓐ Tata Steel ᑲᓄᑎᓯᓇᑉ (TSMC) ᐊᓐᑕ ᐅᒥᓯᓇᐃᑭᓐᒍᐋᐱᒍᐋᐤ ᐊᑎᑯᓂᑉ ᒥᔅᑎᒥᔅᑎᑦ ᐊᔅᒋᑉ (St.-John's, Newfoundland) ᑲᒥᓯᓇᑕᐅᑎᓱᑉ ᐊᑐᕐᒪᐅᓐ ᓂᔅᑯᒍᐅᓂᔪᐤ ᒪᒧ ᒐᒋ ᐅᑉ ᐊᑐᕐᒪᒪᑉ ᓇᐱᐧᑕᐤ ᑲᓄᑎᓯᓇᑉ ᑲᐱᓂᔾ LIM ᑭᔭ ᒪᔭᔭᑎᓂᒥᒋ ᐊᑐᕐᒪᐅᓂᔪᐤ Howse Property ᑲᓄᑎᓯᓇᑉ ᑲᐱᓂᔾ ᒪᔭᔭᑎᓇᑉ ᑭᔭ ᒪᑐᕐᑲᕐᑕᑉ ᐊᓂᔭ ᓯᓂᔾ ᐊᑐᕐᒪᐅᓂᔪᐤ (Howse Property)

The Project will consist of/ ᐊᓐᑕ ᐊᑐᕐᒪᐅᓐ ᒪᐃᓯᓇᐧᑲᑉ :

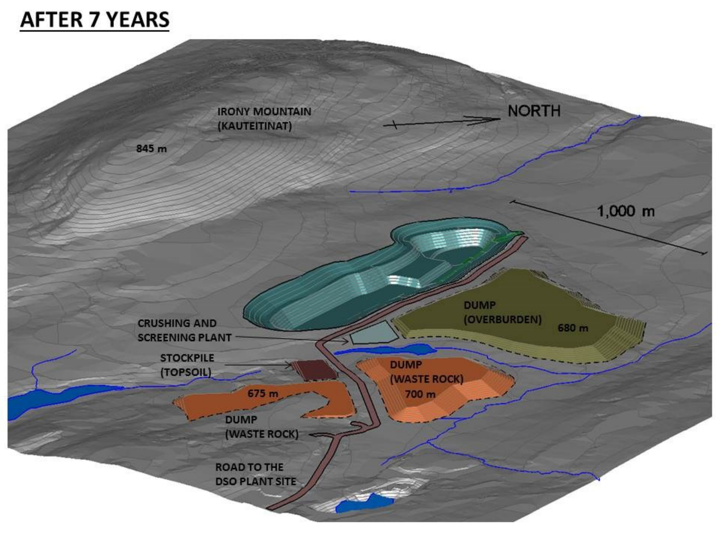
- A 3.5 km haul road / 3x5 ᒪᔅᑲᓄᐤ ᒪᐃᔅᐱᔅᑉ
- An open pit (1,600 m by 450 m with a maximum depth of 160 m) ᒪᒍᓇᐃᑲᓄᑉ ᒪᐃᔅᐱᔅᑉ ᑭᔭ ᒪᐃᑭᔅᑲᑉ
- A crushing and screening facility (the ore will then be hauled to the TSMC's DSO Project loading area and then shipped by train to Sept-Îles to be sent to Europe and Asia)/ ᒪᐱᓯᐱᑕᑲᓄᑉ ᓯᓂᔾ ᑭᔭ ᒪᔭᐅᑕᑲᓄᑉ ᐃᔅᑯᑕᐅᑕᐸᓂᑉ ᐊᓐᑕ ᐋᔅᑉ ᑭᔭ ᒪᐃᑎᔅᐃᑲᓄᑉ ᑲᒥᔅᒋᑉ
- Stockpiles (overburden and waste rock dumps)/ ᓯᓂᔾ ᐊᑲ ᐊᐱᒋᑕᑲᓄᑉ ᒪᑐᑕᑲᓄᑉ
- Water management facilities and general site drainage works/ ᒍᒪᐳ ᑭᔭ ᓂᐱᔾ ᒪᐃᓯᑯᑕᑲᓄᑉ

Aerial views:

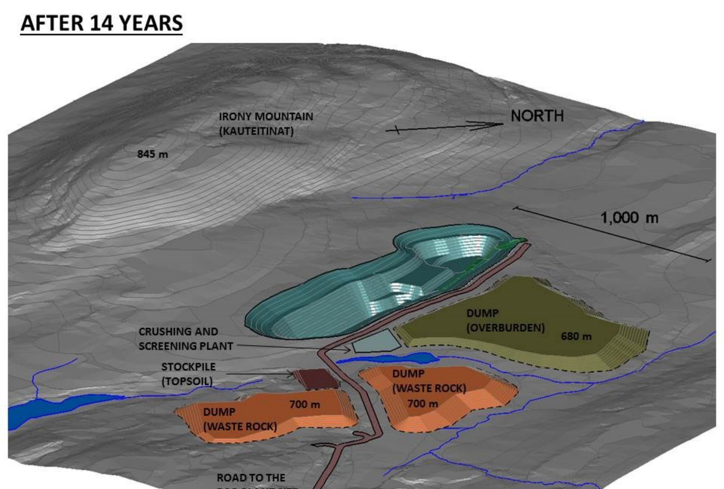
CURRENT SITUATION



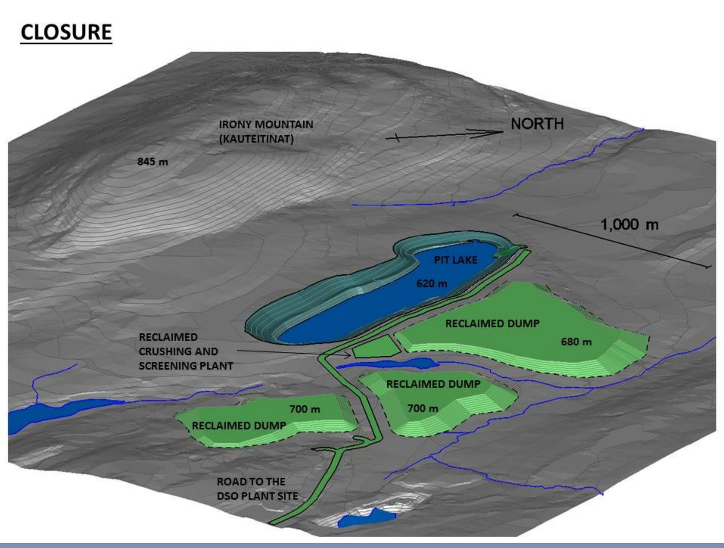
AFTER 7 YEARS



AFTER 14 YEARS



CLOSURE



Site Restoration

ᐊᔅᒋᔾ ᑲᐤ ᒪᒋ ᒥᔪᓇᑯᑕᑲᓄᑉ

- Progressive rehabilitation of disturbed sites: vegetation and stabilization
  ᑲᐤ ᐋᔅᑲ ᐊᔅᒋᔾ ᒪᒋ ᒥᔪᓇᑯᑕᑲᓄᑉ ᑲᒪᒪᓯᑕᑲᓄᑉ ᑭᔭ ᑲᑐᕐᑲᐋᒪᓄᑉ
- Research program with TSMC and Laval University for revegetation
  ᐃᔔᒍᐅᓐ ᐊᓇᑐᕐᒪᐃᑕᑲᓄᑉ ᐊᑐᕐᒪᐅᓐ ᒪᐃᓯᓇᐧᑲᑉ ᐊᔅᒋᔾ ᑲᐤ ᒪᒋ ᒥᔪᓇᑯᑕᑲᓄᑉ ᐊᓐᑉ ᑲᓄᑎᓯᓇᑉ ᑭᔭ ᑲᒥᔅᑎᔅᑯᑎᒪᒪᓄᑉ

Minimizing Impacts/ ᐋᒍᓇᑲᓄᑉ ᒪᐃᔅ ᒪᑕᐃᑕᐧᑲᑉ

- **Project layout/ ᐊᑐᕐᒪᐅᓐ ᒪᐃᓯᓇᐧᑲᑉ**
  was redesigned to respect Aboriginal interests and to protect Pinette Lake /ᒪᒋ ᑲᐤ ᒋᑕᐸᑕᑲᓄᑉ ᐃᐧᔪᑉ ᐊᓯᒋᑕᐸᑕᑉ ᐊᓐᑕ ᐋᔅᑲ ᐊᔅᒋᔪᐤ ᒥᒋᒪ ᑲᐅᑕᐃᑎᓇᑦ ᑭᔭ ᐊᓐᑕ ᐋᔅᑲ ᒪᒋ ᓇᑲᑐᐋᐃᑕᑲᓄᑉ
- **Pit Optimization/ᐊᔅᒋᔾ ᐊᒍᓇᐃᑲᓄᑉ:**
  Significant ecological constraints were studied and activities will be adapted to minimize visual and environmental negative effects /ᓄᑎᒻ ᒪᐃᔅ ᓇᑐᕐᒪᐃᑕᑲᓄᑉ ᐊᓐᑕ ᒪᐃᔅ ᒪᑕᐃᑕᑉ ᐊᑐᕐᒪᐅᓐ ᑭᔭ ᓇᔅᒪ ᒪᐊᑲ ᒥᔅᑎᒪᑕᐃᑕᐧᑲᑉ ᐊᓐᑕ ᐋᔅᑲ ᐊᔅᒋᑉ ᐋᑐᑲᔅᑕᑲᓄᑉ
- **Environmental Protection Plan and Dust Control Policy will be implemented/** ᐊᔅᒋᔾ ᒪᐃᔅ ᓇᑲᑐᐋᐃᑕᑲᓄᑉ ᑭᔭ ᔭᑲᐤ ᐊᑯᐋᐸᑕᑦ ᒪᐃᔅ ᓇᔅᐃᑲᓄᑉ ᒪᐱᒍᑯᑕᑉ
- **Up to 30% of stockpiles will be re-used (restoration and road)/ᒪᐃᑕᐱᒋᑕᑲᓄᑉ ᓯᓂᔾ ᐊᑲ ᐊᐱᒋᑕᑲᓄᑉ ᑲᒍᓇᐃᑲᓄᑉ (ᒪᔅᑲᓄᐤ ᑭᔭ ᑲᐤ ᐊᔅᒋᔾ ᒪᒋ ᒥᔪᓇᐧᑲᑉ)**

