LABRADOR IRON MINES
LIMITED

Gill Mine Re-activation Project
Environmental Registration

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LABRADOR IRON MINES LIMITED

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1.0 INTRODUCTION

Labrador Iron Mines (LIM) is proposing to reactivate an ore deposit on the Gill property, located in the western central part of the Labrador Trough Iron Range, in the Province of Newfoundland and Labrador. The Gill deposit is located in an area of historical iron mining development and is characterized by the presence of extensive surface disturbance. The Gill property is close to LIM's nearby Schefferville Area Iron Ore Mines properties, spur line access and processing plant. The Gill deposit is located approximately 2km from the James pit and approximately 500m north of Silver Yard processing plant, Figure 1.1 shows the location of LIM's claim holdings.

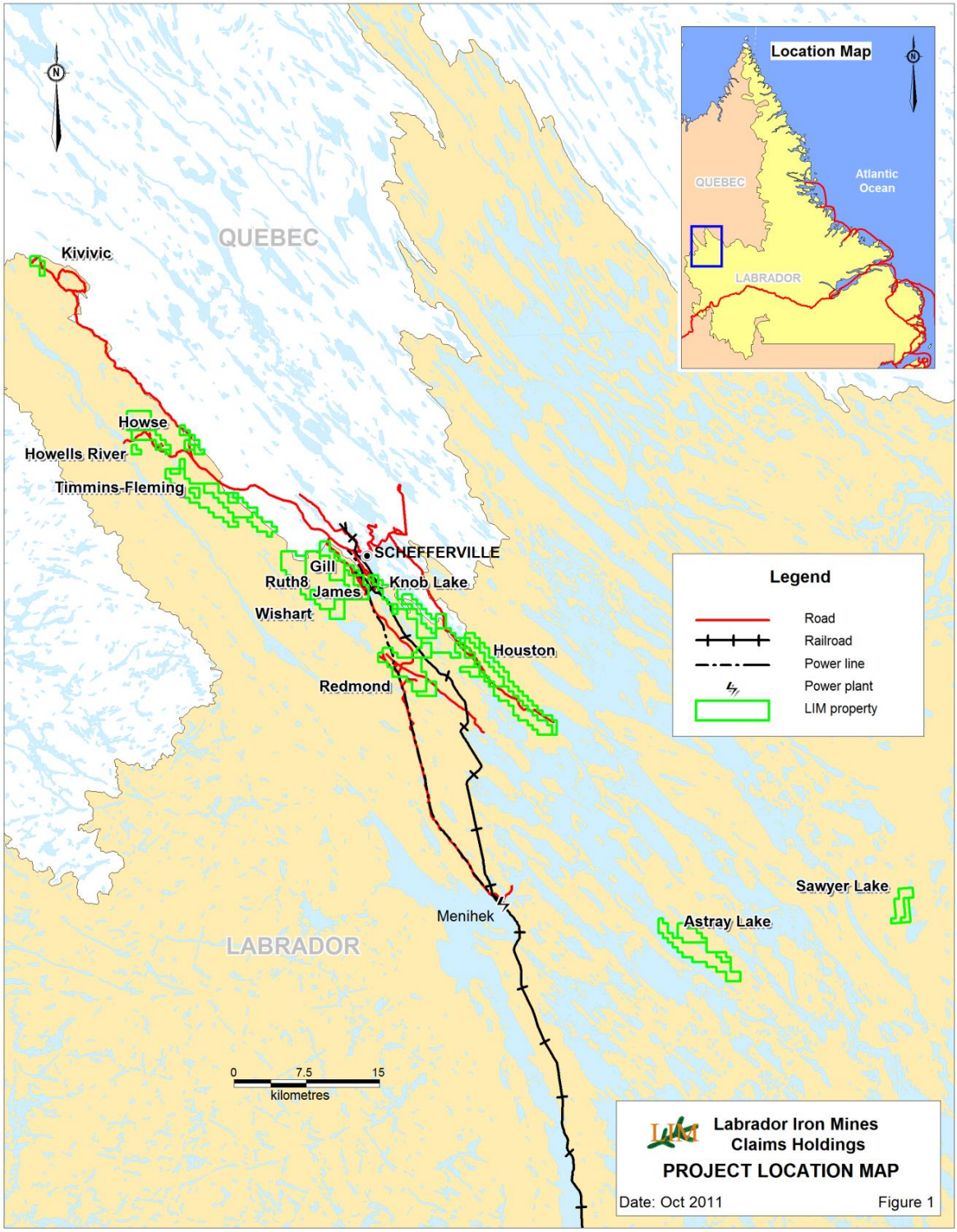
In 2011, LIM completed construction and initiated operations at its nearby Schefferville Area Iron Ore Mine project (James Mine), including overburden stripping, waste and ore mining, ore beneficiation, and rail spur operation. LIM has also completed the construction of an accommodation camp at Bean Lake, which has been used for worker accommodations since the early summer 2011. These projects were the subject of a separate environmental impact statement (LIM 2009) which was released from the environmental assessment process in February 2010 (refer to Section 3.1). The proposed Gill pit is within the assessment area previously assessed in the EIS for the Schefferville Area Iron Ore Mine project, and as such there is extensive understanding of social and environmental conditions of the site. The proposed project will also benefit from the presence of existing infrastructure and associated reduced mining footprint.

1.1 Identification of the Proponent

Name of Corporate Body: Labrador Iron Mines Limited (LIM)
Address: Suite 700, 220 Bay Street
Toronto ON M5J 2W4

LIM, a wholly owned subsidiary of Labrador Iron Mines Holdings Limited, is Canada's newest iron ore producer with a portfolio of direct shipping iron ore (DSO) operations and projects located in the Labrador Trough, in the province of Newfoundland and Labrador. Initial production commenced at the James Mine in June 2011, and leading to the development of the Houston 1 and 2 Deposits Mining Project the company's objective is to increase production towards 5 million tonnes per year from a portfolio of 20 iron ore deposits in Labrador and Quebec, all within 50 kilometres of the town of Schefferville. LIM is listed on the Toronto Stock Exchange and trades under the symbol "LIM".

Figure 1.1 Labrador Iron Mines Limited – Claim Holdings



1.2 Contacts and Address

Chief Executive Officer

Name:	John F. Kearney
Official Title:	Chairman and Chief Executive Officer
Address:	Suite 700, 220 Bay Street, Toronto, ON M5J 2W4
Telephone:	647 728-4125

Principal contact for purposes of environmental assessment

Name:	Larry J. LeDrew
Official Title:	Vice President, Sustainable Development
Address:	Suite 302, 33 Pippy Place, St. John's NL A1B 3X2
Telephone:	709 753-0037

1.3 Nature of the Undertaking

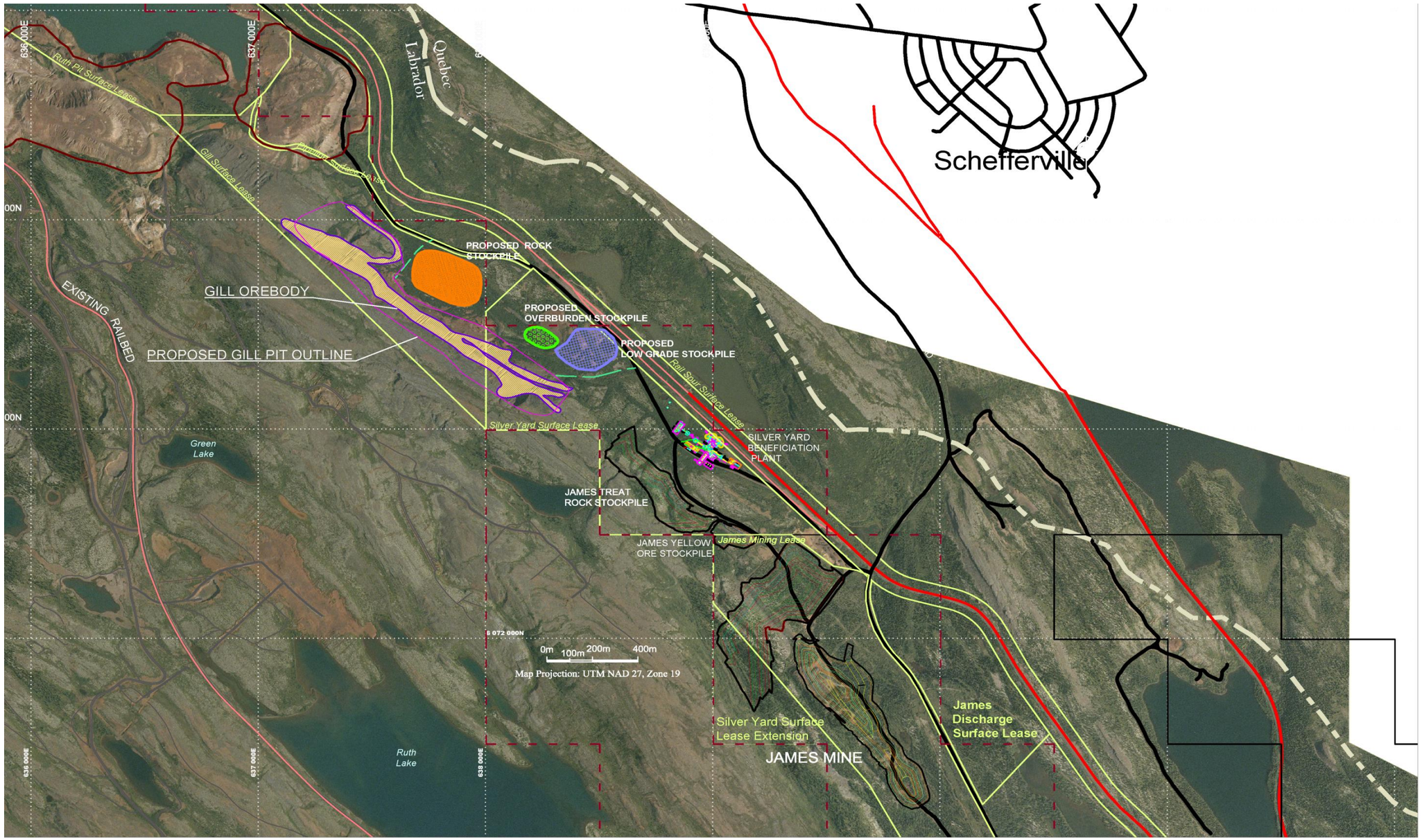
This undertaking, or Project, requires the reactivation of open pit mining of 'direct shipping' iron ore from the Gill deposit in western Labrador, which neighbors LIM's existing James Mine. High-grade haematite iron ores will be mined from an identified deposit in the Gill Mine area. Mining will be conducted in a sequential manner using conventional open pit mining methods. Once mined, the ore will be hauled by truck approximately 0.5 km over an existing gravel road to the existing Silver Yard beneficiation plant where crushing, washing, screening, and gravity separation will take place prior to loading onto rail cars at the Silver Yard Rail Siding and transported south to Sept. Iles. There, it will be loaded aboard ocean-going vessels and shipped to market. Figure 1.2 shows the location of the Gill Deposit relative to the Silver Yard beneficiation plant and James Pit.

Overburden stripping material, waste rock material and low grade ore material will be stockpiled in strategic locations near the open pit. Overburden stockpiles will be used for future reclamation purposes. Other infrastructure required for the development of the open pit mine is limited water management features (e.g. sediment control ponds, ditches).

Mining will initially be at a rate of less than 3,000 tonnes/day per pit and peak at 7,000 -10,000 tonnes/day. Production rates may change depending on the results of further exploration programs and engineering studies. Based on IOC's historical resource estimate, the total ore potentially mineable from the Gill property is 4,250,000 tonnes.

The operation will require little additional infrastructure as existing facilities associated with the Schefferville Area Mining Project will be used, such as the Silver Yard Beneficiation Plant, Bean Lake accommodation facility, the Silver Yard rail siding, the railway line between Schefferville and Sept-Iles, maintenance and support buildings, roads and electrical power. Although some local upgrading/resurfacing of roads may be necessary, no major improvements are anticipated and work will be conducted along existing roads and right-of-ways. It is anticipated that power requirements for the de-watering wells, if required, will be supplied by small diesel generators.

Figure 1.2 Location Map - Gill Deposit



The final products will include lump, sinter, fine and ultra-fine for direct shipping to end users in Europe and/or Asia.

1.4 Regulatory Context

1.4.1 Environmental Assessment Process

The Gill Project is subject to Registration pursuant to Part III of the Newfoundland and Labrador Regulations 54/03, Environmental Assessment Regulations, 2003, under the Environmental Protection Act, SNL 2002 Ce-14.2. Following a public and regulatory agency review of the registration document, the Minister makes a decision on the undertaking; it may be released; an Environmental Preview Report (EPR) may be required; or an Environmental Impact Statement (EIS) may be required.

1.4.2 Environmental Authorizations

Following release from the provincial environmental process, the Project will require a number of approvals, permits and authorizations prior to Project initiation. Many of these are currently in place for existing operations. In addition, throughout Project construction and operation, compliance with various standards contained in federal and provincial legislation, regulations and guidelines will be required. LIM will also be required to comply with any other terms and conditions associated with the release. Table 1.1 summarizes potential permits, approvals and authorizations that may be required for the Project.

Table 1.1 Potential Permits, Approvals and Authorizations

Permit, Approval or Authorization	Issuing Agency
Provincial	
• Release from *Environment Assessment Regulations*	DOEC – Environmental Assessment Division
• Certificate of Approval to install a non-domestic well • Works within 15 m of a body of water (site drainage, dewater pits, settling ponds)	DOEC – Water Resources Management Division
• Certificate of Approval for Construction and Operation • Industrial Processing Works • Approval of MMER Emergency Response Plan* • Approval of Waste Management Plan* • Approval of Environmental Contingency Plan (Emergency Spill Response)* • Approval of Environmental Protection Plan*	DOEC – Pollution Prevention Division
• Permit to Control Nuisance Animals*	DOEC – Wildlife Division
• Blasters Safety Certificate* • Approval for Storage & Handling Gasoline and Associated Products* • Temporary Fuel Cache* • Fuel Tank Registration* • Approval for Used Oil Storage Tank System (Oil/Water Separator)* • Fire, Life and Safety Program*	Government Service Centre (GSC)
• Approval of Development Plan, Rehabilitation Plan and Closure Plan • Mining Lease • Surface Rights Lease*	DNR – Mineral Development Division DNR – Mineral Lands Division
• Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land* • Permit to Cut Crown Timber • Permit to Burn*	DNR – Forest Resources
Federal	
• Release under the Canadian Environmental Assessment Act 2012	• Canadian Environmental Assessment Agency
*Currently in place	

2.0 PURPOSE AND ALTERNATIVES

2.1 Project Purpose and Rationale

The purpose of the Project is to satisfy market demand for high-grade direct shipping iron ore products. The continuation and expansion of LIM's current mining activity in the area will extend the positive economic stimulus to the economy of western and central Labrador and contribute to the long-term economic stability in the area.

LIM anticipates mining out the James Mine at the end of this operating season and is estimating the mining of a total of 1,450,000 to 1,700,000 tonnes of ore with the range dependent on processing characteristics of the ore and the duration of wet plant operations, which is in part weather dependent. Mining of the Redmond Mine, LIM's second Stage 1 deposit located approximately 12 km to the south of Silver Yards, commenced in July. It is anticipated that 200,000 to 450,000 tonnes of ore will be mined at Redmond this year to supplement both the dry and wet process plants at Silver Yards. In addition, bulk samples totaling about 120,000 tonnes are planned for the Ferriman stockpiles (historical waste stockpiles), located 5 to 7 km north of Silver Yards in Quebec.

LIM intends to develop its Schefferville area claims holdings (Figure 1.1) in 5 Stages. Beyond 2013, it is planned that operations in Silver Yards will continue with mining ore at the Redmond Mine and a number of adjacent Stage 1 (Central Zone) deposits, including, the Gill deposit and Wishart (historical stockpiles), in Labrador, and the Ferriman stockpiles in Quebec. These stockpiles (crushed, low-grade material) were previously-mined by the Iron Ore Company of Canada (IOC) during its operations from the mid-1950s to the mid-1980s.

Stage 2 of the LIM development plan includes the Houston 1 and 2 Deposits (Houston) Project, which was released from both the provincial and federal environmental assessment processes in 2012. Phase 2 of the project (the Houston Beneficiation Plant) was released in April 2013. The project is currently subject to financing. In the meantime, LIM continues to advance the permitting, detailed engineering and metallurgy for the Houston Project and hopes to have financing in place in 2014, such that construction can begin in mid-2014 with Houston production commencing in 2015. Houston 3 and Malcolm (Quebec) would follow as subsequent phases of Stage 2

It is intended that during the mining and development of the Stage 1 and Stage 2 deposits, planning will be undertaken for the future operation of the deposits included in Stages 3, 4 and 5. Planning and development of these stages are subject to detailed geological assessment, mine planning and permitting, which may take several years to complete.

Stage 3 includes the Howse (Labrador) and Barney (Québec) deposits located approximately 25 km northwest of Schefferville (North Central Zone) which are relatively close to existing infrastructure. The Howse deposit, located about 25 km north of the James Mine and Silver Yards processing plant, has a historical resource of 28 million tonnes. In March 2013 LIM entered into a framework arrangement with Tata Steel Minerals of Canada (TSMC), as part of

which LIM and TSMC have agreed to enter into a transaction for the joint development of the Howse deposit, whereby LIM will sell a 51% interest in Howse to TSMC. In the future, TSMC may increase its interest to 70%. It is hoped that the agreement with TSMC will expedite the development of the Howse deposit and it is expected that significant cost savings and synergies can be achieved by processing Howse ore through TSMC's adjacent Timmins Area plant.

Stage 4 includes the Astray and Sawyer deposits in Labrador, located approximately 50 km to 65 km southeast of Schefferville (South Zone) and currently accessible by float plane or by helicopter.

Stage 5 includes the Kivivic deposit in Labrador and the Eclipse, Partington and Trough deposits in Québec located between 40 km to 70 km northwest of Schefferville (North Zone).

The resources that comprise Stages 3, 4 and 5 of the Schefferville Projects consist of non NI 43-101 compliant historical resources. There is currently insufficient detailed information available on these deposits to make any long-term estimate of future production schedules. Substantial additional exploration, infrastructure and road access will be required for the development of these stages. Currently LIM holds approximately 108 million dry tonnes in historical resources. These are all part of the 250 million tonnes of historical reserves and resources previously identified by IOC.