Examples/ᒍᔭᒻ:

⇒ **Water body protection of Goodream Creek:**
ᓂᐱᔾ ᐊᓇᑲᑐᐋᐃᑕᑲᓄᑉ ᐊᓐᑕ Goodream Creek ᓱᐱᑉ:

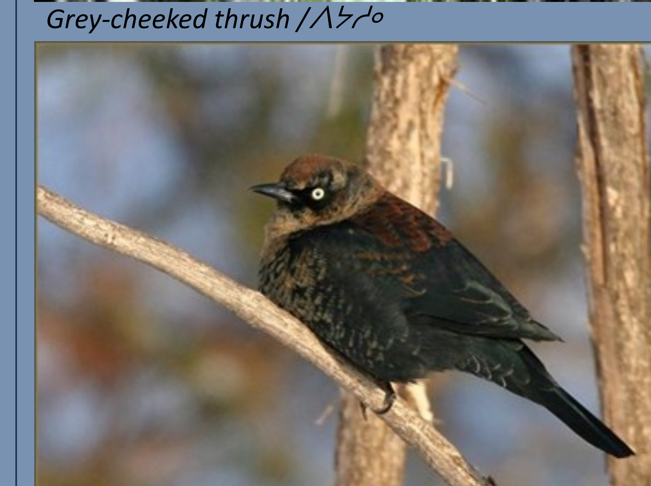
- Real-time monitoring since 2012 by federal and provincial governments
  ᑲᐸᑉ ᓇᓇᑲᒋᑕᑲᓄᑉ 2012 ᐱᐳᓐ ᐊᓐᑕ ᑯᐸᒃ ᑭᔭ ᐊᑐᐋ ᒋᔅᐅᒋᒪᑲᓂᑉ
- Will not be crossed
  ᒪᐊᑲ ᑎᔅᑯᒍᑕᓄᑉ
- Buffer zone around creek
  ᐋᔅᑲ ᐊᓐᑕ ᒪᐃᑎᓯᓇᑕᐃᑲᓄᑉ ᐊᓇᓇᑭᒋᑕᑲᓄᑉ
- Sediment control
  ᓯᓂᔾ ᐊᓇᑲᑐᐋᐃᑕᑲᓄᑉ
- Suspended particles monitoring in water
  ᒪᐧᑲᓐ ᐊᑎᐧᑲᑉ ᓂᐱᑉ
- Fish and aquatic life surveys performed in 2013
  ᓂᒪᔅ ᑭᔭ ᐋᓯᓱᑉ ᐊᑕᑉ ᓂᐱᔾ ᑲᓇᑐᕐᒪᐃᑕᑲᓄᑉ ᐃᔔᒍᐅᓐ2013ᐱᐳᓐ

⇒ **Protecting nesting habitat for two at-risk bird species**
ᓂᓱᐃᑉ ᐊᓯᓇᑯᓱᑉ ᐱᔭᓱᑉ ᑭᔭ ᐅᔅᑎᓐ ᐊᓇᑐᕐᒪᐃᑕᑲᓄᑉ

Goodream Creek/ᓱᐱᔅ

Pinette Lake/ ᐱᓇᑦ ᓴᑲᐃᑲᓐ

Grey-cheeked thrush /ᐱᔭᓲ

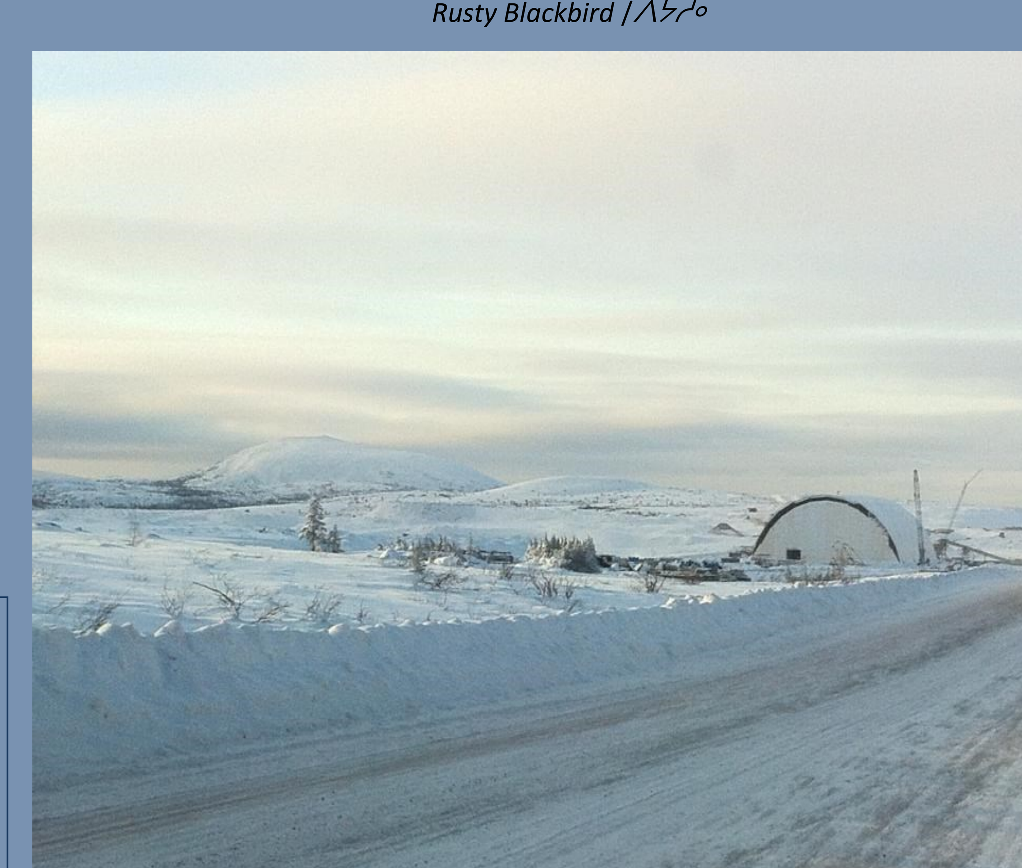


Rusty Blackbird /ᐱᔭᓲ

Irony Mountain/ᑲᐅᑕᐃᑎᓇᑦ

This mountain has spiritual and historical significance for the local population. To help address this concern, HML will:/ᐊᔅᐱᑕᐃᑕᑉ ᑲᐅᑕᐃᑎᓇᑦ ᐱᔅᑯᑎᓇᐤ ᑭᔭ ᒪᒋ ᐋᐃᑕᑲᓄᑉ ᐊᓐᑉ ᑲᓄᑎᓱᑉ ᐊᓐᑕ ᐊᑐᕐᒪᐅᓐ ᒪᑐᑕᑲᓄᑉ HML:

- establish and maintain a buffer zone for long-term protection of Irony Mountain (Kauteitinat) from the Project activities; / ᒪᑐᑕᑉ ᐊᓐᑕ ᒪᐃᑎᓯᓇᑕᐃᑲᓄᑉ ᑭᔭ ᒪᐊᑲ ᒪᒪᓯᑕᑲᓄᑉ ᐊᔅᒋᔾ ᑭᔭ ᐱᔅᑯᑎᓇᐤ ᒪᒥᔪᓇᑲᑐᐋᐃᑕᑲᓄᑉ
- maintain and open an on-going dialogue with the Aboriginal groups and other local land users in the planning and the development of the Project./ᓇᑎᒻ ᒪᒋ ᑎᐧᑲᑉ ᐃᔔᒍᐅᓐ ᐊᓯᐱᔅᑎᓂᒪᑐᓇᓄᑉ ᑭᔭ ᐃᐧᔪᑉ ᑭᔭ ᑯᑎᑲᑉ ᐊᐋᓐᒋ ᔭᐱᒋᑕᑉ ᐊᓂᔭ ᐊᔅᒋᔪᐤ ᑭᔭ ᐊᑐᕐᒪᐅᓐ ᐋᑐᑕᑲᓄᑉ ᒪᐃᑎᑯᑕᑉ ᑭᔭ ᒪᐃᔅᐱᐃᑉ



Impact and Benefit Agreements

Obligations remain the responsibility of LIM under its agreement with HML, TSMC and LIM Holdings Ltd. /ᓂᔅᑯᒍᐅᓐ ᑲᑐᑕᑲᓄᑉ ᐊᓐᑕ ᑎᐸᐃᑎᒍᐅᓐ ᐊᑎᐧᑲᑉ ᑲᓄᑎᓯᓇᑉ ᓇᐱᐧᑕᐤ ᑲᐱᓂᔾ ᑭᔭ ᒪᒧ ᑲᓂᔅᑯᒍᐅᑉ ᐊᓂᔭ HML, TSMC ᑭᔭ ᑲᓄᑎᓯᓇᑉ Labrador Iron Mines Holdings ᑲᐱᓂᔾ.