LIM plans to bring the historical resources on these other deposits into NI 43-101 compliant status sequentially in line with their intended phases of production. Further exploration programs have been recommended for all the remaining deposits to convert historical resources to current compliant mineral resources estimates.

2.2 Project Alternatives

The Project is located in a previously disturbed area and was conceived based on the use of existing infrastructure developed during the previous IOC operations and the ongoing Schefferville Area Iron Ore Mine Operation. As these considerations formed the basis for the Project initiation and design, it is recognized that there is no preferred alternative to the overall Project.

2.3 Alternatives within the Undertaking

As the Project involves the re-activation of the Gill deposit, there are no alternative locations or methods.

3.0 DESCRIPTION OF THE UNDERTAKING

3.1 Previous Environmental Assessments

Dating back to 2005, LIM initiated ongoing environmental baseline data collection programs in the Schefferville Project area, including programs in traditional environmental knowledge, heritage and archaeological resources, wildlife, avifauna, fish and fish habitat, air quality, surface and groundwater quality and geochemistry. This information formed the basis of the Schefferville Area Iron Ore Mine Project Environmental Impact Statement (EIS) which was approved by the Minister of Environment and Conservation (NLDEC) in November, 2009. The Project included James and Redmond Mines as well as the Silver Yard Beneficiation Plant and the Silver Yard Rail Spur.

Upon release from the environmental assessment process, LIM initiated the submission of related construction and operation permit applications to various regulatory agencies. All major approvals to construct and operate the James and Redmond Mines (including all associated infrastructure), were received by August 2010 and mine construction was initiated in September 2010. Mining, ore beneficiation and offsite transportation to market commenced in 2011 and full-scale mining operations were conducted from April to November in 2012 with 1.6 million tonnes of iron ore shipped to market. All operations are in compliance with all applicable permits and approvals.

In 2011, the Company submitted a project registration to the Government of Newfoundland and Labrador for the first phase of development of the Houston #1 and #2 deposits, including a haul road and railway siding. On March 26, 2012, the Minister of Environment and Conservation informed the Company that, in accordance with the Environmental Protection Act, the Project was released from further environmental assessment, subject to a number of conditions. The Company has subsequently received surface and mining leases, and a construction permit for the haul road and rail siding. Basic engineering is complete and a civil contractor has been selected for the road and bridge construction.

In early February 2013, the Company filed registration documents with the Government of Newfoundland and Labrador and with the Federal Canadian Environmental Assessment Agency (CEAA) for the second phase of development of the Houston #1 and #2 deposits. That project included the construction of a wet process plant incorporating crushing, screening, washing and magnetic separation. In April 2013, CEAA notified LIM that a Federal Environmental Assessment would not be required and in May, the NL Minister of Environment and Conservation released the Project from the provincial environmental assessment process (subject to conditions). This plant will be capable of upgrading lower grade ore (50% to 59% Fe) into saleable sinter and lump products.

As previously noted, the Gill property is located immediately adjacent to the James Mine and Silver Yard beneficiation plant and as such is wholly within the Assessment Area studied in the

2009 EIS. Therefore, the environmental components are well understood and any potential effects consistent with those previously assessed.

3.2 Geographic Location

The Gill property is located 2 km north of James Mine and approximately 500 m north of Silver Yard processing plant. It is covered by 3 mineral rights licenses (016293M, 016568M and 016569M) comprising 6.25 km^2 held by LIM. The relative location of the property is shown in Figure 3.1.

3.3 Site History

Written references to mineral occurrences of the Schefferville area (originally known as Knob Lake) were first included in the diaries of missionary Louis Babel in 1854. Using those references, Albert Peter Low (A.P. Low) of the Canadian Geological Survey (CGS) began detail mapping of the area in 1892 and continued the work in 1895/96. During that period, Low published a report which highlighted the existence of large iron ore deposits in the area.

Guided by Low's report, the Labrador Mining and Exploration (LME) Company began exploration in the area sometime around 1936. LME was subsequently taken over by Hollinger North Shore Exploration Company (Hollinger), which was later joined by M.A. Hanna Company (M.A. Hanna).

Under the direction of Hollinger and M.A. Hanna, an intensive exploration program was undertaken in the Schefferville area between 1945 and 1949. With the involvement of those two companies and a number of other entities, the Iron Ore Company of Canada (IOC) was officially incorporated in 1949.

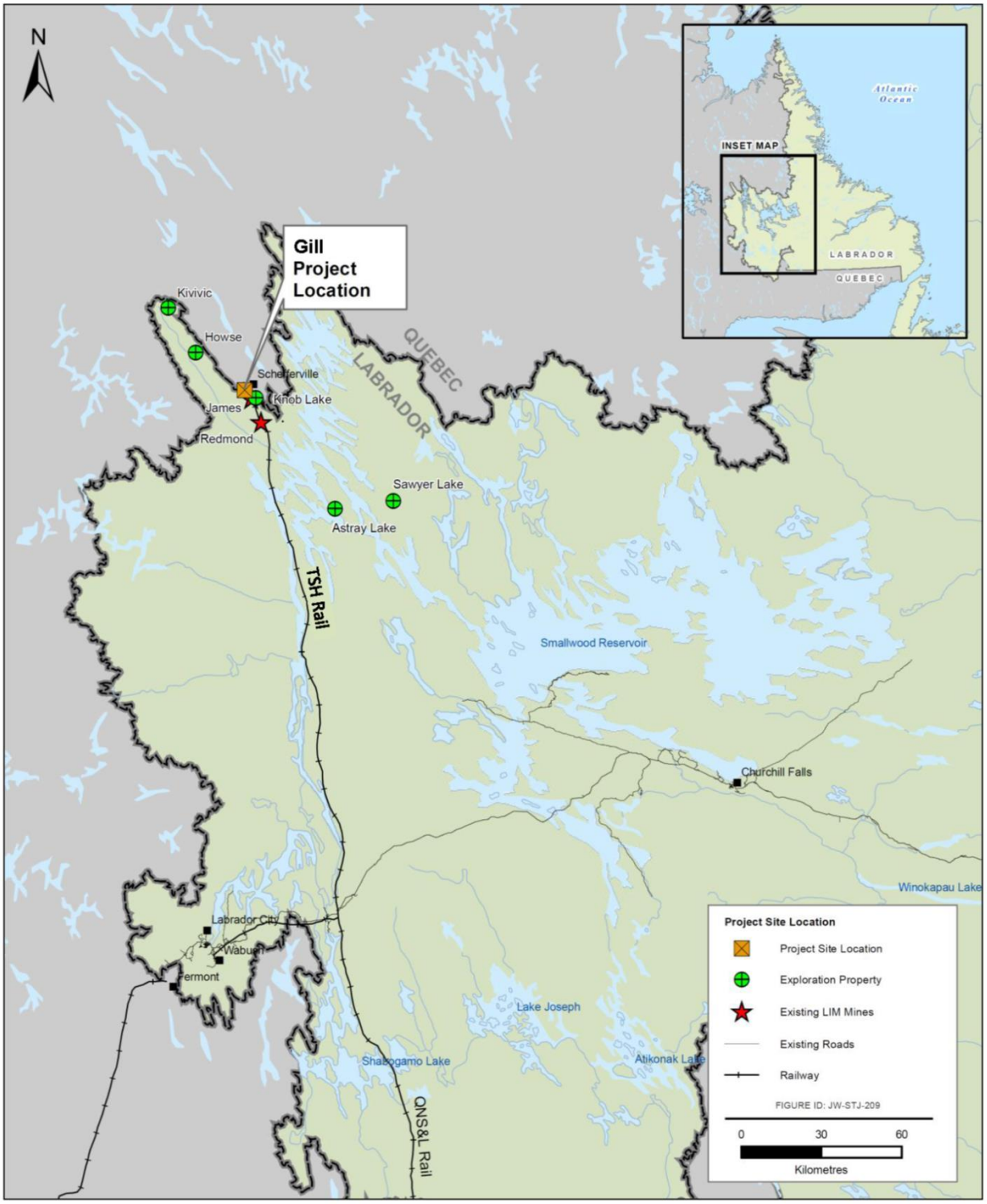
During the period between 1950 and 1954, IOC constructed the 568 km rail transportation system between Schefferville and the shipping and receiving port of Sept Iles, Québec, as well as the iron ore processing and maintenance support facilities at the mine site and a power station at Menihek.

Mine workers were originally accommodated in the near-by temporary town of Burnt Creek. Permanent housing and office accommodations were subsequently constructed in the town of Schefferville, following the start of ore production activities. The population of Schefferville subsequently grew to a total of about 4,500 persons during the peak mining years. Schefferville mining operations were terminated in November of 1982.

Between 1954 and 1982, mines in the Schefferville area produced in excess of 150 million tons of iron ore for world markets. At the time of closure, an additional resource of approximately 250 million tons of iron ore remained in individual deposits in Labrador, located in proximity to the previously operated mines. These include the James and Redmond deposits and the Gill property on which initial mining and development activities had been undertaken by IOC.

Production began at Gill Mine in 1956. That year, detailed mapping, trenching and test drilling were continued at the mine sites and surrounding areas. This development work was done in preparation for the construction of roads, railroad spurs and the planning of disposal areas. The

Figure 3.1 Location Map



screening plant, railroad spur and yards for the Gill Mine were also constructed in 1956. Gill Mine produced direct-shipping ores until it closed down at the end of 1957 as a result of deterioration of market demand.

3.4 Project Description

Gill is a brownfield site, located near LIM's existing James mine area. As previously noted Gill was mined by IOC in the 1950s and has significant surface disturbance present where abandoned open pits, rail beds, and stockpiled materials are present. The pit is dry and wall stability measures (i.e. rock bolts) are present on footwall/highwall, see Figure 3.2 and Figure 3.3.

LIM proposes to re-activate the Gill Project as a phased development. The limited construction required will be accomplished in 1 to 3 months, followed by open pit mining for a planned 4 year period. Mining will be carried out using conventional open pit mining methods, employing drilling and blasting operations as required. Nearby existing and permitted infrastructure, includes the Silver Yard laboratory, maintenance shed and warehouse facilities, the Silver Yard Beneficiation plant, and Silver Yard train loading facility, as well as the Bean Lake accommodation camp.

All construction and operation activities will be conducted in accordance with the Schefferville Area Iron Ore Project Construction and Operation Activities Environmental Protection Plan (LIM 2010).

3.4.1 Construction Phase

The primary construction activity for the re-development of the open-pit at Gill Mine will include:

- Clearing the area of trees and brush;
- Grubbing the footprints of the open pits, haul roads, service roads, waste disposal areas, stockpile areas, lay-down areas, and water management features, and stockpiling overburden material;
- Excavation and construction for the water management features (e.g., ditches and sediment control ponds); and
- Upgrading / re-surfacing of the haul roads and service roads, including upgrading existing trails and roads from the mining areas to the Silver Yard Beneficiation Plant.

The construction period is expected to be relatively short, probably within a period of one to three months, following the completion of the regulatory approvals process. The proposed locations of the temporary waste rock stockpiles, as well as the preliminary pit outline are shown in Figure 3.4

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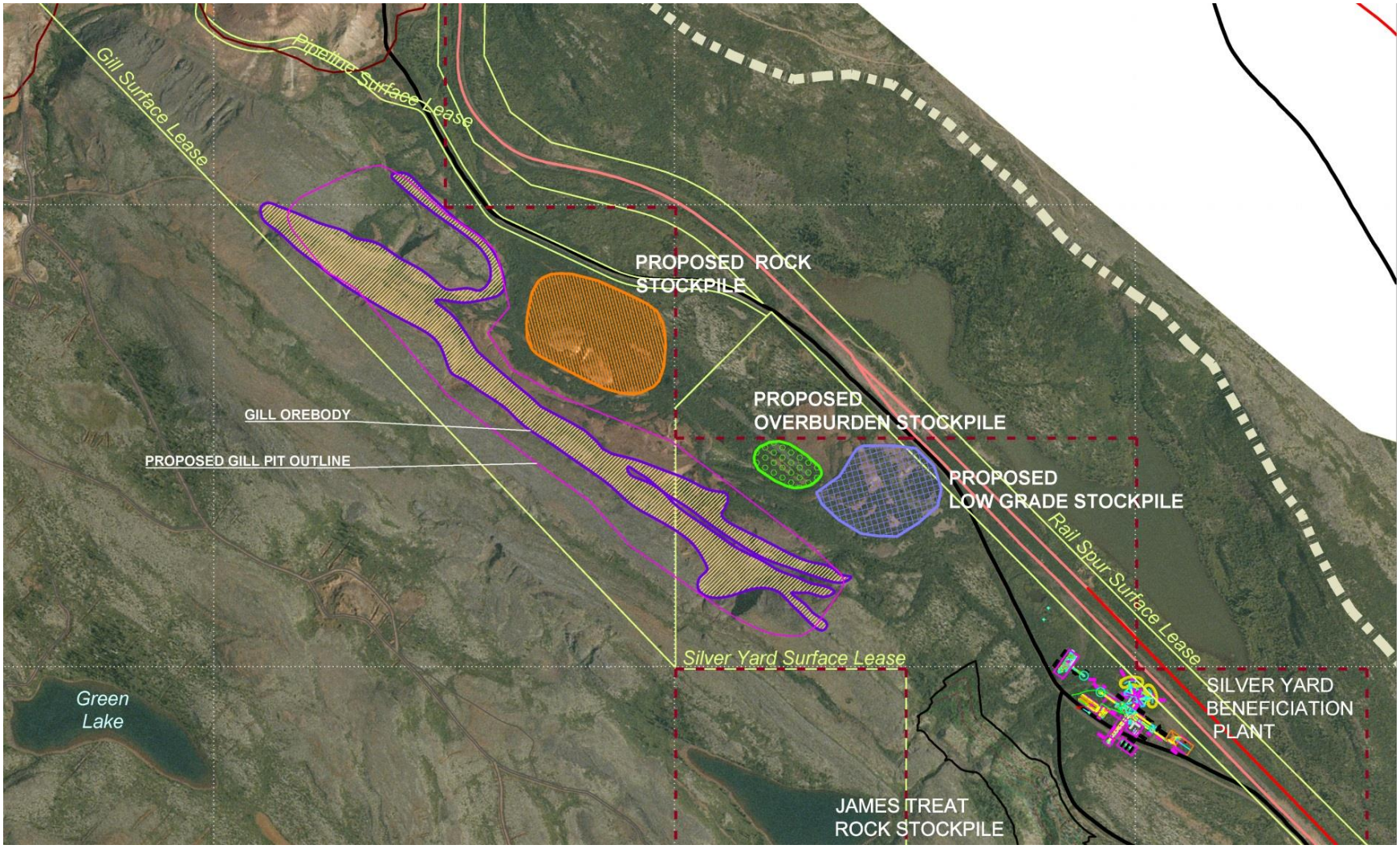
Figure 3.2 Photographs of Gill Pit (May 2013)

Figure 3.3 Photographs of Gill Pit (May 2013) Continued

Figure 3.4 Gill Deposit and Proposed Stockpiling Area



3.4.2 Site Facilities

3.4.2.1 Existing Facilities

The following site facilities are in place to support LIM's current operations in the area and will support the re-development of Gill.

- Existing gravel roads and trails connect the Project areas with Schefferville and LIM's Silver Yard facility;
- Loading of ore on the railway will be facilitated by the rail spur line at the Silver Yard, which connects to the Schefferville-Sept Iles rail network;
- The Bean Lake accommodation facility;
- Laboratory, maintenance building and offices;
- The Silver Yard Beneficiation Plant;
- Electric power transmission grid; and
- Ruth Pit reject disposal area.

3.4.2.2 Proposed Facilities

No new or permanent buildings are currently proposed as the Project will use existing facilities developed or constructed through LIM's earlier projects. If any temporary site trailers, storage and/or workshops are required within close proximity of the Gill mine, all buildings including any foundations will be removed on completion of operations.

Sediment control ponds and discharge drainage systems will be constructed to contain and settle surface water in any disturbed areas before discharge.

Minimal borrow material needs are anticipated for haul road resurfacing/construction and retention pond construction. Borrow material requirements may be sourced from the development of pits on or near the site or the sourcing of materials from existing borrow pits in the area.

3.4.2.3 Pit Design

Open pit operations at Gill will be similar to those previously carried out by IOC and to those conducted by LIM at the James mine. The pit design will generally have overall pit wall angles that will range from 34° in overburden to 55° in competent rock. The face angles will range from 40° in overburden to 70° in competent rock. These angles are based on dewatered/depressurized pit walls and controlled blasting techniques. Wall angles and geotechnical parameters will be re-evaluated upon the completion of further geotechnical study. The excavations will be mined in 10 m benches. An adequate bench will be created at the base of the current, historical, highwall to ensure that mining operations can be conducted safely.

3.4.2.4 Road Construction

The Gill Mine may require some widening and upgrading of the existing haul road (<1km) to the Silver Yard plant, however, no new roads are expected to be required.

3.4.2.5 Water Course Crossing Construction

No new water course crossings are anticipated.

3.4.2.6 Environmental Protection Procedures during Construction

Monitoring will be conducted during all phases of the work program from construction to closure. Environmental data collection will be conducted to support the requirements for environmental protection. All construction and operation activities will be conducted in accordance with the Schefferville Area Iron Ore Project Construction and Operation Activities Environmental Protection Plan (LIM 2010), including emergency spill response and contingency programs.

3.4.2.7 Employment and Occupations during Construction

Occupations required during the construction phase are provided in Table 3.1. Certain management positions will be required throughout construction and may overlap with positions at LIM's existing operating mines at the James and Redmond Properties and may only be required on-site for limited periods of time.

Table 3.1 Occupations Required During Construction

National Occupational Classification	Number	Position Description
0711	1	Site Manager
0721	1	Lead Foreman
2254	1	Surveyor
7421	2	Equipment Operator – Heavy
7421	2	Equipment Operator – Light
7411	3	Truck Driver
7611	2	Labourer – Specialised
7612	2	Labourer
Total Construction Employment	**14**	

LIM is committed to the creation and implementation of employment equity practices to help achieve maximum employment and training benefits for residents of Newfoundland and Labrador, including the recruitment, training, and advancement of qualified visible minorities and women. LIM currently has in place an approved Women's Employment Plan and a Newfoundland and Labrador Benefits Plan for the Schefferville Area Iron Ore Mine. These Plans will be revised to incorporate the Gill Project. LIM is also committed to ensuring maximum benefit to Newfoundlanders and Labradoreans who reside nearest the resources.