HML entreprend développer le projet minier Howse, d'une production estimée de 20 millions de tonnes, situé entre la montagne Irony (Kauteitinat), le lac Pinette et Timmins 4

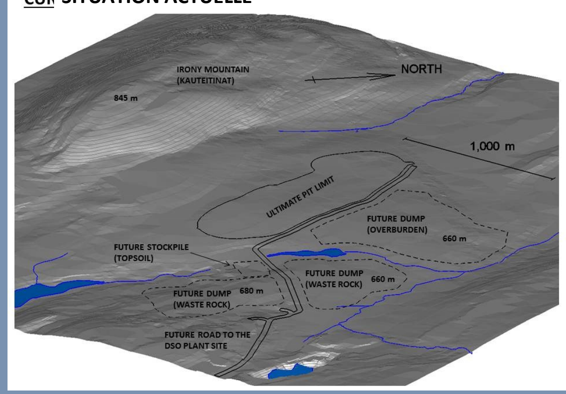
Le Projet comprend:

- Une route de 3.5 km pour le transport du minerai
- Une fosse à ciel ouvert
- Une installation de tamisage et de concassage
- Le minerai de fer sera transporté par train à Sept-Iles puis expédié aux aciéries d'outre-mer
- Empilements (déchets de surface et haldes stériles)
- Installations pour la gestion de l'eau et travaux de drainage général du site

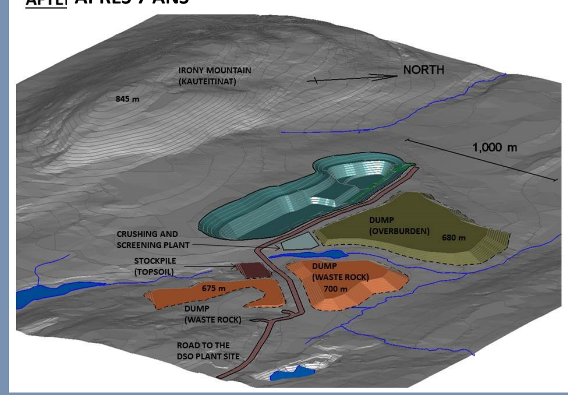
HML kutshipanitau tshetshi pitshitshipanitat nenu atusseunnu ashini Howse e uitakanit, tshipa ishpitenitakuan 20 *millions* (peik^{u} kauenutitshit) *tonnes* eshpitinikutak, anite itetshe tekuak Kauteitinat, Pinette-shakaikan mak neuait ka munaitshenanut anutshish mekuat).

- Meshkanau 3.5km e tatutipaikaneshkat tshe autakanit ne ashini
- Tshe munaitshenanut
- Tutakanipan anite tshetshi shikuashkupanitakanit mak tshetshi pitshissipitakanit (ne ka utinakanit ashini tshe autshipituanut kakashkatshinanushinit utapannu nete itetshe ka ut pushtashunanut ne atusseun e uitakanit TSMC, kie ishkuteu-utapan tshe ishpituanut nete Uashat mak nete itetshe Akamitshikamit mak Asie-assit.
- Tshe ushkushtashunanut (ka nipashinakutakanit assi mak nenua tshekuana eka ka tatshinakaniti
- Tshe tshimatakanit anite tshe ut ueuetashuapatet nipi mak tshe unuitshikutakanit mishue anite ne assi ka atussenanut

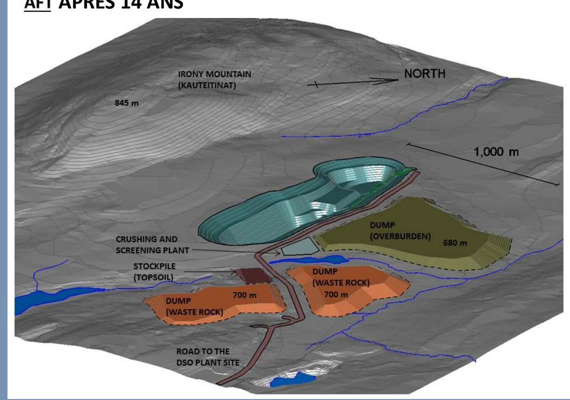
CUR SITUATION ACTUELLE



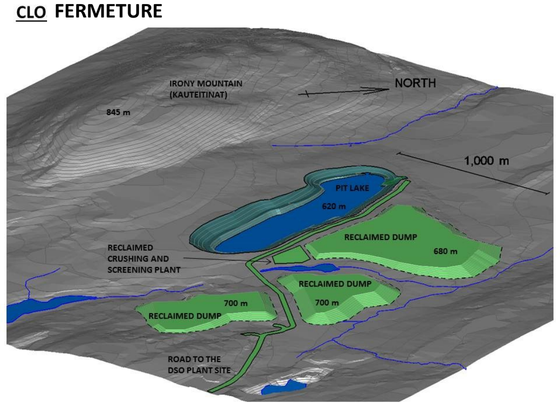
AFTEI APRÈS 7 ANS



AFT APRÈS 14 ANS



CLO FERMETURE



Questions Fréquemment Posées :

Quelles infrastructures seront construites pour le projet minier Howse?
Outre les nouvelles composantes du projet listées plus haut dans la brochure, le Projet permettra d'optimiser l'utilisation des infrastructures existantes (chemin de fer, route d'accès, camps, équipement minier et usine d'explosifs) au complexe du projet DSO de TSMC qui est situé à proximité.
Tshekuana tshe tshimatakaniti ne tshe ishpish takuak atusseun ashini e uitakanit anite Howse ?
Ashit nenua e uitakaniti tshe ishi-takuaki ute ishpimit ka uitakaniti ute mashinaikanissit, ne Atusseun ua tutakanit tshika apashtauat nenua shash tshekuana ka tshimatakanniti miam (ishkuteu-utapan-meshkanau, meshkanaua shash tekuaki, takuakutshuapa, atusseuakana ashini e uitakanit mak atusseutshuap ka matuekashauenanut) anite ne tshe takuak atusseun DSO anite TSMC anite mekuat tekuak.

Quelle sera la hauteur maximale des empilements?
La hauteur maximale des 3 empilements sera de 50 m, considérablement plus bas que le Mont Irony (Kauteitinat).
Tan tshe ishpatanat ne tshe ishpish ushkushtakanit tshekuan ?
Uiesh 3 at ushkushtakanit tshekuan tshipa 50m. ishpitanau.

Est-ce que les ERA existantes s'appliquent à ce Projet?
Les ERA restent la responsabilité de LIM en vertu de son entente de partenariat.
Pimipanua a anite ne Atusseun ua tutakanit nenua ERA ?
Nenua ERA, uin nenu utatusseun ue LIM ui pimipanitat miam ka ishi-nishtutatut ashit nenu HML, TSMC mak Labrador Iron Mines Holdings Limited.

Vais-je avoir un accès continu au territoire entourant le Projet Howse?
Oui. L'accès routier aux sites incluant le lac Pinette, la montagne Irony (Kauteitinat), le lac Triangle et la vallée de la rivière Howse sera maintenu.
Muk^{u} ishpish ui ituteian a anite ne assi anite tshe tutakanit ne Atusseun Howse ?
Eshe. Nanitam anite tshika ishpanua utapana anite nenua assia tshe atussenanut umenua e uitakaniti Pinette-shakaikan, Kauteitinat, Triangle-shakaikan mak anite aishinakuak assi uashka Howse-shipu.