3.4.3 Operation Phase

Based on IOC's historical evaluation of the deposit, it is expected that the Gill mine will contain a resource of up to 4.25 million tonnes, based on an assumed ore to waste strip ratio of 1:1.25. This will be sufficient to sustain ore production for the estimated mine life of 4 years. Pending the confirmation of geological data and further exploration, this resource base may increase.

Mining will be conducted in a sequential manner using conventional open pit mining methods. The mine and equipment used for excavation and haulage will be small in terms of industry standards. Excavations will descend in a series of benches of maximum height of 10 m. Economic pit shells and depth will be finalized pending final design and engineering. Typical pit cross-sections, both longitudinal and transverse, will be available after further exploration and block modeling are completed. A typical cross section is provided in Figure 3.5.

Once mined, the ore will be hauled by truck approximately 0.5 km to the existing Silver Yard beneficiation plant where crushing, washing, screening, and gravity separation will take place prior to loading onto rail cars at the Silver Yard Siding and transported south to Sept. Iles. There, it will be loaded aboard ocean-going vessels and shipped to market.

Overburden stripping material, waste rock material and low grade ore material will be stockpiled in strategic locations nearby the open pit. Overburden stockpiles will be used for future reclamation purposes. Other infrastructure required for the development of the open pit mines includes dewatering wells and water management features (e.g. sediment control ponds, ditches).

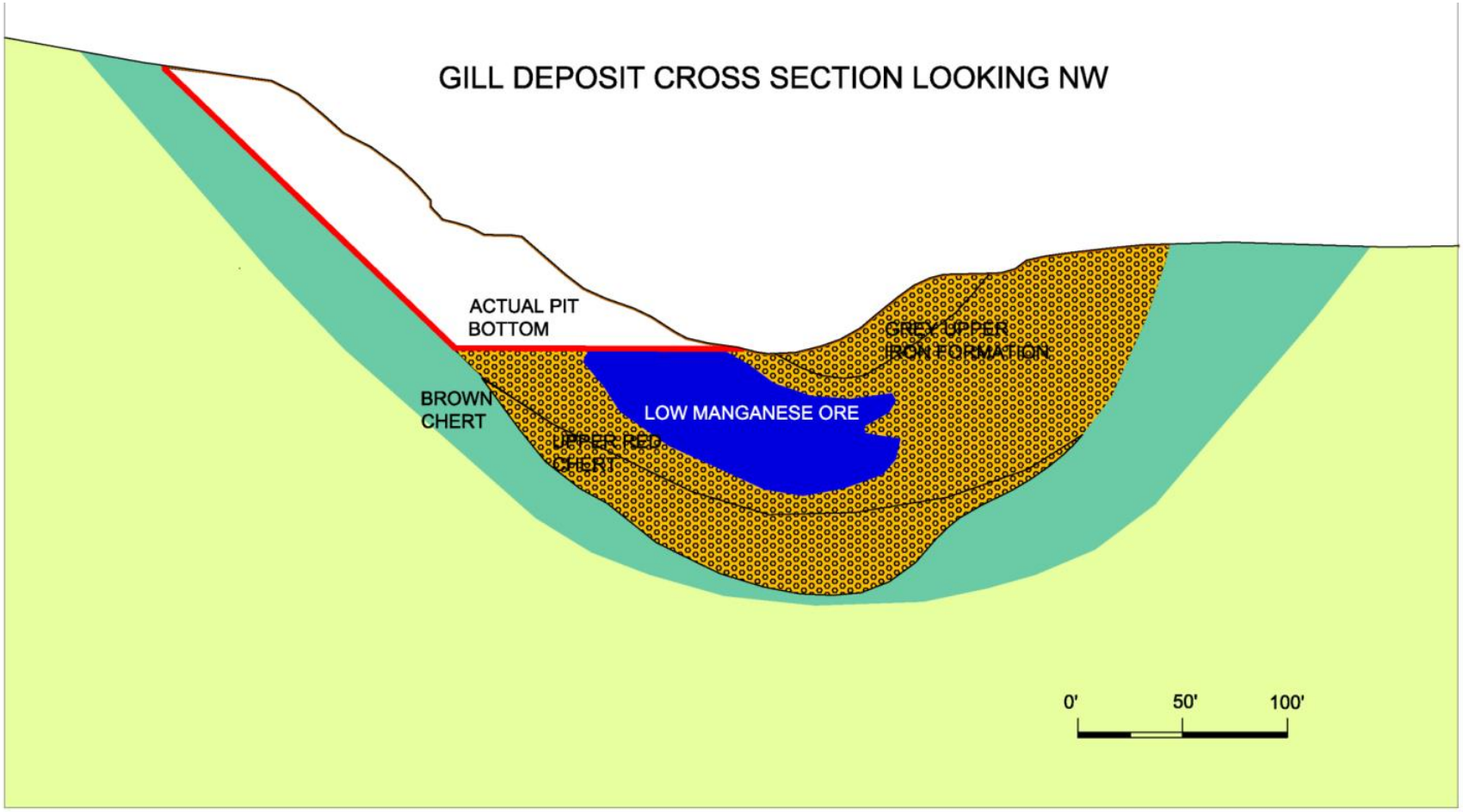
Overburden materials, where present, will be stripped from the surface area of the open pit and stockpiled for future use to rehabilitate areas disturbed during the mining operation. Waste rock or low-grade ore stockpiles will also be located at strategic locations around the mining area. In-pit waste placement will be investigated during the detail engineering and planning phases of the mine design, which may be able to reduce the disturbance footprint for waste rock disposal.

Perimeter groundwater dewatering wells may be required to adequately dewater the mining areas. It is also expected that some seasonal in-pit sumps and in-pit dewatering wells may be required. Discharge water from the perimeter dewatering wells, in-pit sumps, and in-pit dewatering wells will be directed to a sediment control structure for treatment and then piped to the existing pipeline that carries waste water from James Mine to Ruth Pit. .

LIM will perform all mine planning and resource/grade control with its own personnel. All mining operations will be by conventional open pit mining methods. Waste rock will be hauled to the specific waste rock dump sites. Progressive rehabilitation will be conducted, where possible, and final site restoration will be conducted in accordance with an approved Development, Rehabilitation and Closure Plan.

The primary production period is anticipated to start in April and to continue to November each year. Overburden stripping could occur during the four winter months as well as dewatering and routine maintenance.

Figure 3.5 Typical Cross Section – Gill Mine Deposit



3.4.3.1 Maintenance during Operation

Vehicle maintenance will be conducted at the existing approved and permitted LIM facilities, developed as part of the James and Redmond mines (Schefferville Area Iron Ore Mine).

3.4.3.2 Environmental Protection during Operation

Environmental compliance monitoring will be conducted during all phases of the work program from construction to closure. As previously noted, all operation activities will be conducted in accordance with the approved Schefferville Area Iron Ore Project Construction and Operation Activities Environmental Protection Plan (LIM 2010).

3.4.3.3 Employment and Occupations during Operation

LIM plans to conduct all of the mining operations including pre-stripping and stockpiling of overburden rock and low-grade ore. LIM currently plans to contract out all transportation services including ore haulage and waste haulage, as well as the service and maintenance of transportation equipment.

The company estimates that approximately 32 full-time direct or sub-contract positions will be required when the mine is in operation. The number of positions may change based on the equipment size selected for mining. As Gill mine development will coincide with the completion of the James mine, the number of permanent positions required to develop it is anticipated to be the same number required for the James mine development, hence the employment created by the Schefferville Area Iron Ore Mine will be continued and extended with the development of Gill.

The categories of such permanent positions including contractors, as per the National Occupational Classification are listed below in Table 3.2.**Error! Reference source not found.**.

Table 3.2 Occupations Required During Operation

National Occupational Classification	Number	Description
1221	1	Administration Officer
1411	1	General Office Clerk
1475	1	Dispatcher/Radio Operator
2113	1	Geologist
2148	1	Professional Engineer
2154	1	Land Surveyor
2212	2	Geological Technologist and Technician
6651	2	Security Guard
7372	2	Driller, Blaster (Surface Mining)
7411	8	Truck Driver
7421	8	Heavy Equipment Operator
8221	2	Supervisor – Mining and Quarrying
8614	2	Mine Labourer
Total Operation Employment	**32**	

As demonstrated at its nearby approved Schefferville Area Iron Ore Mines (James and Redmond mine areas), LIM is committed to the creation and implementation of employment equity practices to help achieve maximum employment and training benefits for the region, including the recruitment, training, and advancement of qualified members of First Nations communities and women.

3.4.4 Rehabilitation and Closure

The existing approved Rehabilitation and Closure Plan for the Schefferville Area Iron Ore Mine (Western Labrador), (LIM 2010) will be amended to include the Gill Project. The amendment will be submitted to the Newfoundland and Labrador Department of Natural Resources for approval, as required under the Newfoundland and Labrador Mining Act, Chapter M-15.1. In accordance with the Act, the Plan will detail the rehabilitation processes to be implemented at each stage of the project up to and including closure.

The plan will be considered a living document that will be reviewed and updated as necessary throughout the project life. Each year, Operation work plans, outlining schedule and planned rehabilitation activities for the Project, will be submitted to the Province in accordance with the provincial *Mining Act*.

LIM intends to employ and promote strategies and methods that will minimize adverse effects on the environment throughout the construction and operational phases of the Project which will aid in the overall rehabilitation process. Such mitigating strategies include:

- Terrain, soil and vegetation disturbances will be limited to that which is absolutely necessary to complete the work within the defined project boundaries;
- Wherever possible, organic soils, glacial till, and excavated rock will be stockpiled separately and protected for later rehabilitation work;
- Surface disturbances will be stabilized to limit erosion and promote natural re-vegetation;
- Natural re-vegetation of surface disturbances will be encouraged; and
- LIM will incorporate environmental measures in the contract documents. As such, contract documents will reflect the conditions specified for the construction and operation of the project. Contractors will thus be contractually bound to comply with the environmental protection standards set by LIM and in effect, ensure compliance with the applicable federal and provincial regulatory requirements.

LIM is committed to progressive site rehabilitation during the construction and operation phases of the Project. Progressive rehabilitation is defined as rehabilitation completed, where possible or practical, throughout the mine development, construction and operation stages, prior to closure. This includes activities that contribute to the rehabilitation effort that would otherwise be carried out at mine closure.

All aspects of mine development including mine design, infrastructure location and design, and operations planning have and will continue to be conducted with full consideration of available

progressive rehabilitation opportunities and closure rehabilitation requirements. Environmental monitoring will be continued throughout the life of mine. The Project has been planned and designed to minimize the disturbed area of the site, to incorporate areas disturbed by previous mining activities and where possible, to include these areas in site rehabilitation so as to minimize the environmental impact of previous mine operations.

3.4.4.1 Closure

Approximately one year prior to the cessation of operations the rehabilitation and closure plan will be reviewed and updated in consultation with the Mines Branch, Department of Natural Resources. This final review will define the detailed closure and rehabilitation design and procedures.

Closure rehabilitation within the LIM development footprint will generally include the following activities:

- Clean-up, removal and proper disposal of potentially hazardous materials;
- Dismantling and off-site removal of buildings and structures (if any);
- Replacing overburden and re-vegetation of disturbed areas; and
- Re-establishment of site drainage patterns, as near practical, to natural pre-development conditions.

The aim is to carry out the final closures in a manner that reduces the requirements for long-term monitoring. The rehabilitation measures as established in the rehabilitation and closure plans are to be started as early as practical during operating mine life leaving the final closure activities to a minimum.

3.4.4.2 Post Closure Monitoring

As required, a post-closure monitoring program will be designed and implemented in consultation with appropriate regulatory agencies. Once physical and chemical stability of the site has been achieved, the land will be relinquished to the Crown.

3.4.5 Potential Accidental Events

Potential accidental events that could occur during the Project construction, operation and/or decommissioning/reclamation include sedimentation events due to slope failure, flooding, pollution from vehicular accidents, spills, and forest fires. These events could results in adverse effects on air quality (fires), water quality, fish and fish habitat, terrestrial habitat and wildlife. These events could also have socio-economic effects.

Accidents leading to potential sedimentation events can vary in origin, area, intensity and duration, however the results are usually restricted to the site of the event and downstream habitat where water is involved. These events are usually localized in nature and are reversible

if the intensity is not extreme. Sometimes habitat can be rehabilitated if natural restoration is not evident.

Spills are also usually limited to a local area with various downstream effects within the same watershed. The effects of accidental introductions of pollutants will vary with the location, material and intensity (i.e., amount and duration). Adverse environmental effects associated with spills would be reversible and localized and would be not significant.

Forest fires move with the prevailing wind and can potentially extend beyond the site. Fire prevention and response measures will be implemented to minimize the potential for a forest fire to be caused by The Project. Large fires occur naturally and result in extensive changes in habitat and associated distribution. These effects are natural and would be reversible, but could be significant. A large fire would result in a significant effect but the measures in place and design of the Project makes a forest fire caused by the Project an unlikely event.

All Labrador communities are at such a distance from the Project site that they will not be directly affected by any accidental effects and malfunctions. However, any cessation of Project activity as a result of such effects and malfunctions will have a negative effect on Project employment and business, and these may have secondary effects on Labrador communities. The adverse effect is predicted to be short-term and not significant.

LIM has created comprehensive Environmental Protection Plans, Environmental and Emergency Response Plans and training programs to avert the occurrence of such incidents and has proven its ability to manage mine sites in the area in an environmentally sustainable manner. Project-specific Environmental Protection Plans and Environmental monitoring will be implemented to minimize likelihood and significance of any accidents and malfunctions.

3.5 Potential Effects of the Environment on the Project

The range of effects on the Project due to the physical environment can range from minor facility improvement to catastrophic failure. A significant effect of the environment on the Project would be one that results in:

- A substantial delay in construction (e.g., more than one season);
- A long-term interruption in mining operations;
- Damage to infrastructure that compromises public safety; or
- Damage to infrastructure that would not be economically and technically feasible to repair.

The primary mitigation tool to avoid a significant effect of the environment on the Project is the use of sound planning. All engineering design will be done to National Building Code Standards. These standards document the proper engineering design for site specific extreme physical environmental conditions and provide design criteria, which the federal government considers satisfactory to withstand potential physical environmental conditions. These codes consider physical environmental criteria such as wind, snow, wave and ice loading and drainage. In

addition, the design life is taken into consideration so that materials are chosen with sufficient durability and corrosion resistance.

Based on a climate change analysis conducted for the Schefferville Area Iron Ore Mine EIS which followed guidance issued by Canadian Environmental Assessment Agency (CEAA 2003). All components of this Project will be designed to avoid any adverse effect to the public or the environment due to the predicted future climate. The Project will be designed and built to safely withstand current climatic conditions in accordance with building codes and standard good practice. All materials specified for this Project will be in compliance with applicable building codes for anticipated temperatures, winds and precipitation levels and as such will maintain the integrity and ductility to function as they were designed. All components of the mine will also be designed to support the structural loadings created by extreme snow and ice events. All erosion and sediment control measures for the mine will be designed to handle extreme precipitation and sudden snow melt. In particular, settling ponds should be designed with consideration for increased extreme precipitation events and overall increase in precipitation.

Weather forecasts will be monitored during mine construction and operations. If extreme weather conditions in any way compromise a safe operation, accident prevention measures will be taken, including the temporary suspension of operations, as required. Prior to and following extreme precipitation events, all erosion and sediment control structures will be inspected to ensure integrity. Permafrost is not predicted to affect mine operations as it has not been observed in the Project area.

The mitigation strategies described above, can adequately address potential effects of the environment on the Project such that there will not be a significant adverse effect of the environment on the Project.

3.6 Potential Sources of Pollution during Construction and Operation

The potential sources of pollution during the construction and operation include discharge water and run-off, waste rock stockpiles, air emissions, domestic and hazardous waste, noise and blasting. Monitoring will be conducted during all phases of the work program from construction to closure to support the requirements for environmental protection, environmental effects monitoring and site restoration. The mitigation measures identified in the existing Schefferville Area Iron Ore Project Environmental Protection Plan will be applied to the Gill Mine. All contingency plans and as well as the emergency spill response programs, will also be applicable and if required project specific mitigation strategies will be established.

3.6.1 Discharge Water and Run-off

Precipitation infiltration and site drainage during construction and operation may result in run-off water containing suspended solids. As a result, stockpile construction and mine design will include prevention and mitigation strategies for control and treatment of the suspended solids, as required (e.g. ditch blocks, filter cloths and settling ponds).

Discharge water from the perimeter dewatering wells, in-pit sumps, and in-pit dewatering wells will be directed through the existing pipeline that carries storm water and runoff from James Mine to Ruth Pit. When sediment control measures are required, the existing flocculation system will be used to allow sediment to settle prior to discharge to Ruth Pit. Therefore, there will not be a new final discharge point as all discharge will be directed to Ruth Pit.

3.6.2 Waste Rock Stockpiles

New stockpiles will be constructed within close proximity of the Gill Mine to store waste rock and lower grade ore. In-pit waste placement opportunities will be assessed during the detailed engineering and planning phases of the mine design, which may be able to reduce the disturbance footprint for waste rock disposal. Should in-pit disposal not be possible, storage locations away from surface water systems and in areas previously selected through condemnation drilling will be used. Permanent waste rock and overburden materials will be stockpiled and contoured in a manner that conforms to provincial guidelines and regulations. Where applicable, waste rock storage areas will be built up in lifts to limit the overall dumping height. The stockpiled materials will be managed to limit the possibility of suspended solids being introduced into site drainage or adjacent water bodies. Overburden will be retained during site development and operation and then used during site reclamation to support re-vegetation.

3.6.3 Air Emissions

Most roads are unpaved and data collected since 2005 indicates that roadways may be dusty in the summer months. A state-of-the-art Dust Suppression Water Spray Vehicle was procured in 2012 and has proven to efficiently control airborne dust. All on-site vehicles and fuel–powered equipment will have the required emissions control equipment and will be maintained in good working order and will meet all emissions standards.

3.6.4 Garbage and Litter

In the absence of an on-site landfill, garbage and litter will be collected on-site, as is the current practice, and delivered to an experienced Labrador-based contractor and placed in a landfill facility in Labrador West, in accordance with applicable regulations and with prior approval of the relevant municipality. Any food or organic garbage on-site will be held in animal-proof containers to prevent attracting bear, birds, and other wildlife. No wastes will be deposited in or near watercourses or wetlands. A recycling program is being considered for the area and LIM will support and participate in this initiative, where possible. An application to the NL Department of Environment and Conservation to construct and operate a landfill for mining activities in the area is currently being prepared by LIM. If approved, all garbage and litter, as well as waste from decommissioning, will be disposed of in the LIM landfill.

3.6.5 Hazardous Waste Management

It is not expected that the mine will generate large quantities of hazardous waste. However, should any hazardous wastes be generated, they will be stored, transported, and disposed of

according to federal and provincial regulations. Licensed contractors, located in Schefferville and experienced in the management and transportation of these types of waste to an approved facility, have indicated availability to offer this service to LIM operations, if needed. LIM will require contractors to follow provincial waste diversion regulations or policies, including provincial programs for beverage containers, tires and waste oil and other petroleum products.

A maintenance workshop will be available at the nearby Silver Yard facility. As well, opportunities exist for this work to be conducted at an offsite garage. Pending confirmation, onsite storage of small quantities of hydraulic oils and other materials may be required for limited mine vehicle/equipment maintenance. In addition, diesel storage associated with local or emergency back-up power generation may be required. Petroleum/oil/lubricant (POL) transport, storage, use and disposal will be conducted in accordance with applicable legislation and all workers will be trained in the appropriate Environmental, Health & Safety (EHS) approach to working with these materials. Spill kits will be available at key locations on site and workers will be trained in their use and other emergency response procedures. Any required fuel storage would be constructed and operated in accordance with applicable regulations and secondary containment methods, including the use of double-walled tanks and berms to 110% of total volume, will be employed.

Discarded tires will be handled according to the requirements of the provincial tire recycling program established by the Waste Management Regulations and used oil will be collected for recycling or reuse according to the Used Oil Control Regulations. In addition, any scrap metals will be taken to a scrap metal recycling operation.

3.6.6 Noise

Noise is not expected to present an issue, as the Project area is removed from the nearest communities and the road access and rail connections already exist. Noise will also be decreased by the topography as the site is situated within a forested area. Furthermore, use of industry standard equipment compliant with all applicable noise regulations and effective maintenance systems including regular inspections of all noise suppression equipment will be conducted.

3.6.7 Blasting

It is anticipated that, similar to that experienced at the James Mine, minimal blasting will be required in the unique geology of the region. If required, the existing James Mine explosives storage facility will be used. Therefore, there will not be a dedicated explosives storage facility for the Gill mine.

3.7 Potential Resource Conflicts during Construction and Operations

The potential resource conflicts during construction and operation include interactions with wildlife: water resources; fish and fish habitat; land use; and vegetation. A detailed description of the natural resources and baseline environmental conditions in the area is presented in Section 7.0.

3.7.1 Wildlife

Minimal clearing and grubbing is required, however, to avoid adverse effects on migratory birds and bird species of special conservation concern, all clearing activities will be conducted in accordance with the approved LIM Avifauna Management Plan. LIM's no hunting, fishing, or trapping policy will be implemented throughout the construction and operation of the Project, therefore no wildlife conflicts are anticipated.

3.7.2 Water Resources

No water resource conflicts are anticipated, as there are no stream crossings or other interactions with water bodies in the Project area and no discharges to the aquatic environment. The Gill property is located approximately 1,000 metres north of the James property and is at the base of the same ridge as the James site. Therefore, based on our experience with the James mine, groundwater influx into the proposed Gill pit is likely. There are no springs or surface water features on or in the vicinity of the Gill property, therefore, no impacts to surface water features will occur if groundwater pit dewatering is required.

3.7.3 Fish and Fish Habitat

There are no water bodies on the site, therefore, effects on fish and fish habitat or other aquatic species are not anticipated.

3.7.4 Land Use

The proposed undertaking will not interfere with land use activities in the area. There are no seasonal or temporary residences located within a 5 km radius of the proposed site. The reserves of Matimekush-Lac John and the Naskapi Nation of Kawawachikamach, are located in Quebec and are approximately 20 km and 35 km northwest of the Project area, respectively. There are no conflicts anticipated with traditional land use in the area by community residents.

The existing garbage disposal area and the existing explosives storage area, located near the south end of the Gill property will be relocated to suitable locations on the James Mine / Silver Yards property.

3.7.5 Vegetation

Clearing or grubbing will be kept to a minimum. Trees cut during clearing will be limbed, cut in 2 m lengths, stacked and made available to local residents.

3.7.6 Socio-economic

LIM has engaged in substantial community and public consultation activities including aboriginal consultation in both Labrador and Quebec (in the Schefferville area) and surrounding areas since 2008 and will continue to do so during the construction and operation of the project.

This Project will add an additional economic stimulus to the Schefferville area as well as to the provinces of Newfoundland and Labrador and Quebec.

3.8 Monitoring

Monitoring will be conducted during all phases of the work program from construction to closure. Several monitoring studies already initiated for the nearby approved Schefferville Area Mine Project, include air quality monitoring, caribou and wildlife monitoring, groundwater and surface water quality monitoring. Compliance monitoring on-site will be conducted by LIM's current environmental monitoring team which is led by the Manager, Health Safety and Environment, and consists of two environmental scientists and a sampling team.

LIM has in place, an approved Caribou monitoring and mitigation strategy and, through monitoring and ongoing data collection, LIM will continue to enhance the understanding of caribou activities in the Project area. LIM will comply with the approved Caribou Mitigation Strategy developed during the Schefferville Area Iron Ore mine EIS, and as appropriate will update this plan to provide consideration of the absence of woodland caribou in the area. In accordance with this Plan, LIM will provide an advisory to mine management staff should any herd enter the assessment area. Caribou movements and LIM observations and actions implemented will be recorded and communicated to the Wildlife Division.

3.9 Environmental Protection Plan

The existing approved Schefferville Area Iron Ore Mine Environmental Protection Plan (EPP) includes environmental mitigation measures for all activities associated with construction, operation and decommissioning of the Gill Mine. Therefore, all activities related to the Gill Mine will be conducted in accordance with this EPP.

The environmental protection measures included in the EPP will provide the basis for environmental planning and design of the various physical aspects and environmental characteristics of the Project. All personnel including LIM staff and contractor's and sub-contractor's personnel are provided a detailed EPP orientation session upon arrival at site.

3.10 LIM Benefits Plan

LIM understands the importance of the Project to the Province of Newfoundland and Labrador and in line with the principles described in this policy will provide full and fair opportunity and first consideration for the people, businesses and companies of the province to secure employment and to participate in and benefit from the business opportunities associated with the Project. LIM entered into a Benefits Plan dated April 5, 2010 with the Province of Newfoundland and Labrador concerning the Schefferville Area Iron Ore Mine. Pursuant to the Benefits Plan, LIM has committed to:

1. Project employment targets representing minimum levels of employment for: (a) residents of the Province; (b) members of certain First Nations communities; and (c). Women; and
2. Goods and services procurement targets representing minimum levels of procurement from companies and suppliers in the Province.

Benefit Agreement compliance reports are submitted monthly to the Department of Human Resources, Labour and Employment and the Department of Natural Resources for the Province of Newfoundland and Labrador.

The Gill Re-activation Project will be developed in accordance with this Benefits Plan.

Subject to the various Impact Benefit Agreements (IBAs) and agreements in place, LIM is committed to:

- The delivery of associated benefits, including employment, education, training and business and economic development to the Province and in particular to Labrador on a full and fair opportunity and first consideration basis;
- The encouragement and assistance of residents of the Province, and in particular of Labrador, to receive the education and training necessary to maximize their opportunities for employment, retention and advancement on the Project;
- The procurement of goods and services from within the Province and, in particular from Labrador. Provincial suppliers will be provided full and fair opportunity and first consideration for the supply of goods and commercial services to the Project on a competitive basis;
- The implementation of policies and practices in connection with the procurement of goods and services for the Project that enhance economic and business opportunities in Labrador, including the identification and support of industry businesses that would generate long-term economic benefits to Labrador; and
- The provision of timely Project-related information to encourage the participation of all potential employees, businesses and contractors in the economic opportunities of the Project.

LIM has recently signed an Economic Partnership Agreement with the NunataKavut Community Council which includes provisions for training and economic benefits for members of NunatuKavut.

3.11 Women's Employment Plan

The Women's Employment Plan details LIM's approach to employment equity. It identifies occupations in which women are under-represented, establishes appropriate initiatives and targets and describes a process for achieving these targets, outlines a monitoring approach, and reviews and revises equity initiatives where appropriate.

The Women's Employment Plan describes:

- The responsibilities of LIM and its main contractors, the process for identifying and implementing targets and initiatives, and the process for monitoring and reporting the implementation of those initiatives and success in achieving targets;
- The types of information and communications, employee recruitment and selection, employee development, working environments, and community outreach initiatives that LIM and its contractors will use to achieve employment equity for women;
- Specific LIM initiatives such as an anti-harassment program, community sensitivity program, and a review of childcare services available; and
- LIM will maintain an ongoing liaison and communication with the Women's Policy Office, the Department of Natural Resources Women's Policy Group and the Women in Resource Development Committee (WRDC), so that they are informed about Project employment requirements, opportunities, and plans.

LIM has also recently partnered with the Office to Advance Women Apprentices to assist recruitment efforts and to employ and develop skilled female professionals.

In addition to the NL Benefits Plan and the Women's Employment Plan, LIM will also comply with the provisions of undertakings, commitments and obligations of IBAs entered into with Innu Nation of Labrador (2008), the Naskapi Nation of Kawawachikamach (2010), the Innu of Matimekush-Lac John (2011) and the Innu Takuaikan Uashat Mak Mani-Utenam (2012). These include provisions for employment, education and training, social and financial benefits, as well as for environment and cultural protection measures.

3.12 Federal Lands

There are no federal lands, including national parks or Canadian forces bases, proximate to the Project area and the Project is located wholly within the province of Newfoundland and Labrador. Thus, there are no changes to the environment anticipated to federal lands or to other provinces as a result of carrying out the Project.

3.13 Project Related Documents

The following is a list of the various Project-related documents used in the preparation of this document:

- AECOM, 2012. 2011 Natural Environmental Baseline Report – Gill Property.
- AECOM . 2009. 2009 Breeding Bird Monitoring Report – James, Redmond, Silver Yards, Knob Lake, Houston, Howse, and Proposed Road Crossing Areas
- Naskapi Nation of Kawawachikamach, Annual Report, 2010-11, 1 April 2010 to 31 March 2011,
- La Fosse Platinum Group Inc., May 4, 1990, Registration Form Pursuant to Section 6 of The Environmental Assessment Act – James Mine Project,,

- Labrador Iron Mines Limited, 2009, Environmental Impact Statement (Revised). Schefferville Area Iron Ore Mine (Western Labrador).
- Labrador Iron Mines Ltd. 2010. Avifauna Management Plan for Activities Associated with the James, Silver Yard and Redmond Properties.
- Labrador Iron Mines Ltd. 2010, Labrador Iron Mines Development Plan, Schefferville Area Iron Ore Mine (Western Labrador).
- Labrador Iron Mines Ltd. 2010, Labrador Iron Mines Rehabilitation and Closure Plan, Schefferville Area Iron Ore Mine (Western Labrador).
- Labrador Iron Mines Ltd. 2011, Project Registration for the Houston 1 and 2 Deposits Mining Project.
- Labrador Iron Mines Ltd. 2013. Houston Beneficiation Plant Environmental Registration under Section X of the Newfoundland and Labrador Environmental Assessment Regulations.
- Labrador Iron Mines Ltd. 2013. Houston Beneficiation Plant Project Description, Canadian Environmental Assessment Act.
- Labrador Iron Mines Limited, 2011, Waste Management Plan. Schefferville Area Iron Ore Mine.
- Labrador Iron Mines Ltd. 2010. Environmental Protection Plan for Construction and Operation Activities, Schefferville Area Iron Ore Mine (Western Labrador).
- Labrador Iron Mines Limited. 2012, Houston 1 and 2 Deposits Mining Project Environmental Protection Plan (Supplemental to the Schefferville Area Iron Ore Mining Project Construction and Operation Activities EPP).
- Labrador Iron Mines Limited Environmental and Engineering Baseline Work Plan, 2006. Prepared for Labrador Iron Mines Limited by Earth Tech Canada Inc.,
- Met-Chem Canada Inc, January 24, 2006, High Level Review of Transportation Options, Prepared for Labrador Iron Mines Limited
- Scoping Study For The Labrador Iron Mountain Iron Ore Project, Prepared for Labrador Iron Mines Limited by T.N. McKillen, January 25, 2006
- Information Review, Property Status Report and Strategy Development, Prepared for Labrador Iron Mines Limited by Earth Tech Canada Inc., March 2006
- Iron Mountain Project 2006/2007 Environmental and Engineering Program - James, Houston and Knob Lake Sites, Health and Safety Plan. Prepared for Labrador Iron Mines Limited by Earth Tech Canada Inc., August 2006
- Assessment of Rail Infrastructure Conditions of the Menihek Subdivision of Tshiuetin Rail Transportation Inc., Prepared for Labrador Iron Mines Limited by Hatch Mott MacDonald, September 13, 2006

- Feasibility Study for the Labrador Iron Ore Project, Prepared by Labrador Iron Mines Limited, September 28, 2006
- Iron Mountain Project Environmental Reconnaissance Program, Prepared for Labrador Iron Mines Limited by Earth Tech Canada Inc., March 2007
- Technical Report of an Iron Project in Northwest Labrador, Prepared for Labrador Iron Mines Limited by SNC Lavalin, October 2007
- Iron Mountain Project. Schefferville Socio-Economic Background Information, Prepared for Labrador Iron Mines Limited by Earth Tech Canada Inc., 2008
- Labrador Iron Mines Baseline Terrestrial Report – James, Redmond & Silver Yards, Prepared for Labrador Iron Mines Limited by AECOM, 2008
- Spring Survey of Caribou in the Vicinity of Schefferville, April - May 2009 (Final Report), Prepared for New Millennium Capital Corp. and Labrador Iron Mines Limited, Groupe Hemispheres and Stassinu Stantec Limited Partnership, November 2009
- Spring Survey of Caribou in the Vicinity of Schefferville (Final Report), Prepared for New Millennium Capital Corp. and Labrador Iron Mines Limited, Groupe Hemispheres and Stassinu Stantec Limited Partnership, May 2010
- Air Quality Technical Study, Prepared for Labrador Iron Mines Limited by Jacques Whitford Limited, January 29, 2009
- Socio-economic Baseline Report, Prepared for Labrador Iron Mines Limited, by Jacques Whitford Limited, June 26, 2009
- Classification of Wildlife Habitat Suitability for Houston and Howse Mineral Claims Blocks for the Schefferville Area Iron Ore Mine, Prepared for Labrador Iron Mines Limited by Stassinu Stantec Limited Partnership, 2010
- Stage 1 Historic Resources Assessment – Labrador Iron Mines 2008 Exploration Activities, Report prepared for Labrador Iron Mines Limited by Jacques Whitford Stantec Limited, 2009
- Desktop Review of Historic Resources Potential Labrador Iron Mines Ruth 8 and Gill Properties and Access Road Options, Prepared for Labrador Iron Mines Limited by Stassinu Stantec Limited Partnership, May 2011
- Earth Tech Canada Inc. doing business as AECOM (2008). Labrador Iron Mines Baseline Terrestrial Report- James, Redmond & Silver Yards.
- Earth Tech. 2008 (received).Iron Mountain Project. Schefferville Socio-Economic Background Information.
- Earth Tech Canada Inc. 2006. Labrador Iron Mines Limited Environmental and Engineering Baseline Work Plan.
- Labrador Iron Mines Limited Schefferville Project. 2008. Registration Pursuant to Section 3 of the Newfoundland and Labrador Regulation 54/03. Environmental

Assessment Regulations, 2003, Under the Environmental Protection Act for the Proposed Labrador Iron Mines Limited, Schefferville Project.

- Labrador Iron Mines Limited. 2005. Scoping Study for the Labrador Iron Mountain Project, Schefferville Area, Labrador.
- Labrador Iron Mines, 2005. Iron Mountain Iron Ore Project review of First Nations Communities in the Quebec-Labrador Peninsula.
- Parks Environmental Inc. 2011, Avifauna Report – September 2010.. Report prepared for Labrador Iron Mines Limited. September, 2011.
- Parks Environmental Inc. 2011. Mammal Report. Report prepared for Labrador Iron Mines Limited. September, 2011.
- Stantec, 2010. Summary of Ambient Air Monitoring – Schefferville, Quebec – August to October 2009. Letter Report prepared for Labrador Iron Mines Limited.

4.0 PROJECT SCHEDULE

Subject to regulatory and environmental approvals, construction is anticipated to start in 2014.

Site preparation, infrastructure construction and full start-up (ready for production) are anticipated to take up to three months. Figure 4.1 presents the major milestones in the Gill Re-activation Project development.

LIM plans to initiate extracting ore from the Gill deposit once James ore is exhausted. Production is scheduled to commence in the second quarter of 2014 and the estimated production schedule predicts production out to the year 2017. The preliminary production schedule shown in Table 4.1 is based on IOC reserve estimates, i.e., not on NI 43-101 resource or reserve estimates. The schedule is also subject to geotechnical engineering study, exploration drilling, resource estimation, mine planning and financing; Exploration data to be collected in the fall of 2013 will be reviewed for any modifications to the preliminary schedule.

Figure 4.1 Gill Development Schedule

Activity	2013			2014							
	Oct	Nov.	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
EA Registration & Approval											
Development, Rehabilitation and Closure Plan approval											
Mining Lease approval											
Establishment of site services											
Grubbing											
Site preparation											
Overburden stripping											
Access and haul road construction/upgrade											
Sediment and retaining pond construction											
Drainage ditches, pipeline construction											
Waste Mining											
Ore Mining											

Table 4.1 Estimated Annual Production

Year	Tonnes*		
	Ore	**Waste**	**Total**
2014	750,000	1,875,000	2,625,000
2015	1,500,000	3,750,000	5,250,000
2016	1,500,000	3,750,000	5,250,000
2017	500,000	1,250,000	1,750,000
OVERALL	4,250,000	10,625,000	14,875,000

* Assumes most of the historical IOC resource can be economically mined.

5.0 FUNDING

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

6.0 COMMUNITY AND ABORIGINAL CONSULTATION

6.1 Community Consultation

6.1.1 General

Since early exploration activities in 2005, LIM has also been in continual contact with the non-aboriginal communities situated near the development area as well as with the Aboriginal/First Nation communities having a stated interest or historic connection to the area. LIM maintains regular contact with the civic administration of the towns of Labrador City, Wabush, Happy Valley-Goose Bay, Schefferville and Kawawachikamach. These community and stakeholder consultation activities have included frequent meetings with Mayors and Councils, local businesses, Chiefs and Councils, local political representatives, local interest groups, provincial and federal regulators, educators and a wide variety of stakeholders. For example, LIM has initiated communications with occupants of cabins identified within the region and will continue communications with them as the Project develops.