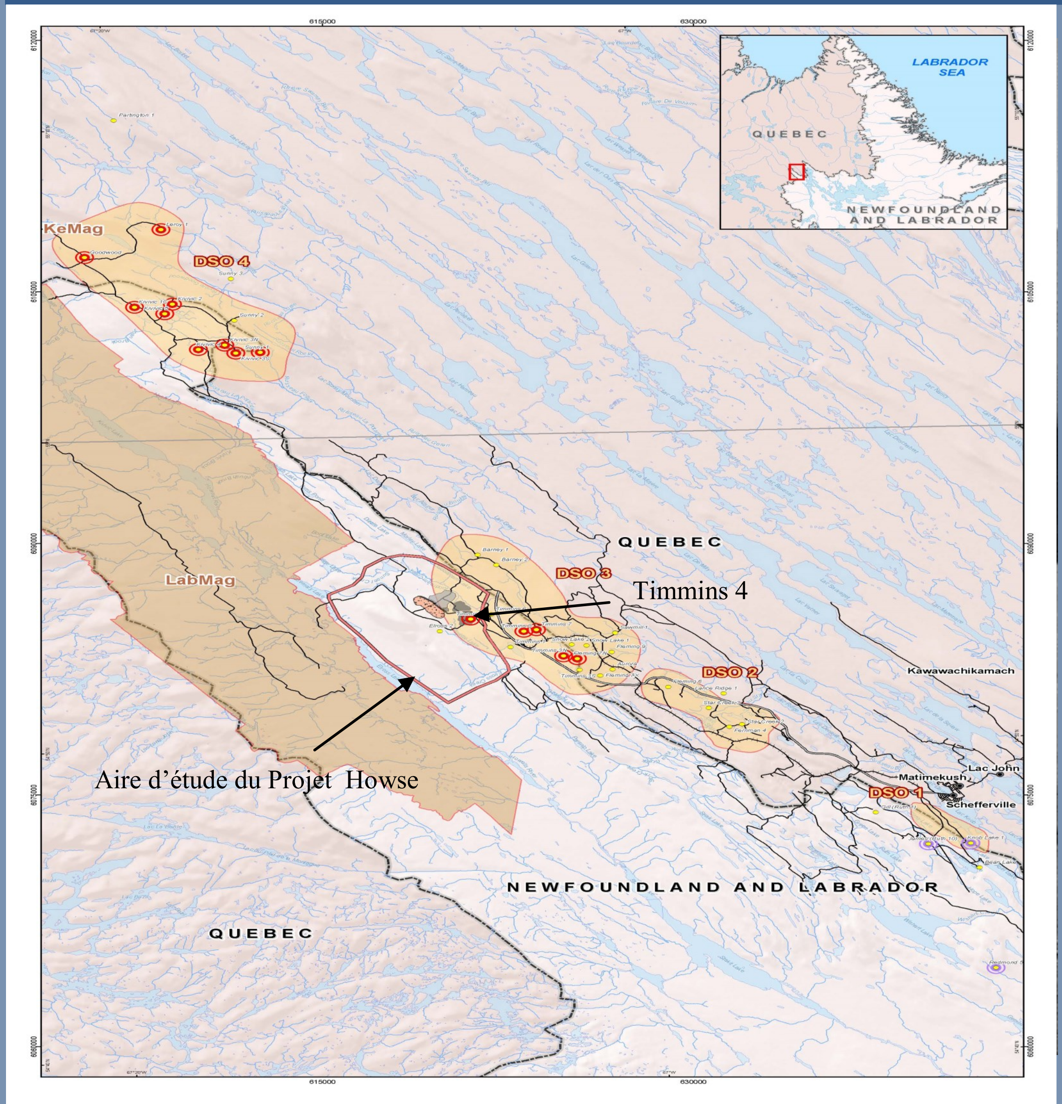
Combien d'emplois seront créés par le Projet et dans quels secteurs d'activités?
Environ 40 emplois seront maintenus/créés dans les secteurs suivants : minier, géologie, services.
Tan tat^{u} atusseuna tshe unuipanitakaniti anite ne Atusseun ua tutakanit mak tanite miam nenua tshe takuaka ?
Uiesh 40 atusseuna tshika takuana/tshika tutakanua anite itetshe : ashini e uitakanit, assi e tshitapatakanit, mak kassinu aishinakuak atusseun.

Est-ce que le projet entrainera des impacts sur les activités de chasse comme la chasse à l'oie ?
Basée sur la topographie de la région, les activités de chasse ne devraient pas être affectées; les activités minières seront adaptées si nécessaire.
Ne atusseun ua tutakanit tshika katshitaitshemakan a anite e nataunanut, miam e natu-ishkushipenanut ?
Ka ishi-akunakanit anite aishinakuak assi, apu tshika ut mamashiuet anite e nataunanut; ne e atushkatakanit ashini tshika ueuetinakanu tshetshi ut eka mamashiuet.

Est-ce que le projet entrainera des impacts sur la poussière dans ma communauté ?
HML appliquera une politique de contrôle de la poussière et continuera à mettre en œuvre des solutions innovantes.
Ne atusseun ua tutakanit tshika mamashiueu a anite nitinnu-assiminat ne tshe panipanitakanit anite ut ne atusseun ua tutakanit ?
HML tshika unuipanitau tshe ishi-pimutenannut tshetshi ut nakatuenitakanit ne e pitshitepanit kie nanitam tshika nakatuenitam^{u} tshetshi ut minupanitat.

Comment puis-je exprimer mes préoccupations?
Par biais des représentants du Comité de la santé, la sécurité et l'environnement (SSE) de votre communauté ou en contactant directement HML :
Tanite nipa tshi ut uiten tshekuan eshi-aieshkushiuinikuian ?
Tshipa tshi uitamuakanuat anitshenat Minuinniunnu ka tshitapatahk, akua ka aitinanut mak uashka assi e tshitapatakanit (SSE) anite tshitinnu-assimuat kie ma uin uetshet ue HML :

coco.calderhead@tatasteelcanada.com
(514) 764-6716



PROJET DE MINERAI DE FER HOWSE

ATUSSEUN ASHINI HOWSE E UITAKANIT

HML
Howse Minerals Limited

Minimiser les impacts

Tshe eka anumat mishta-ishpaniuet

Optimisation de la fosse

Tshe mishta-atushkatakanit ka munaitshenanut

- Les activités seront adaptées afin de minimiser les effets négatifs visuels et environnementaux
- Tshika ishi-atushkatakanu tshetshi eka tshekuan matshinakuak anite aishinakuak assi

Configuration du projet

Tshe tshitapatakanit tshe ishinakutakanit ne atusseun ua tutakanit

- A été revue afin de respecter les intérêts des groupes autochtones et pour protéger le Lac Pinette
- Uueshi-tshitapatakanipan tshetshi ishpitenitakannit innuat uenutishiunnuaua mak tshetshi tshishpeuatakanit ne Pinette-shakaikan
- Plan de protection environnementale et de Contrôle de la poussière
- Tshe ueuetinakanit tshetshi tshishpeuatakanit uashka assi mak tshetshi minu-nakatuenitakanit tshetshi eka shuka pitshitepanit tshishikut
- Jusqu'à 30% des matériaux des haldes seront réutilisés (restauration et routes)
- Nuash 30% nenua atusseuakana kau tshika tshi apashtakanua (tshe minu-kanuenitakaniti mak meshkanaua)

Identification des zones sensibles

Tshetshi mishta-*minu-nakatuenitakanit assi anite kiatshitaitshemakak*

Ruisseau Goodream
Goodream-shipiss

Lac Pinette
Pinette-shakaikan

Grive à joues grises
anuk ka uapanushit utamakanit

Quiscale rouilleux
tshatshakanu ka mikushit

Échéancier:

Tshe ishpish ui tshishtapanitakanit

- **Soumission de l'avis de projet aux gouvernements fédéral et provincial : Début 2014**
- **Tshe natshi-ashtakanit tshe uitakanit ne atusseun e uitakanit anite Utauat tshishe-utshimat mak Uepishtikueiau-tshishe-utshimat : Shikut 2014**
- **Préparation du site : fin 2014**
- **Tshe ueuetashtakanit ne assi anite tshe atussenanut : ishkuapanit 2014**
- **Opérations : 2015 – 2028**
- **Tshe pimipanitakanit atusseun : 2015 - 2028**
- **Démantèlement, restauration et réhabilitation progressives du site: 2017-2033**
- **Tshe itshenakaniti atusseuakana ka tshimatakanniti, kau tshe ueuetinakanit ne assi anite ka atussenanut mak metinu tshe minunakutakanit ne assi: 2017-2033**

Impacts socio-économiques reliés au Projet

Eshpaniuet anite mamu ka tananut mak pakassiun ashit ne e tshitapatakanit ne atusseun ua tutakanit :

- **Présence de main d'œuvre temporaire dans la région**
- **Uenapissish atusseun kupanieshat ka taht anite ne aishinakuak assi**
- **Augmentation du trafic ferroviaire**
- **Tshe amatshuepanitakanit e tshishikashunanut ishkuteu-utapan**
- **Investissements dans les infrastructures locales (aréna, aéroport, terrains de sport)**
- **Patutepanit shuniau tshetshi ut tshimatakanit miam (kashushkuataikanit, tueunan, assi anite tshe metueuna tshe takuaki)**
- **Opportunités d'emploi**
- **Menupaniuet tshetshi takuak atusseun**
- **Formation en milieu de travail**
- **Tshe tshishkutamatunanut tshetshi ut auen tshi atusset**
- **Partage des revenus**
- **Tshe matinuemitunanut shuniau ishpish pitutepanit**
- **Opportunités d'affaires**
- **Menupaniuet tshetshi tshitshipanitakanit atusseun**

Irony Mountain /Kauteitinat

Le Montagne Irony (Kauteitinat) a une signification spirituelle et historique pour la population locale. Afin d'aborder cette préoccupation, HML s'engage à:
Mishta-ishpitenitakuan uesh ne Kauteitinat anite utapueienitamunnuat mak utipatshimunuat innuat anite eshi-taht. Tshetshi minu-uitakanit ne eshi-aieshkushiuinuet, HML issishueu :

- **établir et maintenir une zone tampon pour protéger à long-terme la montagne Irony (Kauteitinat) /tshetshi tutak kie shaputuepanit anite ka minashtakannit assinu tshestshi nanitam minu-nakatuenitak nenu utshinu (Kauteitinat) tshe ishpish anite atussenannut**
- **maintenir et ouvrir un dialogue continu avec les utilisateurs du territoire dans la planification et le développement du Projet./tshetshi nanitam uauitamuakaniht innuat mak kutakat anite uetassiht nenu kiatshitaukuht atusseunnu ua tutakannit.**

Mont Irony / Kauteitinat

Pourquoi recevez-vous cette brochure?

Cette brochure vise à informer les communautés et les organisations du développement du projet minier Howse (exploration, opérations, réhabilitation).

Tshekuan uet katshitinamek^{u} ume mashinaikaniss ?

Ume mashinaikaniss eukuan tshetshi uauitamuakaniht innuat mak anitshenat atusseunu ka tashikahk ne e uitakanit ashini Howse (tshe natu-tshissenitakanit, tshe pimipanitakanit, tshe ueuetashtakanit).

La compagnie

Utshimau

Tata Steel Minerals Canada (TSMC)

TSMC est un partenariat entre Tata Steel Ltd et New Millennium Iron Corp (NML) qui a été créée en Octobre 2010. TSMC fait partie du groupe Tata Steel. TSMC développe actuellement le projet DSO (Québec et Labrador).

TSMC, eukuan ka uitshi-atussemat Tata Steel Ltd mak New Millennium Iron Corp (NML), ka tshimanakanit utshimau uashtessiu-pishimua 2010. TSMC anite tau ka mamuituniti Tata Steel. TSMC mekuat atushkatam^{u} nenu atusseunnu DSO (Uepishtikueiau-assit mak Labrador-assit).

Propriétaires du projet minier Howse

Tepenitak atusseunnu ne e uitakanit ashini Howse

Howse Minerals Limited (HML)

Howse Minerals Limited (HML) est une filiale en propriété exclusive de TSMC formée en août 2013 basée à St. John's, Terre-Neuve. HML a signé une entente avec LIM, TSMC et Labrador Iron Mines Holdings Limited pour le projet minier Howse, dont il est le promoteur et l'opérateur.

Howse Minerals Limited (HML), eukuan atusseutshuap uin muk^{u} ka tipenitak anite TSMC ka tshimatakanit upau-pishim^{u} 2013 anite itetshe tekuak St.John's, Akamissisit. HML mashinatautishupan nishtutatunnu ashit LIM, TSMC mak Labrador Iron Mines Holdings Limited ne e uitakanit ashini Howse, uin tshetshipanitat mak pemipanitat.

Labrador Iron Mines (LIM)

LIM est le plus récent et le seul producteur de minerai de fer indépendant au Canada. LIM se concentre sur le développement et la production de gisements de minerai de fer d'expédition directs situés dans la région historique de Schefferville de la Fosse du Labrador.

LIM eukuan utshimau uessi-tshitshipanitishut mak piekussit tipan uin tshe pimipanitat ashininu ute Katana-assit. LIM eukuannu muk^{u} ua tshitapatak tshetshi pitshitshipanitat mak tshetshi unuipanitat peikuau eshi-katipanit ashininu shaputue ka itishaikanit ka ishinakuak, anite itetshe ka mishta-tipatakanit Kaitushkanut ka munaikanit assi anite itetshe Labrador-assit aishinakuak

PROJET DE MINERAI DE FER HOWSE

Atusseun ashini Howse e uitakanit

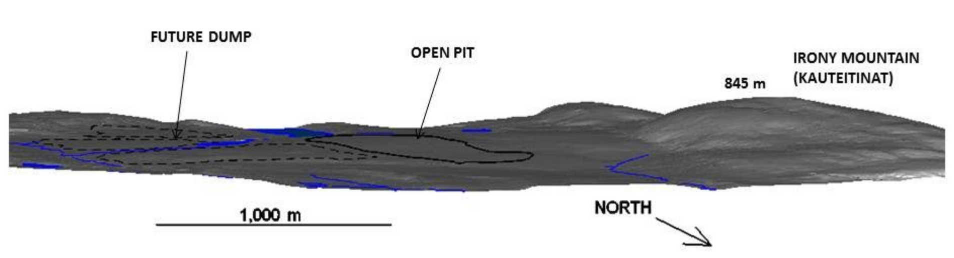
HML entreprend développer le projet minier Howse, d'une production estimée de 21 millions de tonnes, situé entre la montagne Irony (Kauteitinat), le lac Pinette et 4 (fosse actuellement en opération). /HML kutshipanitau tshetshi pitshitshipanitat nenu atusseunnu ashini Howse e uitakanit, tshipa ishpitenitakuan 21 *millions* (peik^u kauenutitshit) *tonnes* eshpitinikutak, anite itetshe tekuak Kauteitinat, Pinette-shakaikan mak neuait ka munaitshenanut anutshish mekuat).

Échéancier:/Tshe ishpish ui tshishtapanitakanit :

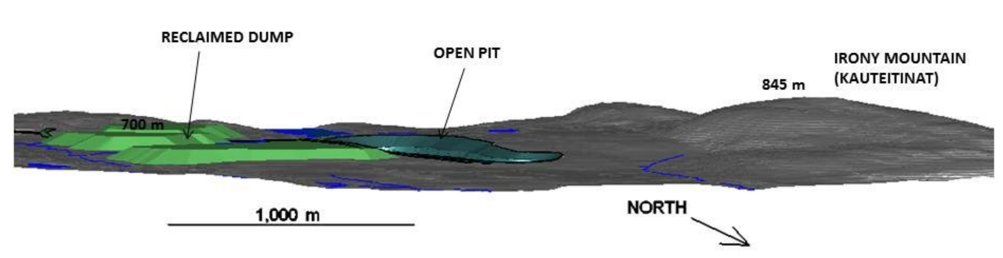
- Soumission de l'avis de projet aux gouvernements fédéral et provincial : 2014
  Tshe natshi-ashtakanit tshe uitakanit ne atusseun e uitakanit anite Utauat tshishe-utshimat mak Uepishtikueiau-tshishe-utshimat : 2014
- Préparation du site : fin 2014 / Tshe ueuetashtakanit ne assi anite tshe atussenanut : ishkuapanit 2014
- Opérations : Juin 2015 – 2028 / Tshe pimipanitakanit atusseun : uapikun-pishim^u 2015 - 2028
- Démantèlement, restauration et réhabilitation progressives du site. /Tshe itshenakaniti atusseuakana ka tshimata-kanniti, kau tshe ueuetinakanit ne assi anite ka atussenanut mak metinu tshe minunakutakanit ne assi.

Vues du sol:

Situation actuelle
Anutshish mekuat eshinakuak



Fermeture



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TATA STEEL MINERALS CANADA

Labrador Iron Mines Holdings Limited

Propriétaires du projet minier Howse
Tepenitak atusseunnu ne e uitakanit ashini Howse

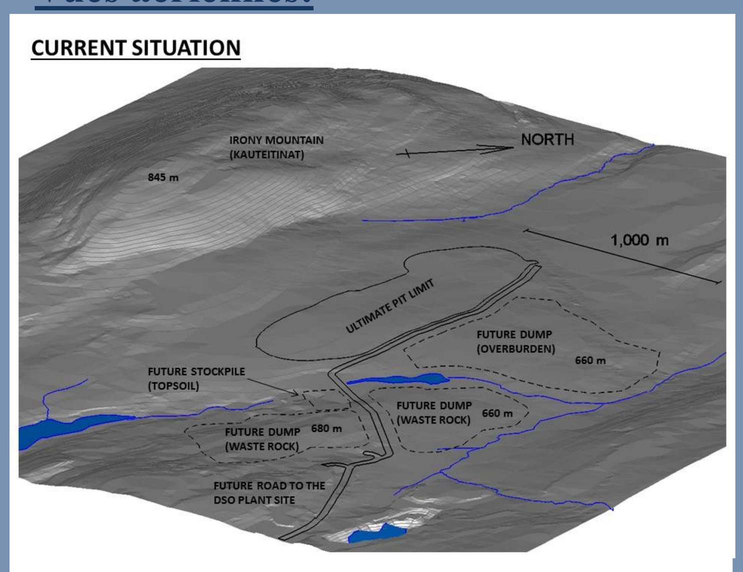
LIM est le plus récent et le seul producteur de minerai de fer indépendant au Canada. LIM se concentre sur le développement et la production de gisements de minerai de fer d'expédition directs situés dans la région historique de Schefferville de la Fosse du Labrador.LIM eukuan utshimau uessi-tshitshipanitishut mak piekussit tipan uin tshe pimipanitat ashininu ute Katana-assit. LIM eukuannu muk^u ua tshitapatak tshetshi pitshitshipanitat mak tshetshi unuipanitat peikuau eshikatipanit ashininu shaputue ka itishaikanit ka ishinakuak, anite itetshe ka mishta-tipatakanit Kaitushkanut ka munaikanit assi anite itetshe Labrador-assit aishinakuak.