As there are no nearby established communities in Labrador, LIM has opened community relations offices in Schefferville, Labrador City and Happy Valley-Goose Bay. LIM is dedicated to providing early and clear information to the community and working with all communities towards the common goal of positive, respectful and sustainable development in the area.

The Community Consultation process has already been described in detail in the Environmental Impact Statement for the Schefferville Area Iron Ore Mine (Western Labrador) Project (LIM 2009), which refers specifically to the development of the James and Redmond deposits in the first phase of LIM's proposed sequential development of the deposits making up its Western Labrador Iron Ore Project.

Subsequent to the preparation of that document, discussions and negotiations with the non-Aboriginal communities has been detailed and ongoing. Each community has been apprised of the totality of LIM's direct shipping iron ore Project and the decision to develop the constituent iron ore deposits in a sequential manner commencing first with the James and Redmond deposits to be followed by other deposits in the area, including the Gill deposits.

Through regular meetings with Mayors and Councils or town administrators and other representatives and community organizations, the communities are being continuously apprised of the on-going development of each stage of the Project.

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

LIM has engaged in substantial community and public consultation activities including aboriginal consultation in both Labrador and Quebec (in the Schefferville area) and surrounding areas since 2008 and will continue to do so during the construction and operation of the Gill Project.

The closest community to the Project is Schefferville, Quebec which is located less than 2 km from the border with Labrador, on the northern shore of Knob Lake. It was established by the Iron Ore Company of Canada in 1954 to support mining operations in the area.

Iron ore mining at Schefferville ceased in 1982. Many of the 4,000 non-Aboriginal occupants left at that time, leaving a primarily Aboriginal community comprised of people who had settled there in the preceding 30 years. Some houses and public facilities have been demolished since this time, but some new homes have been built. The median age is 39.2 years, with approximately 60 families residing within the community.

LIM's nearby Schefferville Area Iron Ore Mine went into full production in 2011, marking the first mining and production of iron ore from this historic mining area in over 30 years. This development has brought many positive and direct benefits and the Gill Project and will build on this work. Direct and indirect economic benefits for various communities and stakeholders are expected from the proposed mine development. The ongoing economic impact of such employment and contracting business will be very positive and lead to the development of other support and service sector jobs, education, training, and consistent and planned development and growth.

6.1.2 Aboriginal Consultation

Consultation is a central objective of the environmental assessment process. Aboriginal consultation has a similar objective as public consultation in which to identify and address issues and concerns related to the Project.

The Quebec-Labrador Peninsula area has one of the most complicated patterns of aboriginal settlement in eastern Canada with six or possibly seven Aboriginal or First Nation peoples claiming traditional and native rights to all or part of the area underlain by LIM's Iron Ore Project. Several of the communities have conflicting territorial or land claims. This regional complication of Aboriginal/First Nation issues has recently prompted the Government of Canada to establish an Overlapping Commission in November 2010. This Commission will provide a forum to address the issues of jurisdictional overlap for the territories and the sharing of economic development initiatives as a result of mining and hydro-electric development in the region.

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

Beginning in 2005, LIM has pursued an extensive and proactive engagement with all of the aboriginal communities living close to the Project location or having traditional claims to the surrounding territory and commenced such consultations respecting the Schefferville Area Iron Ore Mine (Western Labrador). These consultations have resulted in the signing of IBAs with the Innu Nation of Labrador (2008), the Naskapi Nation of Kawawachikamach (2010), and the Innu Nation of Matimekush-Lac John (2011), and the Innu Nation of Takuaikan Uashat Mak Mani-Utenam (2012). These agreements relate to the establishment of a positive ongoing relationship between LIM and the Aboriginal/First Nation in regard to the development and operation of all phases of the Schefferville Area Mining Project and the economic benefits that will accrue to the aboriginal communities. LIM has recently signed an Economic Partnership Agreement with the NunataKavut Community Council which includes provisions for training and economic benefits for members of NunatuKavut.

The locations of the affected Aboriginal communities in both Labrador and Quebec are presented in Figure 6.1.

6.1.2.1 Labrador Innu Nation

The Innu of Labrador primarily resides in two communities in central and coastal Labrador: the coastal community of Natuashish, and the Upper Lake Melville community of Sheshatshiu. Residents of Natuashish are known as the Mushuau Innu, and residents of Sheshatshiu as Sheshatshiu Innu. Each community is administered by an elected Chief and Band Council. Politically, the two communities are represented by the Labrador Innu Nation, which is led by an elected Grand Chief.

The Labrador Innu claim Aboriginal rights and title to most of Labrador, referring to it as Nitassinan. Their land claim was accepted for negotiation by the federal and provincial governments, with formal negotiations beginning in 1991. An Agreement-in-Principle is presently being negotiated.

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

The Premier of Newfoundland and Labrador and the Grand Chief of Innu Nation, announced on September 26, 2008, the signing of the Tshash Petapen Agreement (The New Dawn Agreement). This Agreement resolves key issues relating to matters between the province and Innu Nation surrounding the Innu Rights Agreement, the Lower Churchill Impacts and Benefits Agreement (IBA) and Innu redress for the Upper Churchill hydroelectric development. The final agreements based on the Tshash Petapen Agreement were ratified by the Innu people on June 30, 2011.

Figure 6.1 Affected Aboriginal Communities Location Map

6.1.2.2 Issues

The main issues raised by the Innu Nation of Labrador during the IBA negotiations and the consultation process for the Schefferville Area Iron Ore Mine (Western Labrador) Project (the James and Redmond) mine development were:

- Economic benefits and revenue sharing;
- The provision of sustainable economic development within the region in order to provide employment and business opportunities for its members;
- Protection for the environment;
- Training and education programs so that Innu Nation members might fully participate in available opportunities; and
- Cultural and heritage protection and development.

Through discussion and negotiation during and subsequent to the Impact Benefits Agreement process, the parties reached satisfactory agreement on all of these issues, including the processes for implementation, coordination and oversight of mitigation strategies to address these issues. The communities will directly participate and/or be actively consulted as follows:

- Implementation committee;
- Community collaboration committee;
- Training and education committee;
- Establishing employment and workplace conditions;
- Business and contracting opportunities;
- Environmental monitoring;
- Traditional knowledge collection;
- Heritage resource and cultural protection; and
- Financial participation.

6.1.2.3 Impact Benefits Agreement

In July 2008, LIM entered into an Impact Benefits Agreement with the Innu Nation of Labrador, replacing an earlier Memorandum of Understanding. This life-of-mine agreement establishes the processes and sharing of benefits that will ensure an ongoing positive relationship between the LIM and the Innu Nation. In return for their consent and support of the Project, the Innu Nation and their members will benefit through training, employment, business opportunities and financial participation in the Project.

6.1.2.4 Innu Nation of Matimekush-Lac John

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

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

The Montagnais' comprehensive land claim, filed in association with the Atikamekw of southern Quebec, was accepted federally in 1979 and provincially in 1980. The two Aboriginal groups were represented by the Atikamekw-Montagnais Council (AMC) until 1994. After dissolution of the AMC, the Montagnais formed three negotiation groups: the Mamuitun mak Natashquan Tribal Council, the Mamu Pakatatau Mamit Assembly, and the Ashuanipi Corporation.

Together with the Naskapi Nation of Kawawachikamach and the Innu Nation of Takuaikan Uashat Mak Mani-Utenam, the Montagnais have acquired interest in Tshiuetin Rail Transportation Inc. (TSH), an aboriginal-owned corporation which owns and operates the northern portion of the former QNS&L rail line between Ross Bay Junction and Schefferville. Operations include passenger service twice weekly and weekly freight service between Schefferville and Sept-Iles. The Montagnais are also partially responsible for maintenance at the Schefferville Airport and operate construction businesses.

6.1.2.5 Issues

The main issues raised by the Innu Nation of Matimekush-Lac John during IBA negotiations and the consultation process for the Schefferville Area Iron Ore Mine (Western Labrador) Project (the James and Redmond) mine development were:

- Sustainable economic development in order to provide employment and business opportunities for its members. The community comprises a significant un- or under-employed young population with little or no available employment base;
- Economic benefits;
- Environmentally and culturally sustainable development;
- Desire to see the commercial development of TSH Railway without impact on the existing passenger service; and
- Training and education programs so that members of the community might fully participate in available opportunities.

Through discussion and negotiation during a Memorandum of Understanding and IBA process, the parties have openly discussed all of these issues and a cooperation and impact agreement include the processes for implementation, coordination and oversight of mitigation strategies to address these issues. It is expected that the communities will directly participate and/or be actively consulted as follows:

- Implementation committee;
- Training and education;
- Employment, business and contracting opportunities;
- Traditional knowledge collection;
- Heritage resource and cultural protection; and
- Economic benefits.

6.1.2.6 Agreements

In June 2011 an IBA agreement was signed with the Innu Nation of Matimekush-Lac John following community ratification. This life-of-mine agreement establishes the processes and sharing of benefits that will ensure an ongoing positive relationship between the LIM and the Innu Nation of Matimekush-Lac John. In return for their consent and support of the Project, the Nation and their members will benefit through training, employment within the limits of the Newfoundland and Labrador's benefit agreement, business opportunities and financial participation in the Project.

6.1.2.7 Innu Nation of Takuaikan Uashat Mak Mani-Utenam

The Innu Nation of Takuaikan Uashat Mak Mani-Utenam are closely related to the Montagnais Innu of Matimekush-Lac John. They have historical and traditional interests in the Project area, having traditionally used the area for hunting and trapping. They are one of the largest Innu communities in Quebec, living in two settlements within their reserve, Uashat and Maliotenam, both on the Quebec North Shore, near Sept-Iles. The communities are administered by a Band Council comprised of an elected Chief and Councillors. In addition to typical administrative duties, the Band Council also operates the local police force.

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

Together with the Naskapi Nation of Kawawachikamach and the Montagnais, the Innu Nation of Takuaikan Uashat Mak Mani-Utenam have acquired in interest in Tshiuetin Rail Transportation Inc. (TSH), an aboriginal-owned corporation which owns and operates the northern portion of the former QNS&L rail line between Ross Bay Junction and Schefferville.

6.1.2.8 Issues

The main issues raised by the Innu Nation of Takuaikan Uashat Mak Mani-Utenam during the consultation process for the current Schefferville Area Iron Ore Mine (Western Labrador) Project (the James and Redmond) mine development and IBA negotiations were:

- Economic benefits;
- Employment and business development opportunities for its members;
- Commercial development of TSH Railway;
- Environmentally and culturally sustainable development;
- Protection of the trapping activities of the Uashaunnaut families holding Beaver Lots in the region;

- Training and education programs so that its members might fully participate in available opportunities; and
- Cultural and heritage protection and development.

The parties have openly discussed all of these issues and have developed agreements that will include the processes for implementation, coordination and oversight. It is expected that the community will directly participate and/or be actively consulted as follows:

- Implementation committee;
- Training and education;
- Employment, business and contracting opportunities;
- Environmental monitoring committee;
- Traditional knowledge collection;
- Foundation for Ushaunnaut families and traditional heritage protection; and
- Economic benefits.

6.1.2.9 Agreements

LIM and the Innu Nation of Takuaikan Uashat Mak Mani-Utenam signed an IBA agreement in 2012. This life-of-mine agreement establishes the processes and sharing of benefits that will ensure an ongoing positive relationship between the LIM and the Innu Nation of Takuaikan Uashat Mak Mani-Utenam. In return for their consent and support of the Project, the Nation and their members will benefit through training, employment, business opportunities and financial participation in the Project. The agreement has also been ratified by the Council and Community.

6.1.2.10 Naskapi Nation of Kawawachikamach

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

Between 1981 and 1984, self-government legislation was negotiated with the federal government. These negotiations resulted in the Cree-Naskapi (of Quebec) Act and led to the formation of the Naskapi Band of Quebec in 1984. The Naskapi Band of Quebec was one of the first self-governing Bands in Canada. The name was changed to Naskapi Nation of Kawawachikamach in 1999.

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

The Naskapi Nation, through the Band Council, operates several corporate entities within Kawawachikamach and Schefferville including the Naskapi Landholding Corporation, Garage Naskapi, Kawawachikamach Energy Services Inc., Naskapi Imun Inc. (an internet service and software company), Naskapi Caribou Meat Inc., and Naskapi Development Corporation. In addition, they hold contracts for maintenance of the Schefferville Airport, local road maintenance, and own interests in Tshiuetin Rail Transportation Inc.

6.1.2.11 Issues

The main issues raised by the Naskapi Nation of Kawawachikamach regarding the Project during IBA negotiations and the consultation process for the Schefferville Area Iron Ore Mine (Western Labrador) Project (the James and Redmond) mine development were:

- Economic benefits;
- The provision of sustainable economic development in order to provide employment and business opportunities for its members. The community comprises a significant un- or under-employed young population with no significant employment base;
- Environmentally and culturally sustainable development including specific emphasis on the protection of any caribou observed;
- Training and education programs so that its members might fully participate in available opportunities;
- Interest in the commercial development of TSH Railway; and
- Cultural and heritage protection and development.

Through discussion and negotiation during the Memorandum of Understanding and IBA agreement processes, the parties have openly discussed all of these issues and the cooperation and impact benefits agreement includes the processes for implementation, coordination and oversight of mitigation strategies to address these issues. The community will directly participate and/or be actively consulted as follows:

- Implementation committee;
- Community collaboration committee;
- Training and education committee;
- Establishing employment and workplace conditions;
- Business and contracting opportunities;
- Environmental monitoring committee;
- Traditional knowledge collection;
- Heritage resource and cultural protection; and
- Economic benefits.

6.1.2.12 Agreements

In April 2008 LIM signed a Memorandum of Understanding and in August 2010 an Impact Benefits Agreement with the Naskapi Nation of Kawawachikamach. This life-of-mine agreement establishes the processes and sharing of benefits that will ensure an ongoing positive relationship between the LIM and the Naskapi Nation of Kawawachikamach in Labrador. In return for their consent and support of the Project, the Nation and their members will benefit through training, employment, business opportunities and financial participation in the Project.

6.1.2.13 NunatuKavut Community Council

The NunatuKavut Community Council (NCC), also identified as NunatuKavut, comprises those peoples of Inuit and mixed Inuit/European ancestry residing in the southern part of Labrador, from the Churchill River, south to Lodge Bay and west to the extent of the official border between Quebec and Labrador. NunatuKavut states that its 6,000 members live in 23 Labrador communities, seventeen of which are on the southeast coast from Paradise River to L'Anse au Clair. It also states that members reside in six other communities in central and western Labrador, including Happy Valley-Goose Bay and Labrador City.

This area is referred to as NunatuKavut, meaning "Our ancient land" in the Inuktitut dialect of the NunatuKavummuit people. NCC asserts that its members are the ancestors of the southern Inuit of Labrador who have continuously occupied and used the region for almost a thousand years.

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

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

6.1.2.14 Issues

LIM's consultation with LMN has been somewhat limited and sporadic in comparison with the Aboriginal/First Nation communities. The issues raised by the NCC are similar to those of other aboriginal groups in the area and revolve around the sharing of economic benefits and the provision of sustainable economic development in order to provide employment and business opportunities for its members.

6.1.2.15 Agreements

In February, 2013 LIM signed an Economic Partnership Agreement with the the NunatuKavut Community Council which included provisions for training support and economic benefits for the community.

6.1.3 Implementation Committee

The Implementation Committee was established by the four Impacts Benefits Agreements and meets on a quarterly basis. The Committee is made up of representatives from each of the four IBA signatory groups as well as the Nunatakuvut Community Council and LIM senior management.

The agenda of the quarterly meetings typically includes: a Project Safety report, updates on operations, environmental performance, upcoming contracts, human resources, employment and training and planned activities and projects.

Consultations specific to the Gill Mine Project was initiated at the most recent quarterly meeting held on August 28, 2013 at the mine site. The following Aboriginal groups were represented:

- Naskapi Nation of Kawawachikamach; and
- Matimekush – Lac John First Nation.
- Innu Nation of Takuaikan Uashat Mak Mani-Utenam
- Nunatakuvut Community Council

An overview of the Gill Re-activation Project was presented in a Power Point Presentation (Appendix B) followed by a question and answer period. The minutes of the meeting are also included in Appendix B. The Innu Nation was not represented at the meeting, so a copy of the presentation was provided to them on September 6th, (email L. LeDrew to P. Reid).

There were no concerns expressed by either of the organizations present in regards to the proposed Project.

7.0 ENVIRONMENTAL SETTING AND PRELIMINARY EFFECTS ASSESSMENT

As previously noted, the Gill Project is located adjacent to the James Mine and Silver Yard Beneficiation Plant, and is wholly within the assessment area studied in the 2009 Environmental Impact Statement. The Gill Mine has been previously mined by the Iron Ore Company of Canada (IOC) and as such there is significant surface disturbance present, in addition to flooded abandoned open pits, abandoned rail beds and stockpiled material.

LIM has conducted extensive environmental baseline data collection in the Schefferville Area Mining Projects study area since 2005. These studies were primarily conducted in support of 2009 EIS, however, subsequent studies have provided information for the Houston 1 and 2 Environmental Registration (LIM 2011), the Houston Beneficiation Plant Environmental Registration (LIM 2013) and CEAA Project Description (LIM 2013) as well as studies specific to the Gill Project (AECOM 2012).

Environmental baseline work, conducted in the Project area since 2005, includes:

- Geology and Preliminary ARD Assessment;
- Surface water sampling, geochemistry, and general water quality;
- Aquatic habitat mapping (lake, pits and streams);
- Benthic community and sediment surveys;
- Vegetation surveys;
- Avifauna surveys
- Wildlife Surveys;
- Traditional Environmental Knowledge programs;
- Caribou surveys;
- Snow and ice pack;
- Bathymetry Studies;
- Air quality;
- Noise and vibration;
- Climatology (temperature and precipitation) surveys;
- Fish community surveys;
- Fish tissue sampling;
- Hydrology and hydrogeology;
- Detailed fish habitat assessments of watercourse crossings;

- Traditional Environmental Knowledge (TEK) programs;
- Cultural resources and archaeological assessment; and
- Current Land and Resource Use Survey.

Relevant information from selected programs is summarized below to provide a better understanding of the existing conditions in the Project area. The 2011 Natural Environment Baseline Report – Gill Property (AECOM 2012) presents the results of field surveys conducted in 2011 on the Gill property on wildlife, avifauna, terrestrial vegetation and aquatic habitat. This report is provided in Appendix B in cd format.