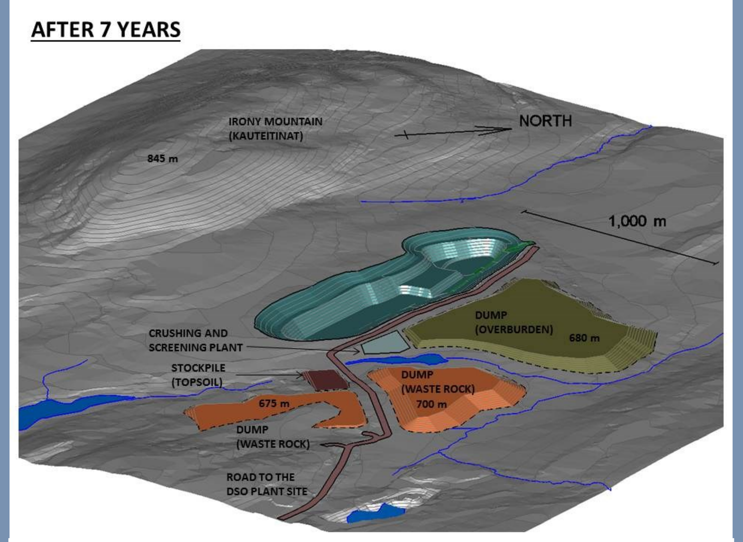
Howse Minerals Limited (HML) est une filiale en propriété exclusive de TSMC formée en août 2013 basée à St. John's, Terre-Neuve. HML a signé une entente avec LIM, TSMC et Labrador Iron Mines Holdings Limited pour le projet minier Howse, dont il est le promoteur et l'opérateur.
Howse Minerals Limited (HML), eukuan atusseutshuap uin muk^u ka tipenitak anite TSMC ka tshimatakanit upau-pishim^u 2013 anite itetshe tekuak St.John's, Akamississit. HML mashinatautishupan nishtutatunnu ashit LIM, TSMC mak Labrador Iron Mines Holdings Limited ne e uitakanit ashini Howse, uin tshetshipanitat mak pemipanitat.

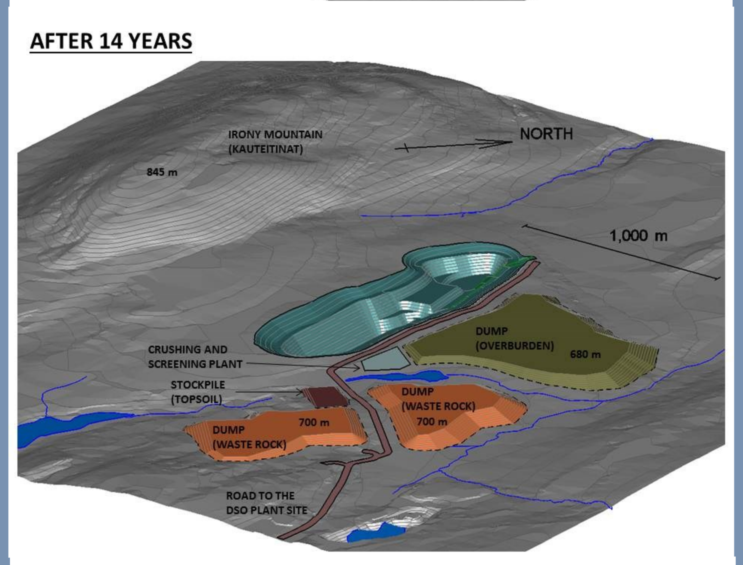
Le Projet comprend/Eshi-takuak anite ne atusseun ua tutakanit :

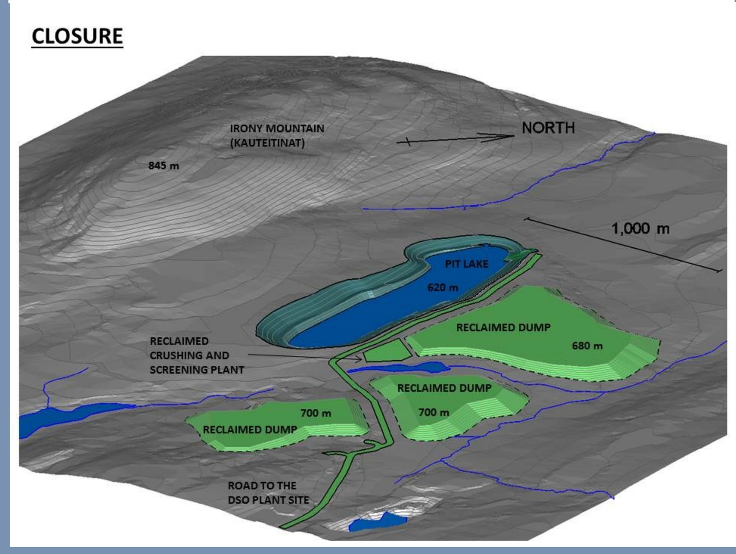
- Une route de 3.5 km pour le transport du minerai
  Meshkanau 3.5km e tatutipaikaneshkat tshe autakanit ne ashini
- Une fosse à ciel ouvert (1 600 m de long, 450 m de largeur et une profondeur maximale de 160 m) /Tshe munaitshenanut (1 600m eshkuat, 450m tshe ishpish anakashkat mak tshe ishpish akuanat 160m)
- Une installation de tamisage et de concassage (le minerai de fer extrait sera transporté par camion à la zone de chargement du projet de TSMC, et transporté par train à Sept-Iles puis expédié en Europe et en Asie)/ Tutakanipan anite tshetshi shikuashkupanitakanit mak tshetshi pitshissipitakanit (ne ka utinakanit ashini tshe autshipituanut kakashkatshinanushinit utapannu nete itetshe ka ut pushtashunanut ne atusseun e uitakanit TSMC, kie ishkuteu-utapan tshe ishpituanut nete Uashat mak nete itetshe Akamitshikamit mak Asie-assit
- Empilements (déchets de surface et haldes stériles)/ Tshe ushkushtashunanut (ka nipashinakutakanit assi mak nenua tshekuana eka ka tatshinakaniti
- Installations pour la gestion de l'eau et travaux de drainage général du site /Tshe tshimatakanit anite tshe ut ueuetashuapatet nipi mak tshe unuitshikutakanit mishue anite ne assi ka atussenanut

Vues aériennes:









Réhabilitation du site:

Tshe ueuetinakanit ne assi anite ka atussenanut :

- La réhabilitation progressive des sites perturbés : végétalisation et stabilisation
  Metikat tshe ueuetinakanit ne assianite ka atussenanut : eshi-nitautshit tshekuan mak kau tshe ui minupanitakanit
- Programme de recherche avec TSMC et l'Université Laval pour la revégétalisation
  Kananatuapititshenanut ka ui tutakanit atusseun ashit ue TSMC mak Université Laval tshetshi ut kau ussi-nitautshitakanit tshekuan

Minimiser les impacts/Tshe eka anumat mishta-ishpaniuet :

- **Optimisation de la fosse :**
  Tshe mishta-atushkatakanit ka munaitshenanut
  Les activités seront adaptées afin de minimiser les effets négatifs visuels et environnementaux
  Tshika ishi-atushkatakanu tshetshi eka tshekuan matshinakuak anite aishinakuak assi
- **Configuration du projet:**
  Tshe tshitapatakanit tshe ishinakutakanit ne atusseun ua tutakanit :
  A été revue afin de respecter les intérêts des groupes autochtones et pour protéger le Lac Pinette
  Ueueshi-tshitapatakanipan tshetshi ishpitenitakannit innuat uenutishiunnuaua mak tshetshi tshishpeuatakanit ne Pinette-shakaikan
- **Plan de protection environnementale et de Contrôle de la poussière**
  Tshe ueuetinakanit tshetshi tshishpeuatakanit uashka assi mak tshetshi minunakatuenitakanit tshetshi eka shuka pitshitepanit tshishikut
- **Jusqu'à 30% des matériaux des haldes seront réutilisés (restauration et routes)**
  Nuash 30% nenua atusseuakana kau tshika tshi apashtakanua (tshe minu- kanue nitakaniti mak meshkanaua)

Examples/miam mate:

- **Protection du ruisseau Goodream/Tshe nakatuenitakanit Goodream-shipiss:**
  Surveillance en temps réel depuis 2012 par les gouvernements fédéral et provinciaux
  Shash ka nakatuenitakanit anite ut 2012 anite ut Utauat tshishe-utshimat mak Uepishtikueiau-tshishe-utshimat
  éviter les activités et la traversée du ruisseau
  tshetshi eka tshekuan tutakanit mak tshetshi eka tashkamaikanit anite ne shipiss
  zone tampon/ka minashtakanit assi
  Barrières de sédimentation/Tshipashkuaikanu assi anite ka mautshipanit nipi
  suivis des particules en suspension dans l'eau /menu-nashakaniti tshekuan kueteti anite nipit
  étude des poissons et de la vie aquatique du ruisseau effectuée en 2013/netu- tshisse nimakanit nameshat mak aishinakushit aueshish nipit ka tat anite ne shipiss e tshitapa takanit ka ut tshitshipannanut 2013
- **Protection des habitats de nidification de deux espèces d'oiseaux en péril**
  Niakatuenitakaniti anite eshi-taht pineshishat kueshtikuannit anite etaht