7.1 Regional Geology

At least 45 hematite-goethite ore deposits have been discovered in an area 20 km wide that extends 100 km northwest of Astray Lake, referred to as the Knob Lake Iron Range, which consists of tightly folded and faulted iron-formation. The iron deposits occur in deformed segments of iron-formation, and the ore content of single deposits varies from one million to more than 50 million tonnes.

The Knob Lake properties are located on the western margin of the Labrador Trough adjacent to Achaean basement gneisses. The Labrador Trough, known as the Labrador-Québec Fold Belt, extends for more than 1,000 km along the eastern margin of the Superior Craton from Ungava Bay to Lake Plétipi, Québec (Figure 7.1). The belt is about 100 km wide in its central part and narrows considerably to the north and south.

The western half of the Labrador Trough can be divided into three sections based on changes in lithology and metamorphism (North, Central and South). The Trough is comprised of a sequence of Proterozoic sedimentary rocks including iron formation, volcanic rocks and mafic intrusions known as the Kaniapiskau Supergroup (Gross 1968). The Kaniapiskau Supergroup consists of the Knob Lake Group in the western part of the Trough and the Doublet Group, which is primarily volcanic, in the eastern part.

The Central or Knob Lake Range section extends for 550 km south from the Koksoak River to the Grenville Front located 30 km north of Wabush Lake. The principal iron formation unit, the Sokoman Formation, forms a continuous stratigraphic unit that thickens and thins from sub-basin to sub-basin throughout the fold belt.

The southern part of the Trough is crossed by the Grenville Front. Trough rocks in the Grenville Province to the south are highly metamorphosed and complexly folded, which has caused recrystallization of both iron oxides and silica in the primary iron formation to meta-taconites.

Geological conditions throughout the central division of the Labrador Trough are generally similar to those in the Knob Lake Range.

Figure 7.1 Labrador Trough

7.1.1 Knob Lake Range Geology

The general stratigraphy of the Knob Lake area is representative of most of the range, except that the Denault dolomite and Fleming Formation (described below) are not uniformly distributed. The Knob Lake Range occupies an area 100 km long by 8 km wide. The sedimentary rocks including the cherty iron formation of this area are weakly metamorphosed to greenschist facies. In the structurally complex areas, leaching and secondary enrichment has produced earthy textured iron deposits. Unaltered banded magnetite iron formation (taconite) occurs as gently dipping beds west of Schefferville in the Howells River deposits.

Most of the secondary earthy textured iron deposits occur in canoe-shaped synclines with some as tabular bodies. In the western part of the Knob Range, the iron formation dips gently

eastward over the Achaean basement rocks for about 10 km to the east, then forms an imbricate fault structure with bands of iron formation.

Subsequent supergene processes converted some of the iron formations into high-grade ores, preferentially in synclinal depressions and/or down-faulted blocks. Original sedimentary textures are commonly preserved by selected leaching and replacement of the original deposits. Jumbled breccias of enriched ore and altered iron formations, locally called rubble ores, are also present.

The stratigraphy of the Schefferville area is represented by the following formations.

Attikamagen Formation. It consists of argillaceous material that is thinly bedded, fine grained, greyish green, dark grey to black, or reddish grey. Calcareous or arenaceous lenses occur locally interbedded with the argillite and slate, and lenses of chert are common.

Denault Formation. The Denault Formation consists primarily of dolomite being more clastic at its base and cherty at its top. Leached and altered beds near the iron deposits are rubbly, brown or cream coloured.

Fleming Formation. It occurs a few kilometres southwest of Knob Lake and only above dolomite beds of the Denault Formation. It consists of rectangular fragments of chert and quartz within a matrix of fine chert.

Wishart Formation. The Wishart Formation is a sandstone formation (quartzite and arkose) cemented by quartz and minor amounts of hematite and other iron oxides. It is well differentiated from the iron ore bearing overlaying formations by its texture and color.

Ruth Formation. It is a black, grey-green or maroon ferruginous slate, 3 to 36 metres thick. This thinly banded material contains lenses of black chert and various amounts of iron ore.

Sokoman Formation. More than 80 percent of the ore in the Knob Lake Range occurs within this formation. Lithologically, the iron formation varies in detail in different parts of the range and the thickness of individual members is not consistent.

A thinly bedded, slatey facies at the base of the formation consists largely of fine chert with an abundance of iron silicates and disseminated magnetite and siderite. Fresh surfaces are grey to olive green, and weathered surfaces brownish yellow to bright orange. Thin-banded oxide facies of iron formation occurs above the silicate-carbonate facies in nearly all parts of the area. The thin (<1.25cm) jasper bands are mostly deep red, but in some places are greenish yellow to grey, and are interbanded with hard, blue layers of fine-grained hematite and a minor magnetite.

The thin jasper beds are located underneath thick massive beds of grey to pinkish chert and beds that are very rich in blue and black iron oxides, and make up most of the Sokoman Formation. The upper part of the Sokoman Formation comprises discontinuous beds of dull green to grey or black massive chert.

Menihek Formation. A thin-banded, grey to black argillaceous slate conformably overlies the Sokoman Formation in the Knob Lake area. Thicknesses are unknown since the slate is found in faulted blocks in the main ore zone. This formation has been observed to contain

disseminated sulphides, particularly pyrite. A small historic quarry in the Menihek shale is located approximately 400 metres southwest of the Ruth 8 deposit.

7.1.2 Regional Mineralization

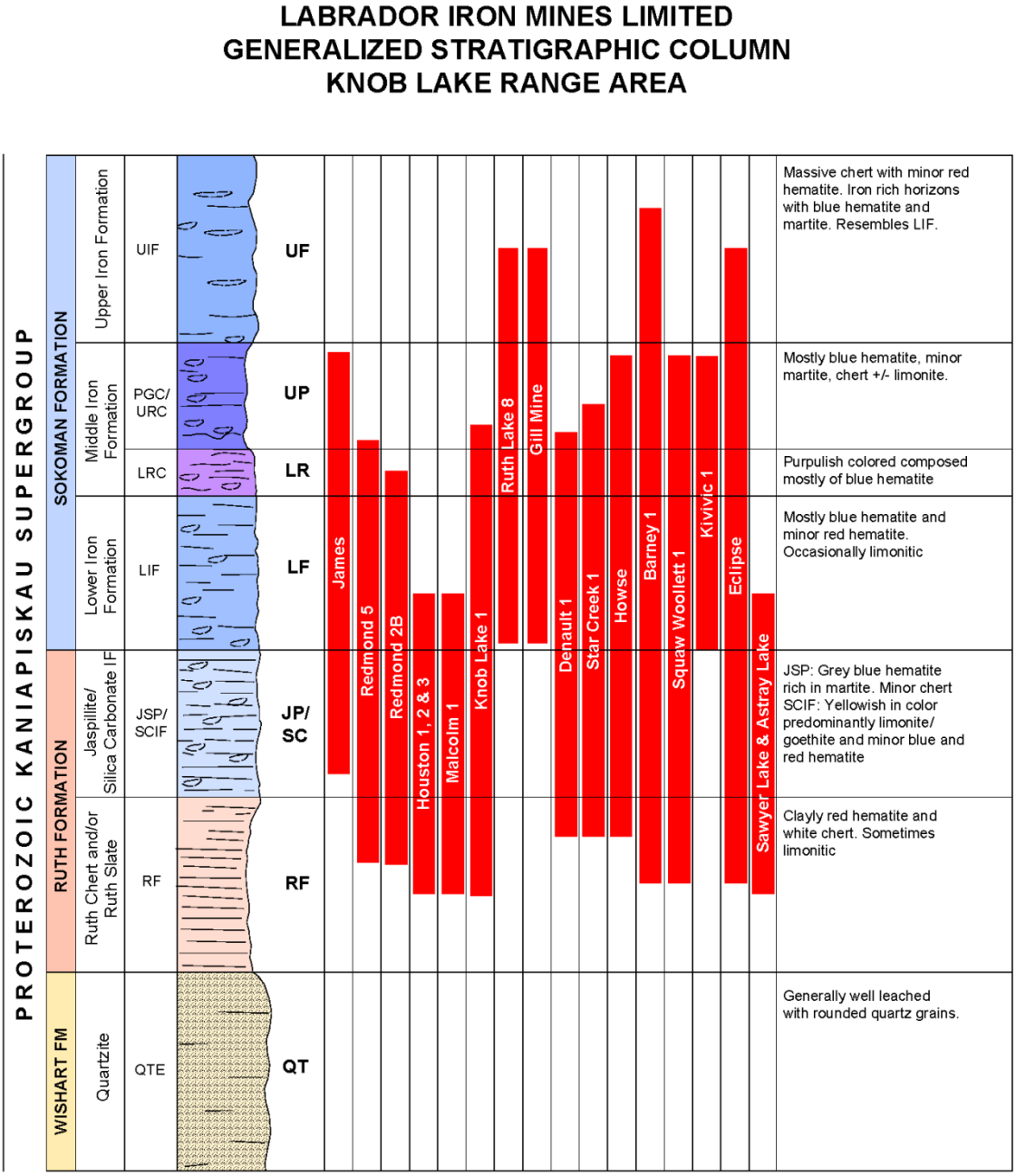
The earthy bedded iron deposits are a residually enriched type within the Sokoman iron formation that formed after two periods of intense folding and faulting, followed by the circulation of meteoric waters in the fractured rocks (Figure 7.2). The enrichment process was caused largely by leaching and the loss of silica, resulting in a strong increase in porosity. This produced a friable, granular and earthy-textured iron ore. The siderite and silica minerals were altered to hydrated oxides of goethite and limonite. The second stage of enrichment included the addition of secondary iron and manganese which appear to have moved in solution and filled pore spaces with limonite-goethite. Secondary manganese minerals, i.e., pyrolusite and manganite, form veinlets and vuggy pockets. The types of iron ores developed in the deposits are directly related to the original mineral facies. The predominant blue granular ore was formed from the oxide facies of the middle iron formation. The yellowish-brown ore, composed of limonite-goethite, formed from the carbonate-silicate facies, and the red painty hematite ore originated from mixed facies in the argillaceous slaty members. The overall ratio of blue to yellow to red ore is approximately 70:15:15. The proportion of each varies widely within the deposits.

Only the direct shipping ore is considered beneficial to produce lumps and sinter feed and will be part of the resources for the LIM Project. The direct shipping ore was classified by IOC in six categories based on their chemical, mineralogical and textural compositions. This classification is still used in the evaluation of the mineralization. The following ore categories and other mineralization categories, not part of the potential economic mineralization, are:

- High Non-Bessemer (HNB);
- Lean Non Bessemer (LNB);
- Low Manganese (LMn);
- High Manganese (HMn);
- High Silica (HiSiO2) (waste); and
- Treat Rock (TRX) (waste but previously stockpiled for possible later treatment).

The blue ores, which are composed mainly of the minerals hematite and martite, are generally coarse grained and friable. They are usually found in the middle section of the iron formation.

Figure 7.2 Stratigraphy Column of Knob Lake Range



The yellow ores are made up of predominantly the minerals limonite and goethite and minor to moderate amounts of pyrolusite (manganese bearing mineral). The yellow ores are located in the lower section of the iron formation. The yellow ores often contain the manganese ores. These ores have the unfavourable characteristic of retaining high moisture content.

The red ore is predominantly a red earthy hematite. It forms the basal layer that underlies the lower section of the iron formation. Red ore is characterized by its clay and slate-like texture.

Direct shipping ores and lean ores mined in the Schefferville area during the period 1954-1982 amounted to some 150 million tons. Based on the original ore definition of IOC (+50% Fe <18% SiO2 dry basis), approximately 250 million tonnes of iron resources remain in the area, exclusive of magnetite taconite. LIM has acquired rights to approximately 50 percent of this remaining iron resource.

7.1.3 Deposit Types

The Labrador Trough contains four main types of iron deposits:

- **hematite, goethite, limonite**: soft iron ores formed by supergene leaching and enrichment of the weakly metamorphosed cherty iron formation; they are composed mainly of friable fine-grained secondary iron oxides;
- **taconites**, the fine-grained, weakly metamorphosed iron formations with above average magnetite content and which are also commonly called magnetite iron formation;
- **metataconites**: more intensely metamorphosed, coarser-grained iron formations, which contain specular hematite and subordinate amounts of magnetite as the dominant iron minerals; and
- **hard high-grade hematite**: minor occurrences occur southeast of Schefferville at Sawyer Lake, Astray Lake and in some of the Houston deposits.

The deposits within the Labrador Trough are composed of iron formations of the Lake Superior-type. The Lake Superior-type iron formation consists of banded sedimentary rocks composed principally of bands of iron oxides, magnetite and hematite within quartz (chert)-rich rock, with variable amounts of silicate, carbonate and sulphide lithofacies. Such iron formations have been the principal sources of iron throughout the world.

7.1.3.1 Gill Deposit

The geology in the Project area has been described by T T.N. Mckillen (2010): “The Gill Mine (also known as Ruth Lake 1) has approximately 1.6 km of strike (Figure 7.3). The mineralization is located along a steep dip slope along the west side of the Silver Yard Valley. It is described as a NW-SE trending homocline with concordant bands of Bessemer and non-Bessemer mineralization. The mineralization is concentrated in the upper portion of the MIF (Middle Iron Formation). Several cross faults have been mapped along the deposit. Pockets of manganiferous material have been noted near the northwest end of the deposit.” The Gill deposit is a typical example of a hematite, goethite, limonite iron ore deposit. Figure 7.4 presents a cross section of the deposit, based on IOCC resource inventory information.

The Gill deposit was discovered by the James and Gill expedition (New Quebec Company) in 1929. The deposits were mapped and sampled at that time. Work was begun in the area by Labrador Mining and Exploration Co. Ltd. (LM&E) in 1936.

Drilling was done on this deposit in 1948. In 1955, areas adjacent to Ruth Lake No. 1 and 3 were mapped in detail and a power shovel was employed in these areas excavating test pits and trenches. Following completion of trenching operations, the Ruth Lake No. 1 deposit was drilled to provide data for pit layout. Engineering work pertaining to the pit layout and the location of the screening plant, railway spur and mine yards for the Gill Mine was also completed in 1955. Production began at Gill Mine in 1956 and was halted in 1957 in favor of production from other areas, and as a result of deterioration of market demand.

Despite the Gill Mine being a former producer of iron ore (1956-1957), LIM has very little data with which to verify the resources in this location. The 1982 IOC Inventory of Resources, using a dry-base, lists 4.1 million tonnes of Fe at 55.9% and 11.7% SiO2. The manganese resource was listed at 269,000 tonnes at 48.7% Fe, 10.2% SiO2 and 10.2% Mn. Labrador Iron Mines carried out a 1,300 m trenching program on the deposit in 2009 and the results were used to plan the RC drill program on the Gill deposit in 2011.

The RC drill program carried out in 2011 consisted of 1,378 m of RC drilling in 33 holes. The 2013 exploration program planned for Gill Mine consists of 6,000m of diamond drilling in 100 holes, which is expected to be completed by the end of November 2013.

7.1.4 Geomorphology, Surficial Geology, Soils and Permafrost

There are dominant surficial materials within the area surrounding the Project deposits of drift-poor areas, glacial till and other surficial deposits (undifferentiated), with occasional areas of glaciofluvial deposits.

The till and other surficial deposits (undifferentiated), are predominantly nonstratified, poorly sorted, silty to sandy diamicton, gravel, and sandy gravel, deposited either directly from ice or by meltout during ablation and includes glaciofluvial, glaciolacutrine, marine, and fluvial deposits of either minor areal extent or thin (less than two m) and discontinuous.

The drift-poor areas are described as greater than 80 percent bedrock; including areas of till and other surficial materials generally < 1 m thick and discontinuous.

The glaciofluvial deposits are classified as proglacial or ice contact sand and gravel, forming ice contact fans and deltas, outwash plains and terraces, pitted outwash, crevasse fillings, kames and kame terraces, commonly associated with eskers and including areas of extensive, thick fluvial sediments derived from pre-existing glaciofluvial deposits.

The areas in and surrounding the deposits associated with the Project being predominantly greater than 80 percent bedrock, and a previously mined area, do not possess a high number of identifiable landforms. There is evidence of striae, indicating direction of flow known and unknown, as well as identified eskers (esker ridge; kame or splay deposit) in the area (R.A. Klassen et al. 1992).

Figure 7.3 Project Region Surficial Geology

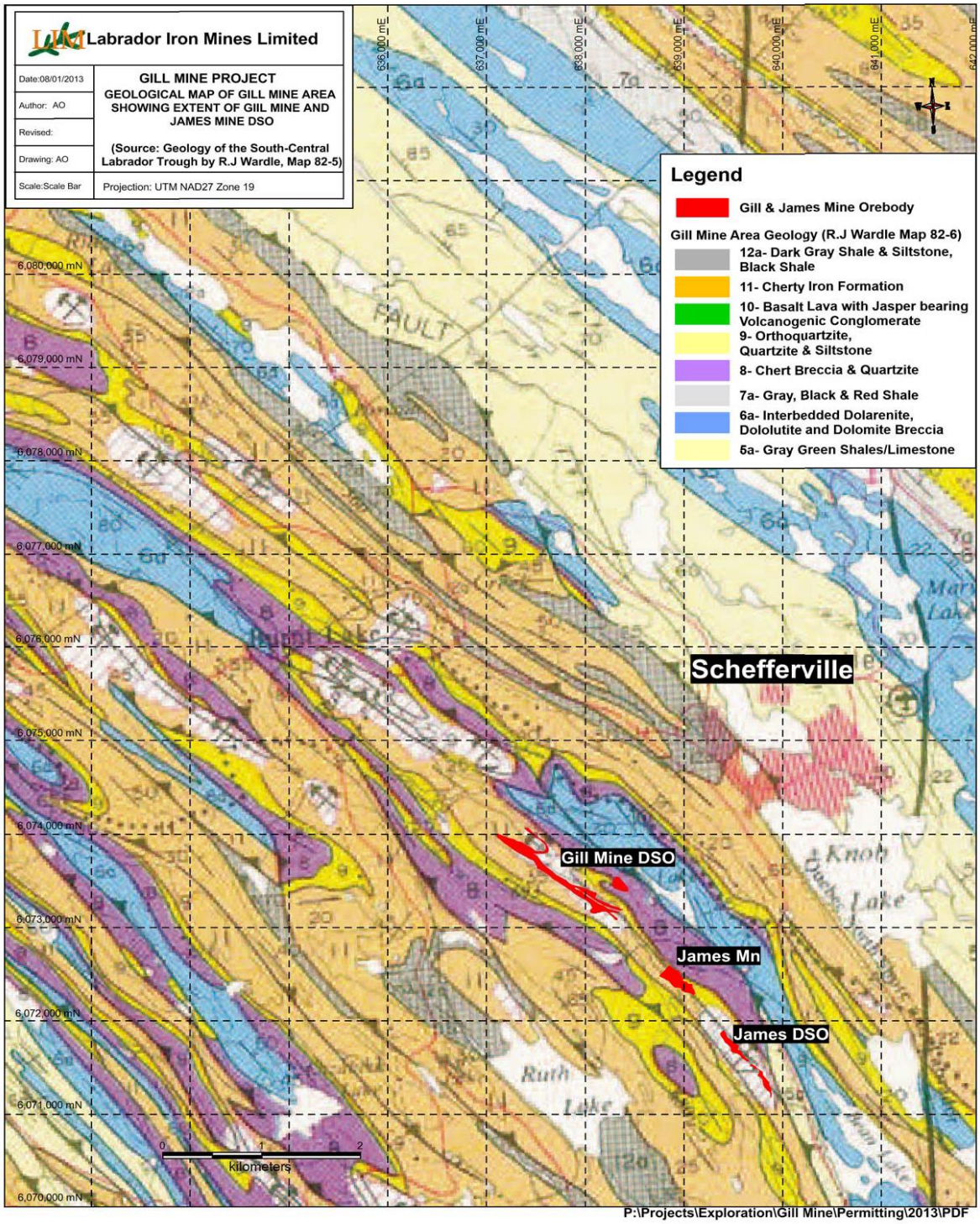
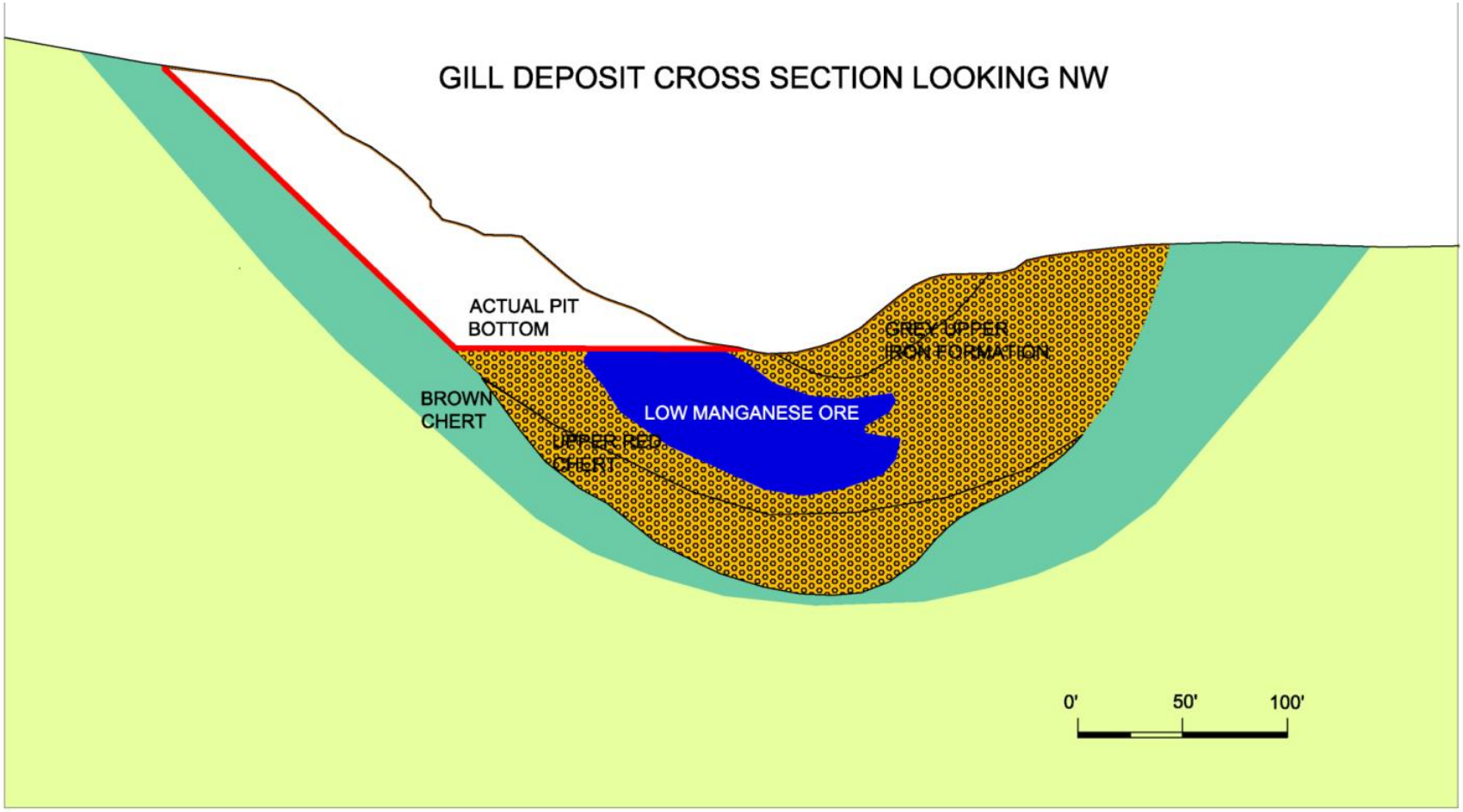


Figure 7.4 Typical Cross Section – Gill Deposit

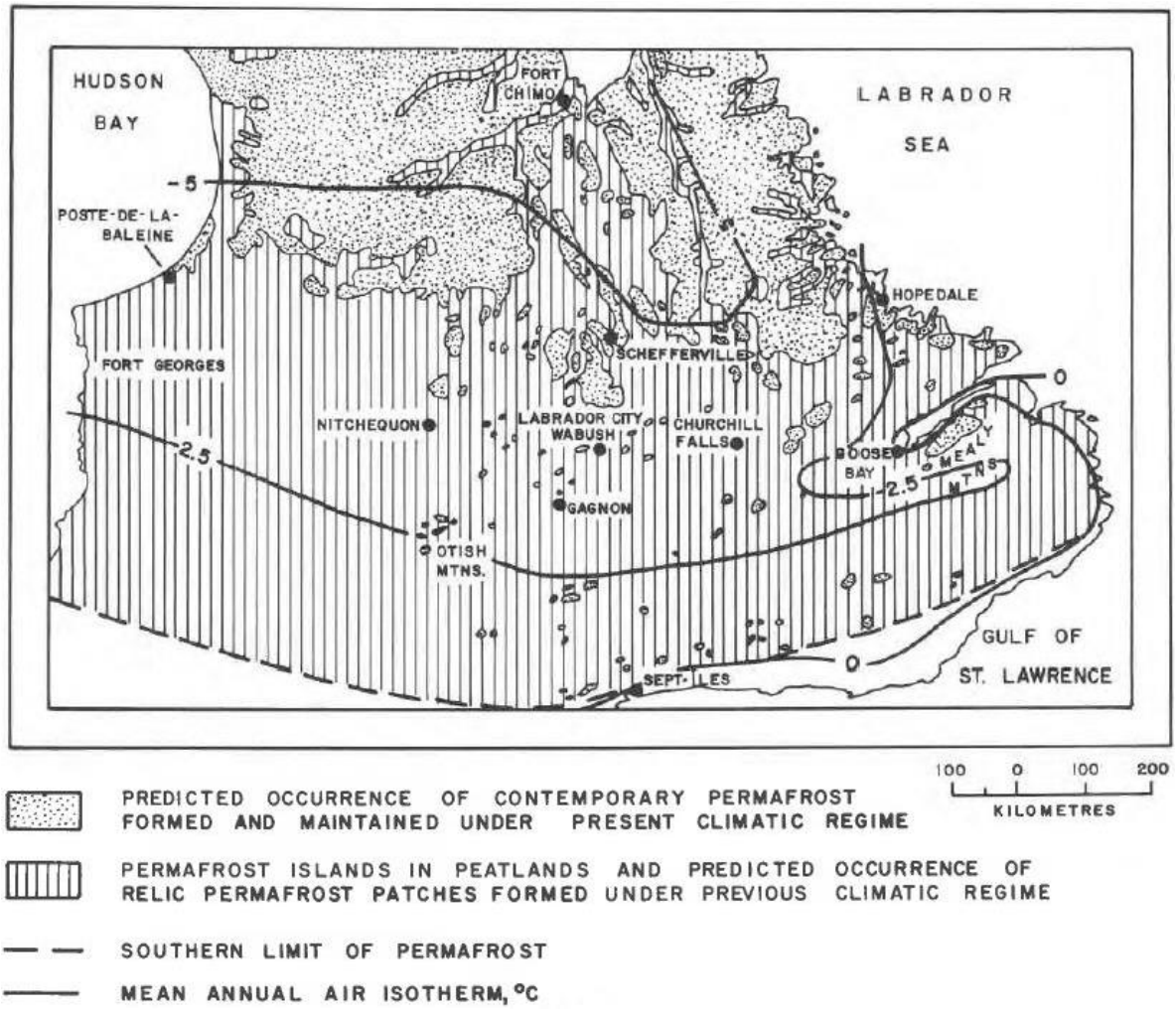


7.1.4.1 Permafrost

Although permafrost is reported within the Fleming-Timmins group of deposits, 25 km northwest of Schefferville (Garg 1982), it has not been identified within the current Project area. Although the Schefferville area has been previously identified as the “tentative southern limit of continuous permafrost”, (Jenness 1949), then later as the “approximate southern limit of permafrost”, (Thomas 1953), it was later concluded that there were no continuous zones of permafrost in the Labrador-Ungava and boundaries of discontinuous and sporadic zones were specified (Black 1951). An area 160 km north of Schefferville was indicated as the southern limit of discontinuous permafrost and extending to within 80 km of the Gulf of St. Lawrence was the sporadic zone (Pryer 1966). There have been observations of permafrost of 120 m in thickness in the Schefferville region (Brown 1979). The distribution of permafrost in Quebec and Labrador is presented in Figure 7.5.

Figure 7.5 Permafrost Distribution in Nouveau- Québec and Labrador

(Source Brown, 1979)



Various studies on permafrost refer to vegetation and snow cover as having correlation with permafrost presence and thickness. Snow depth and density changes with relief, weather and vegetation (Thom 1969). Thom suggests thick permafrost (up to 60 m) is likely in areas where snow cover is less than 0.4 m during the winter months of January and February.

Research on permafrost distribution at numerous sites in the Schefferville area has been conducted by Nicholson (February 1978). Two sites at a great distance north of the Project included Timmins 4 and Fleming 7, at an elevation of 700 m, between 1973 and 1975. It was determined that deep permafrost underlies areas of high elevation, which were exposed and vegetation cover consisted of tundra. The permafrost ranged from 60 to 100 m in depth, and entirely unfrozen areas occurred in valleys on the edge of these sites. No permafrost was present on less exposed and low-lying wood covered ground surfaces (Nicholson and Lewis 1976). Permafrost was expected to be absent beneath water bodies in the area that are so deep they do not freeze solid during winter, due to the water bodies' ability to produce higher ground temperatures. Permafrost is not expected to occur within 30 m from permanently covered shoreline (Nicholson,1978).

Permafrost has not been observed in the Project Area and therefore it is not anticipated that permafrost will interfere with mining at the Gill deposit area.

7.2 Physiography

An analysis of aerial photography of the Gill property suggests that, in general, the topography is hilly and there are many areas that have been de-vegetated, leaving large tracts of exposed rock, gravel and sand. Moreover, large segments of the property, particularly at the northern section where a large pile of mining spoil makes up approximately half of the block show clear evidence of extensive ground disturbance from past road construction and mining-related activities.

The physiography in the Schefferville area, as described in the independent report entitled "Technical Report, Silver Yards, Direct Shipping Iron Ore Projects in Western Labrador, Province of Newfoundland and Labrador and North Eastern Quebec, Province of Quebec (Prepared by Maxime Dupere, P.Geo. and Justin Taylor, P.Eng., April 15, 2011:): *"The topography of the Schefferville mining district is bedrock controlled with the average elevation of the properties varying between 500m and 700m above sea level. The terrain is generally gently rolling to flat, sloping north-westerly, with a total relief of approximately 50 to 100m. In the main mining district, the topography consists of a series of NW-SE trending ridges while the Astray Lake and Sawyer Lake areas are within the Labrador Lake Plateau. Topographic highs in the area are normally formed by more resistant quartzites, cherts and silicified horizons of the iron formation itself. Lows are commonly underlain by softer siltstones and shales. Generally, the area slopes gently west to northeast away from the land representing the Quebec – Labrador border and towards the Howells River valley, parallel to the dip of the deposits."*

7.3 Temperature and Precipitation

Temperature and precipitation data for the site area are presented in Table 7.1. LIM has collected climate information from Environment Canada's National Climate and Information Archive with data collected at the Schefferville airport from 1971 to 2000 as well as from the LIM-established independent weather station at the Houston area, in place since 2007.

The climate in the Schefferville area, as described in the independent report entitled "Technical Report, Silver Yards, Direct Shipping Iron Ore Projects in Western Labrador, Province of Newfoundland and Labrador ad North Eastern Quebec, Province of Quebec (Prepared by Maxime Dupere, P.Geo. and Justin Taylor, P.Eng., April 15, 2011: "*The Schefferville area and vicinity have a sub-arctic continental taiga climate with very severe winters. Daily average temperatures exceed 0°C for only five months a year. Daily mean temperatures for Schefferville average -24.1°C and -22.6°C in January and February respectively. Mean daily average temperatures in July and August are 12.4°C and 11.2°C, respectively. Snowfall in November, December and January generally exceeds 50 cm per month and the wettest summer month is July with an average rainfall of 106.8 mm".)*

Table 7.1 Temperature and Precipitation Data

Parameter	Source	January	February	March	April	May	June	July	August	September	October	November	December
Daily Avg. Temperature (°C)	Environment Canada	-24.1	-22.6	-16	-7.3	1.2	8.5	12.4	11.2	5.4	-1.7	-9.8	-20.6
	LIM Weather Station	-20.4	-13.4	-12.1	-2.1	2.0	11.3	14.4	13.3	7.1	-0.1	-6.3	-17.3
Daily Max. Temperature (°C)	Environment Canada	-19	-16.9	-9.8	-1.5	6	13.7	17.2	15.8	8.9	1.3	-6.1	-15.9
	LIM Weather Station	2.5	7.0	15.2	17.5	21.3	39.2	34	30.7	32.2	16.4	8.6	0.7
Daily Min. Temperature (°C)	Environment Canada	-29.2	-28.1	-22.2	-13.1	-3.6	3.3	7.6	6.5	1.7	-4.6	-13.5	-25.2
	LIM Weather Station	-38	-36.5	-32.5	-20.2	-12.3	-5.8	2	-0.2	-4.8	-18.1	-24.3	-36.5
Rainfall (mm)	Environment Canada	0.2	0.2	1.6	8.4	27.7	65.4	106.8	82.8	85.3	24.4	4.5	0.9
	LIM Weather Station	1.6	15.2	13.7	30.4	26.6	56.3	125.8	90.3	63.6	64.4	17.6	0.1
Snowfall (cm)	Environment Canada	57.4	42.6	56.6	54.8	22.9	8	0.5	1.7	12.7	57.2	70.7	55.4
Precipitation (mm)	Environment Canada	53.2	38.7	53.3	61.4	52.1	73.7	107.2	84.5	98.4	80.5	69.4	50.7

7.4 Air Quality

There is no industry in the area of the Project areas, and background concentrations of air contaminants are expected to be minimal. Fugitive dust levels in the area may be slightly higher due to the presence of historical mine waste piles, the historical removal of surface vegetation and the use of predominantly dirt roads for transportation in the area.

Regional air quality work has been conducted by LIM for the James and Redmond mine sites as well as the Houston area. This work confirms generally good air quality in the region, with fugitive dust issues in the summer months. A search of the National Air Pollution Surveillance (NAPS) Network data records indicated that there was limited data available to determine background air quality for other air contaminants in the vicinity of the proposed operations. The nearest available sources of ambient air quality monitoring data are in Happy Valley-Goose Bay and Labrador City, both of which are more than 300km from the site location.

Based on the remote location of the site, it is expected that background air quality in the area would generally be within National Ambient Air Quality Objectives “Desirable” levels.

7.5 Surface Water and Groundwater

7.5.1 Surface Water Quality and Drainage

The Gill Mine Project will involve the development of an open pit and associated infrastructure. Aerial views of the project areas are shown on Figure 7.6 (Gill Mine). The drainage system in the Schefferville area is strongly influenced by the underlying geology. Streams and lakes tend to be oriented northwest/southeast to match the strike of the bedrock units. Drainage from the Gill Property is within the Astray Lake catchment of the Churchill River drainage basin watershed.