Ruisseau Goodream/Goodream-shipiss

Lac Pinette/Pinette-shakaikan

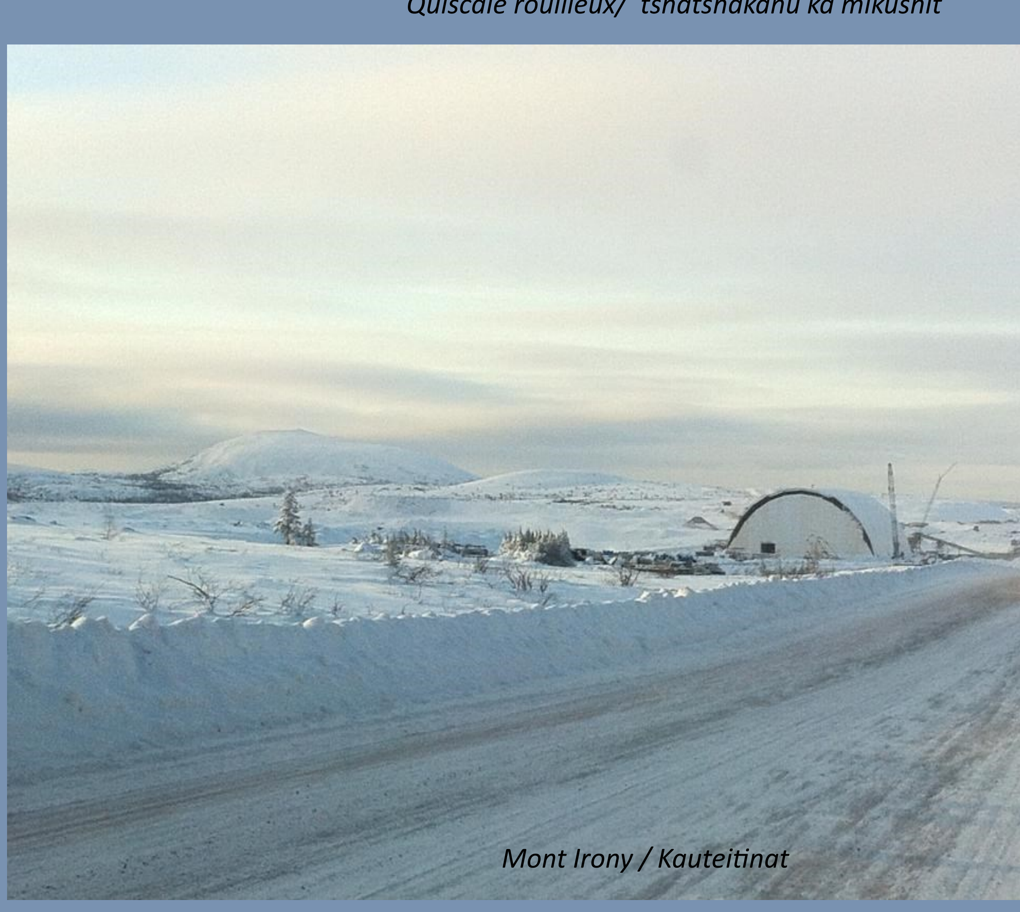
Grive à joues grises/ anuk ka uapanushit utamakanit

Quiscale rouilleux/ tshatshakanu ka mikushit

Mont Irony/Kauteitinat:

Le mont Irony (Kauteitinat) a une signification spirituelle et historique pour la population locale. Afin d'aborder cette préoccupation, HML s'engage à:

- Mishta-ishpitenitakuan uesh ne Kauteitinat anite utapueienitamunnuat mak utipatshimunuat innuat anite eshi-taht. Tshetshi minu-uitakanit ne eshi-aieshkushiuinuet, HML issishueu :
- établir et maintenir une zone tampon pour protéger à long-terme la montagne Irony (Kauteitinat) des activités du Projet/tshetshi nanitam uauitamuakaniht innuat mak kutakat anite uetassiht nenu kiatshitaukuht atusseunnu ua tutakannit.



Mont Irony / Kauteitinat

Ententes sur les Répercussions et les Avantages (ERA):

Les ERA restent la responsabilité de LIM en vertu de son entente avec HML, TSMC et Labrador Iron Mines Holdings Limited.
Nenua ERA, uin nenu utatusseun ue LIM ui pimipanitat miam ka ishi-nishtutatut ashit nenu HML, TSMC mak Labrador Iron Mines Holdings Limited.

Direct Shipping Ore
Howse Property Project
Projet de minerai de fer à enfournement direct Howse

Outline/*Agenda*

- **Introduction**
  - Howse Property Project /*Projet minier Howse*
  - Geographical Location /*Contexte régional*
  - Motive for the Project/*Raison d'être du projet*
  - Project Schedule/*Echéancier du projet*
  - Environmental Assessment Process /*Processus d'évaluation environnementale*
- **Purpose of the presentation/ *raison d'être de la présentation***
- **Overview of the Project's phases/ *survol des phases du projet***
- **Impact avoidance & Reduction Strategies/*stratégies d'évitement ou de réduction des impacts***
- **Environmental effects of the Project/ *effets du projet sur l'environnement***
  - Biophysical effects / *effets biophysiques*
  - Socioeconomic effects / *effets socio-économiques*
- **Conclusion**

Howse Minerals Limited (HML)

- Wholly-owned subsidiary of TSMC created in August 2013
  Filiale de TSMC en propriété exclusive formée en août 2013
- Head office in Saint-John's, NL
  Siège social basé à Saint-John's, Terre-Neuve
- Proponent and Operator of Howse Property Project
  Promoteur et Opérateur du Projet minier Howse

Howse Property Project Owners/*Propriétaires du projet minier Howse*

Labrador Iron Mine Holdings Limited (LIM)

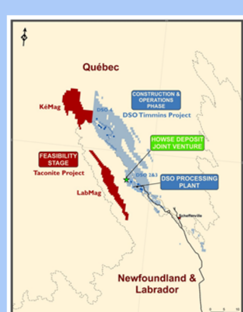
LIM's Schefferville Projects comprise 20 iron ore deposits, which were part of the original Iron Ore Company of Canada ("IOC")
LIM compte 20 projets de gisements d'aciers à Schefferville qui appartenaient à IOC

- James
- Redmond
- Knob Lake

Before the Agreement with HML, LIM owned Howse Property and was targetting to develop it in 2017
Avant l'entente avec HML, LIM était propriétaire unique du projet Howse et comptait l'exploiter en 2017

Tata Steel Minerals Canada Limited (TSMC)

- Joint venture between New Millenium (20%) and Tata Steel (80%) /*Coentreprise de New Millenium (20%) et Tata Steel (80%)*
- Currently developing the DSO Project in Quebec and Newfoundland & Labrador *TSMC est en cours de développement d'un projet de minerai de fer à enfournement direct (DSO) dans les provinces du Québec et de Terre-Neuve-et-Labrador.*
- IBA obligations remain the responsibility of LIM under its Unincorporated Joint Venture Agreement with TSMC/*les obligations des ERA restent à la charge de LIM en vertu de son entente non-consitutée avec TSMC,*

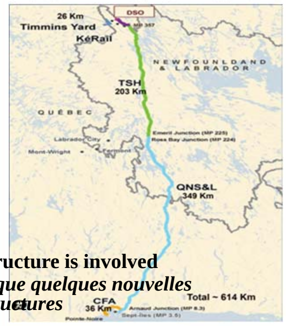


Introduction to the Project

- HML is planning to develop the iron ore deposit at the Howse Property with the support of adjacent mining infrastructures / *HML envisage de développer le gisement de minerai de fer au site de Howse avec le soutien des infrastructures minières adjacentes*
- Howse Property is located along the Labrador Trough, between Irony Mountain (Kauteitinat), Pinette Lake and Timmins 4 (TSMC current site of operation)/ *Howse situé le long de la fosse du Labrador, entre Irony Mountain (Kauteitinat), Pinette Lake et Timmins 4 (site actuellement en opération)*

Introduction to the Project

- The extracted iron ore will be crushed and screened, hauled by truck to the TSMC's DSO Project loading area (currently under construction) /*Le minerai de fer extrait sera concassé, criblé et transporté par camion à la zone de chargement du projet DSO de TSMC (actuellement en construction)*
- It will then shipped by train to Sept-Îles/ *il sera ensuite envoyé par train à Sept-Îles*



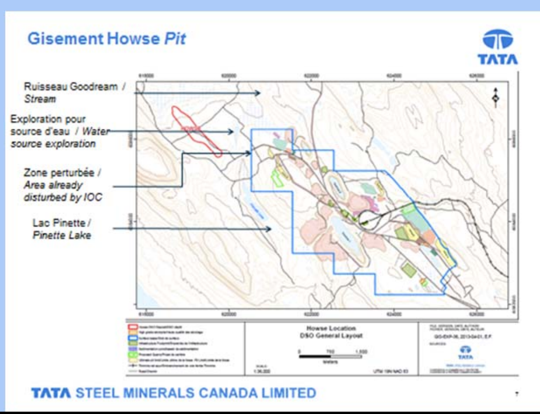
Little new infrastructure is involved
Le projet ne nécessite que quelques nouvelles infrastructures

Introduction to the Project

Estimated total production rate of 21,1 MT over 13 years/*Taux de production totale estimée à 21,1 MT sur une période de 13 ans*.

Estimated mineral resources based on/Ressources minérales estimées basées sur:

- Historic reports by Iron Ore Company Canada (IOC) (closed in 1983)/ *Rapports historiques par Iron Ore Company Canada (CIO) (fermé en 1983)*
- Ongoing exploration work by HML since November 2013/*HML effectue des travaux d'exploration depuis novembre 2013*



Motive for the Project/ *raison d'être du projet*

- Ensure a constant, high-quality iron ore supply to Tata Steel plants around the globe/ *Assurer un approvisionnement constant et de haute qualité du minerai de fer aux usines Tata Steel du monde entier*
- Howse Property Project could be brought into production in a relatively short period due to proximity to TSMC's DSO Project and infrastructures in construction/ *Howse pourrait être mis en production dans une période relativement courte en raison de la proximité du projet DSO de TSMC*
- Project 2a and 2b (Goodwood and Sunny and Kivivic deposits) were postponed due to delays in construction of roads/*Les Projets 2a et 2b (Goodwood, Sunny et Kivivic) ont été reportés en raison de retards dans la construction des routes*

Project Schedule/*échéancier du projet*

Phases	Expected date/*Dates prévues*
Construction & Pit development/*Construction et développement du pit*	Late 2014/*Fin 2014*
Operation/ *Opération*	June 2015 – 2028/*Juin 2015-2028*
Site restoration, Decommissioning and Rehabilitation	on-going during project / *en cours tout au long du projet*

Environmental Assessment Process/*Processus d'étude environnementale*

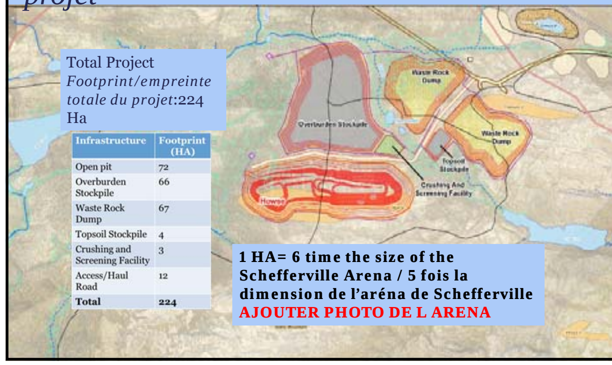
HML plans to submit a project registration/description to both agencies by February 2014

HML prévoit soumettre un avis de projet au fédéral et au provincial d'ici février 2014

Purpose of this session/*Objectif de la présentation*

- Explain to the members of the community the Howse Property Project /*Expliquez aux membres de la communauté le projet Howse*
- Invite the comments and questions of the community members/*Inviter les commentaires et les questions des membres de la communauté*
- Incorporate community comments into the final version of the Project Registration/*Incorporer dans la version finale de l'avis de projet*

Project Components/*Composantes du projet*



Total Project *Footprint/empreinte totale du projet*:224 Ha

Infrastructure	Footprint (HA)
Open pit	72
Overburden Stockpile	66
Waste Rock Dump	67
Topsoil Stockpile	4
Crushing and Screening Facility	3
Access/Haul Road	12
Total	**224**

1 HA= 6 time the size of the Schefferville Arena / 5 fois la dimension de l'aréna de Schefferville
AJOUTER PHOTO DE L ARENA

Site restoration/*Réhabilitation de sites*

- Progressive rehabilitation (on-going) of disturbed sites during the project/*La réhabilitation des sites perturbés se fera progressivement pendant le projet*
- Closure plan will consist of vegetation and stabilization of disturbed areas/*Le plan de fermeture incluera la revégétalisation et la stabilisation des zones perturbées*

- Research program with TSMC and Laval University to improve revegetation program's effectiveness/*Programme de recherche avec TSMC et l'Université Laval sur pour améliorer l'efficacité de programme de revégétalisation*

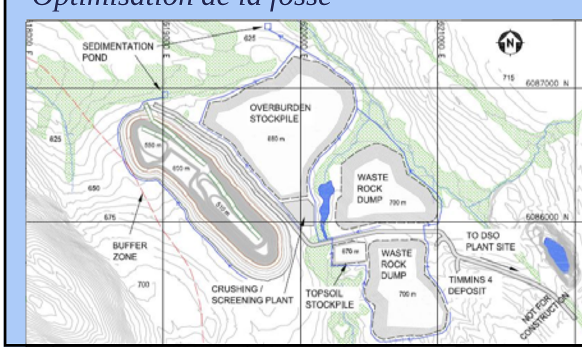
3D Images/*Images 3D*

- Waiting for the height of Irony Mountain to be added to the image and angle to be switched

Impact Avoidance Strategies/*Stratégies d'évitement d'impact*

- Pit Optimization/*Optimisation de la fosse*
- Project layout design/*Configuration du projet*
- Dust Control Policy/*Contrôle des poussières*
- Implementation of an Environmental Protection Plan/ *implémentation d'un plan de protection environnementale*
- Identification of sensitive areas/*Identification des zones sensibles*
- Most jobs will be carried out by locally and regionally-based firms and individuals/*La majorité des emplois seront effectués localement et par les entreprises et les individus à vocation régionale*

Pit optimization/ *Optimisation de la fosse*



Overview of Biophysical effects Assessment/ *Survol de l'évaluation des effets biophysiques*

- Air Quality and Noise/ *Qualité de l'air et bruit*
- Water Quality and Aquatic Life / *Qualité de l'eau et vie aquatique*
- Terrestrial Fauna / *Faune terrestre*

Air Quality and Noise / *qualité de l'air et bruit*

- Dust /*poussières*
- No effects on communities /*aucuns effets sur les communautés*
- Potential effect on Canada Goose Hunting/*effet potentiel sur la chasse à l'oie*
- Potential local effect ex: TSMC Camp/*effet local potentiel ex: Camp de TSMC*

Water quality and Aquatic life/ *Qualité de l'eau et vie aquatique*

- Wetland destruction and disturbance/*destruction et perturbation des zones humides*
- Modification of groundwater recharge/*modification de la recharge de l'eau souterraine*
- Current data will be confirmed by a hydrogeological study release in March 2014/ *données actuelles seront confirmées par l'étude hydrogéologique disponible en mars 2014*
- No tailings or process water will be generated/*aucuns résidus et eaux de procédés ne sera généré par le projet*

Mitigation measures/*mesures d'atténuation*:

- Surface & groundwater monitoring/*suivi de la qualité de l'eau de surface et des eaux souterraines*
- Buffer zone around all water bodies/ *zone de séparation autour des cours d'eau*
- Protection of Goodream creek by barriers
- Sedimentation ponds/ *bassins de sédimentation*
- Long-term effect monitoring on aquatic life/ *suivi à long terme des effets sur la vie aquatique*

Terrestrial Fauna/*Faune terrestre*

Grey-cheeked thrush nest/ *nid de Catharus minimus*

Nesting habitat for two bird species at risk

Mitigation measure/mesures d'atténuations:
Clearing and stripping will not be carried out during breeding bird season (June to August) / *les activités de défrichages et de décapages ne seront pas effectuées durant la saison de reproduction de ces oiseaux (juin à août)*

Rusty blackbird/*Euphagus carolinus*

Caribou is not present in the region. However, HML partipates to the Ungava Research project and has established mitigation measures/*le caribou n'est pas présent dans la région. HML participe au projet de recherche et a mis en place des mesures d'atténuation*

Non-significant habitat loss for the various harvested mammals/*la perte d'habitat des mammifères récoltés est non-significative*

Overview of Socioeconomic effects

- Diversification in terms of Employment, Training, Business Opportunities/*Diversification en termes d'emploi, de formation et occasions d'affaires*
- Presence of temporary workforce in the Region/*présence de main d'oeuvre temporaire dans la région*
- Nuisance effect regarding increased rail and road traffic/*nuisance relative à l'augmentation du traffic routier et ferroviaire*
- Investment in local infrastructures (arena, airport, sports fields)/*Investissements dans les infrastructures locales (aréna, aéroport, terrains de sport)*
- Revenue sharing/*partage des revenus*

Identified Sensitive Areas/*aires sensibles identifées*

Pinette Lake

- Project layout was redesigned in order to avoid Pinette Lake/*la structure du projet a été remanié afin d'éviter le lac Pinette*
- Quaterly water monitoring in place since 2013/*Surveillance de l'eau trimestriel en place depuis 2013*
- No issue at this stage/rien à signaler à cette étape
- Fish and Aquatic life surveys conducted in 2012 and 2013/*études des poissons et de la vie aquatiques ont été faites en 2012 et 2013*

Goodream Creek

- Real-time monitoring since 2012 by federal and provincial governments/*Surveillance en temps réel depuis 2012 par les gouvernements fédéral et provinciaux*
- No issues to date/ *rien à signaler jusqu'à présent*
- Avoid activities and crossing in the stream/*éviter les activités et le passage par le ruisseau*
- Creation of a buffer zone around the creek/ *création d'une zone de séparation autour du ruisseau*
- Sedimentation barriers and additional suspended particles monitoring in water/ *Barrières de sédimentation et suivis additionnels des particules en suspension dans l'eau*
- Fish and aquatic life surveys performed in 2013/*étude des poissons et de la vie aquatique du ruisseau effectuée en 2013*

Irony Mountain "Kauteitinat"

- Spiritual and historical significance to the Innu/*Signification spirituelle et historique pour les Innus*
- A buffer zone will be implemented to separate the Project and the mountain/*Une zone tampon sera mise en place pour séparer le projet et la montagne*
- The buffer zone will defined and implemented with the cooperation of the relevant Aboriginal groups/*La zone tampon sera définie et mise en œuvre avec la coopération des groupes autochtones concernés*

Conclusion

- We invite your comments and questions/ *nous invitons vos commentaires et questions*
- Contact HML:marieeve.lenghan@tatasteelcanada.com (514)764-6717
- Where appropriate, they will be incorporated into the final versions of the Project registration/description/ *Si appropriés, ils seront incorporés à la version finale de l'avis de projet*

Thank you!/Merci!