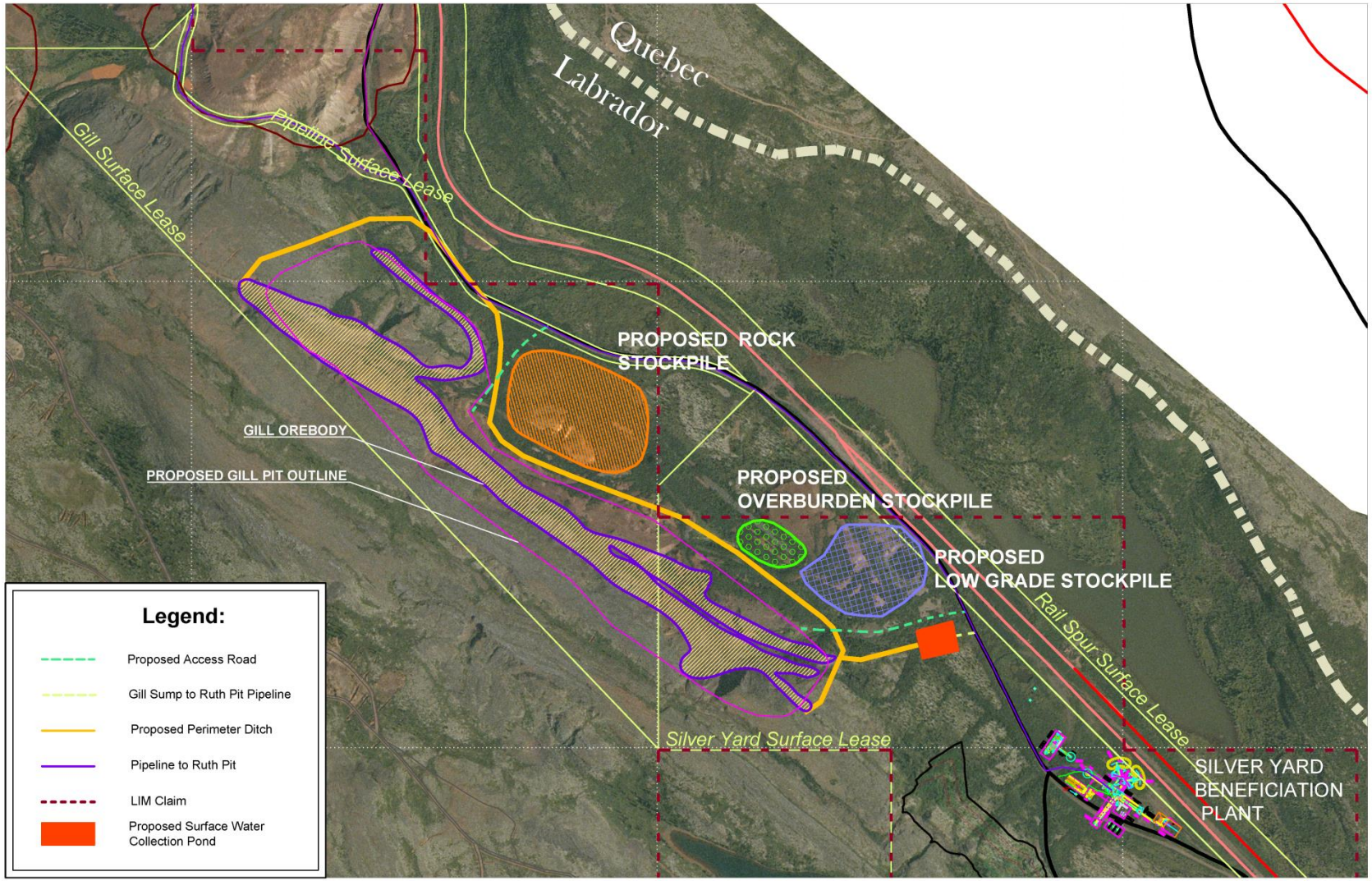
There are no surface water features in the proposed Gill pit area or vicinity of the pit area. Surface water catchments for the site will be delineated and a water balance is in preparation.

Drainage in the vicinity of the Gill Property is to the southeast with eventual discharge into Astray Lake via Gilling River. Tributary lakes and streams include James Creek to Bean Lake, to Abel Lake, to Gilling Lake, to Gilling River.

7.5.2 Surface Water Quality

Surface water quality monitoring in the vicinity of the Gill project area has been completed annually since 2008. At nearby James Creek water quality is generally good with pH ranging from 6.5 to 8.5 and normal metal concentrations. Surface water quality analyses, collected at the outlet of Ruth Lake which is approximately 1 km south, indicated the pH was below the minimum Canadian Water Quality Guidelines for protection of aquatic life (CWQG), total aluminum exceeded the CWQG in both the Ruth Lake and Ruth Lake outlet samples, and total copper exceeded the CWQG in the Ruth Lake sample.

Figure 7.6 Proposed Dewatering and Water Management Features



7.5.3 Hydrology and Hydrogeology

7.5.3.1 General Groundwater Conditions in the Schefferville Area

Ore-grade iron deposits are often found on the ridge flanks, where groundwater flowing down through higher-permeability fault zones leaches the silica from the iron silicate Sokoman Iron Formation. Because of this leaching process, the ore and the country rocks in the immediate vicinity of mines are soft, friable and porous. These characteristics have been observed in the field. The presence of alternating bands of hard rock and more friable rock, as well as red, blue and yellow ore in the area, appear to contribute to the presence of particulate in the water.

Depending on the degree of alteration, the hydrogeological and strength properties of the rock units vary widely. In Garg and Kalis (1975), the following (Table 7.2) relative permeability ranges are listed for the different formations:

Table 7.2 Relative Permeability Ranges for the Formations Present in the Schefferville Area (Garg and Kalia, 1975)

Stratigraphy	Relative Permeability Range	
	Unaltered State	Altered State
Cretaceous Rubble	Very Low to Low	Low
Menihek Slate	Low	Very Low
Sokoman Formation	Low to Medium	Medium to High
Ruth Formation	Low to Medium	Very Low
Wishart Formation	Low to Medium	Medium to High
Fleming Formation	Low to Medium	Low
Denault Formation	Medium	Medium to High
Attikamagen	Low	Very Low

Hydrostratigraphic units acting as aquifers include the Sokoman, Wishart and Denault formations while aquitards include the slate and shales of the Knob Lake Group, and the Attikamagen, Ruth and Menihek slates.

Static water levels on ridges are generally far below ground surface (>30 m) while static water level in the valleys, where there are many lakes and wetlands, is near ground level. Although the ridges are usually recharge zones and the valleys are discharge zones, small springs are found of the side of some ridges at the base of the Sokoman Formation.

Efforts were made to install observation wells in exploration holes at the Gill property. Groundwater was encountered in three drillholes at approximately 50 to 60 m below ground surface. These drillholes collapsed before monitoring wells could be installed in them. All other exploration boreholes were stopped at approximately 30 to 50 m below ground surface and did not encounter groundwater.

The Gill property is located approximately 1000 metres north of the James property and is at the base of the same ridge as the James site, therefore groundwater influx into the proposed Gill pit

is likely, based on our experience with the James mine. There are no springs or surface water features on, or in the vicinity of the Gill property, therefore, no impacts to surface water features will occur if groundwater is encountered in the pit and pit dewatering is required.

7.5.4 Acid Rock Drainage

Due diligence requires that ARD potential for any new mine site be fully evaluated and LIM is committed to ensuring the long term chemical stability of the Project through all stages of the mine life through the completion of an ARD assessment program, including surface water and groundwater geochemistry, which was initiated in 2010/ 2011. As part of this process, any rock types that will be exposed during the proposed development, including ore and waste rock, will be assessed as part of the ARD program. This program also includes an evaluation of surface water collected since 2008, and groundwater chemistry, collected since 2011.

7.5.4.1 Historical and Baseline Water Quality

Exploration and mining activities have occurred at the Project site dating back to the 1950s. IOC excavated large open pits and stockpiled considerable waste rock, low grade ore and other materials around the region. These materials have been exposed to both water and air (both required conditions for acid generation from rock) for decades and to date and water quality is generally good in the flooded pits, stockpile drainage areas, or the surrounding natural water bodies.

Surface water quality monitoring on and around the Gill project area has been completed annually since 2008. At Gill, nearby James Creek water quality is generally good with pH ranging from 6.5 to 8.5 and normal metal concentrations. Surface water quality analyses, collected at the Ruth Lake since 2010, indicate the pH was below the minimum Canadian Water Quality Guidelines for protection of aquatic life (CWQG), total aluminum exceeded the CWQG in both the Ruth Lake and Ruth Lake outlet samples, and total copper exceeded the CWQG in the Ruth Lake sample. Ongoing monitoring and assessment is being conducted.

7.5.4.2 Regional ARD Sampling and Testing Program

A phased ARD sampling and testing program has been initiated to investigate and confirm the ARD potential for all geological materials (ore and waste) to be exposed at this site.

The results of the acid base accounting test work completed to date on the geologically similar deposits at the nearby James and Redmond Mine areas are compiled in Table 7.3. These samples contain very low concentrations of sulphur and the NP/AP ratios for these samples tested range from 37 to 44 over seven samples. Based on the static ARD test results available to date, it is not anticipated that any of the ore or waste materials for this Project will be acid generating. The baseline surface water systems of area, including Ruth Lake and Green Lake, are characterized by slightly lower pH values than seen in other areas of the region.

Bulk metals analysis was completed on seven samples by strong acid digestion (4 Acid) for trace metals (ICP-AES and ICP-MS). These results are shown in Table 7.3 and show generally typical element composition with the exception of iron, as would be expected.

As identified in LIM's commitment initiated during the Schefferville Area Iron Ore Mine program, ongoing ARD assessment will be conducted at all areas proposed for development.

7.5.5 Preliminary Surface Water and Groundwater Impact Assessment and Mitigative Measures

At Gill, a drainage ditch will run along the North and East side of the pit to collect surface drainage. From there, the water will be collected in a surface water collection pond and ultimately join the existing pipeline to Ruth Pit. There will not be a new final discharge point as all flows will be through the existing Ruth-Pit-Outlet. With the implementation of the proposed mitigation measures, there are no adverse effects on surface water anticipated to result from the Project.

Observations during exploration drilling indicated that the water table at Gill is at least 40 m below the ground surface.

Areas of heavy groundwater pumping can cause thawing and therefore influence permafrost distribution. As the Gill Property has a maximum ground elevation of approximately 625 m and permafrost has not yet been intersected, thawing of permafrost is not anticipated.

7.6 Aquatic Environment

As determined through site investigations in 2011, the Gill Property consists of surface drainage channels only which are devoid of fish habitat, therefore, no assessment of fish and fish habitat was warranted.

Table 7.3 Acid Base Accounting (ABA) Results for the Nearby James and Redmond Deposits and Ruth Pit Waste Rock

Deposit	Sample Method	Material Type	Paste pH	Total Sulphur	Acid Leachable SO_4-S	Sulphide -S	Total Carbon	Carbonate	NP (t $CaCO_3$/ 1000t)	AP (t $CaCO_3$/ 1000t)	Net NP (t $CaCO_3$/ 1000t)	NP/AP Ratio
			(units)	(%)	(%)	(%)	(%)	(%)				
James	Bulk	HGO	6.98	< 0.005	< 0.1	< 0.01	0.040	0.127	12.5	0.31	12.2	40.3
James	Bulk	LGO	7.10	< 0.005	< 0.1	< 0.01	0.091	0.024	12.5	0.31	12.2	40.3
Redmond 2	Bulk	LGO	7.55	< 0.005	< 0.1	< 0.01	0.048	0.029	13.0	0.31	12.7	41.9
Redmond 2	Bulk	Waste	6.95	< 0.005	< 0.1	< 0.01	0.047	0.119	11.6	0.31	11.3	37.4
Redmond 2B	Bulk	HGO	7.04	< 0.005	< 0.1	< 0.01	0.141	0.228	13.4	0.31	13.1	43.2
Redmond 5	Bulk	HGO	7.41	< 0.005	< 0.1	< 0.01	0.081	0.017	13.7	0.31	13.4	44.2
Ruth	Bulk	Waste	8.03	0.121	0.3	< 0.01	0.026	0.031	12.1	0.31	11.8	39.0

7.7 Terrestrial Habitat

7.7.1 Plant Communities

Information related to vegetation and vegetation communities (including wetlands) occurring within Gill Property is based on a combination of desk-top review of existing literature/reports for the site and region, such as the Classification of Wildlife, detailed work completed in the region as part of the Schefferville Area Iron Ore Project EIS, and detailed field investigations of the area, completed during the 2011 field season (AECOM 2012). Vegetation community descriptions are based on Canada's National Ecological Land Classification (ELC) framework.

The Gill Property is contained within the Eastern Taiga Shield Ecozone (Environment Canada 2010). This Ecozone (1 of 15 terrestrial Ecozones described in Canada) extends across the Canadian sub-Arctic at the northern edge of the boreal forest. In general terms, cool temperatures, a short growing season and thin, acidic soils are the main features of this Ecozone. Within the Eastern Taiga Shield Ecozone are several Ecoregions which are defined mainly on the basis of distinctive regional climate (Environment Canada 2010). Two Ecoregion subdivisions are present within the general area of the Properties: Ecoregion 78 - the Smallwood Reservoir-Michikamau (SRM) Ecoregion and Ecoregion 75 - the Ungava Bay Basin Ecoregion. The Gill Property occurs primarily within that of the SRM Ecoregion, bordering the Ungava Bay Basin Ecoregion along the properties northern boundary.

The SRM Ecoregion extends right across central Labrador and is marked by cool summers and very cold winters. The mean annual temperature is approximately -3.5°C. The mean summer temperature is 9°C and the mean winter temperature is -16°C. Mean annual precipitation ranges from 700 mm in the north to 1000 mm along the Quebec/Labrador border in the south. The Ecoregion is classified as having a low subarctic ecoclimate. Its open coniferous forests are transitional, both to tundra and alpine tundra vegetation communities to the north, and to the closed cover of typical coniferous boreal forests to the south. Open stands of black/white spruce -lichen woodland with an understory of feathermoss, are dominant. Humo-Ferric Podzolic soils are dominant with significant inclusions of Ferro-Humic Podzols, Mesisols, and Organic Cryosols. Permafrost occurs in isolated patches, mainly in wetlands, although none have been observed in the Project area.

Ecodistricts are the next level of division in the ELC framework. These are characterized by distinctive assemblages of topography, landform, geology, soil, vegetation, water bodies, and fauna.

Plant communities, also known as Habitat Types, are defined as distinct assemblages of plant species that can often be associated with particular environmental conditions and given the right conditions, reoccur predictably within a particular habitat. At present, standard texts for classifying plant communities in Labrador are incomplete. As such, vegetation communities within the properties are not categorized in accordance with a particular classification standard, but rather represent coarse-scale vegetation assemblages delineated by the dominant vegetation observed in proximity to the Ruth 8 and Gill properties. Naming of vegetation

associations has been guided in part by systems used for other projects in Labrador (Nalcor 2009, Stantec 2010).

Vegetation communities identified are reflective of the highly modified and industrial/commercial dominant land use within and in proximity to the Gill Property, resulting from the extensive historical IOC mining activities in these areas. Abandoned and flooded pits, access roads, rail beds, and historic rock stockpiles remain on the property from the former Iron Ore Company of Canada (IOC) mine and pit operation. As such, natural vegetation communities within the property typically occupy marginalized landscapes (i.e., bedrock outcrops, riparian habitats, wetlands) or areas of the property historically precluded from development by IOC.

Habitats range from completely bare ore piles and service roads, to areas with regenerating thickets of alder and willow.

A terrestrial survey was conducted in 2011 (AECOM 2012) to describe the vegetation community on the Gill property. The topography at Gill study area is characteristic of the Mid Subarctic Forest Ecoregion where the surrounding landscape contains a series of ridges and valleys. Considering this, Gill study area's vegetation is principally an expanse of shrub land with dwarf birch (Betula glandulosa) and green alter (Alnus viridus) as the dominant shrub species.

A total of twenty-one (21) plots were completed within the Gill study area. Plots surveyed indicated a broad spectrum of vegetation types. Communities have been characterized into three upper level designations: disturbed, upland and wetland. These were refined further into classifications based on the Canadian Vegetation Classification System (Ecological Land Classification Series, No. 25). All communities observed within the study area are typical and common to Labrador. Table 7.4 provides the area and percent coverage of the upper level designations.

Table 7.4 Area of Vegetation Community Cover within Gill study Area

Vegetation Type	Area (ha)	Percent Cover
Disturbed	39.26	23.05%
Upland	130.54	76.63%
Wetland	0.53	0.31%
TOTAL	**170.33**	**100%**

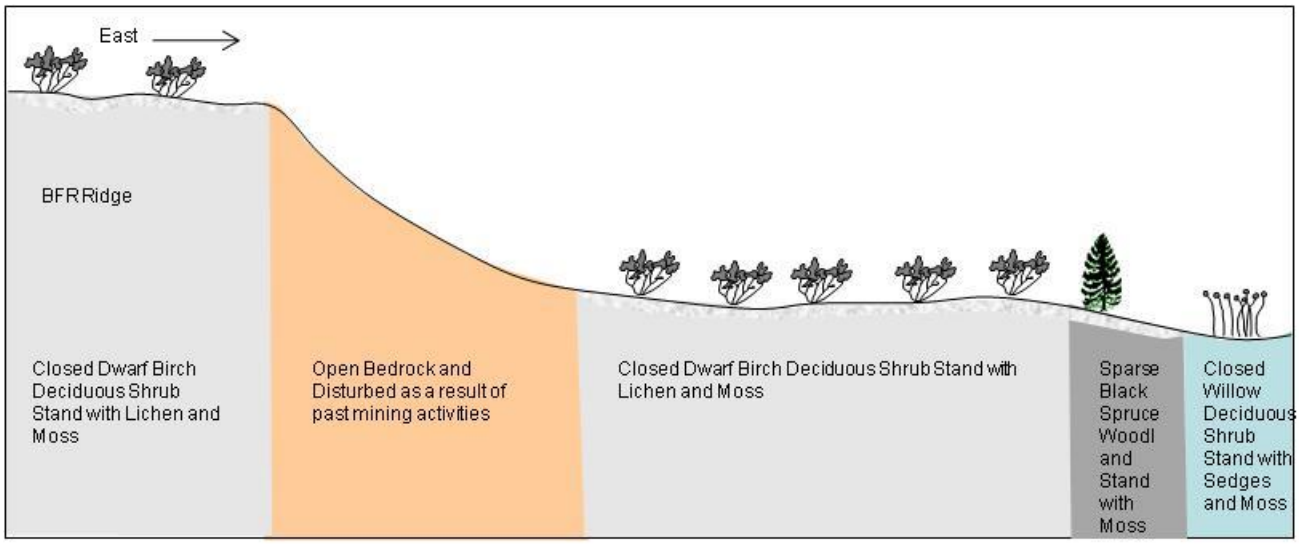
The total amount of land space within the Gill study area is 170.33 ha. Of this, approximately 77% is comprised of upland communities and 0.3% is wetland and 23% is disturbed. Within these areas, a total of 17 vegetation communities were classified using the Canadian Classification System (National Working Group 1990). Table 7.5 provides a summary of each of vegetation communities. Table 7.7 presents a conceptual profile of the Gill study area.

Table 7.5 Vegetation Community Summary

	Physiognomic Type	Map Code[1]	Vegetation Community Name	Community Description	Total Area (ha)
Upland	Treed	TEOI	Open Spruce with Moss Woodland	This community is dominated by either black spruce (*Picea mariana*) or white spruce (*Picea glauca*) trees with associates such as tamarack (*Larix laracina*). Groundcover consists of moss (*Pleurozium schreberi*) species. Shrubs consist of Labrador tea (*Rhododendron groenlandicum*), dwarf birch (*Betula glandulosa*) and crowberry (*Empetrum nigrum*) and blueberries (*Vaccinium sp*). Tree cover is between 25 and 60%.	6.4
		TESI	Sparse White Spruce with Moss Woodland	Containing similar species associations with TEOI above, this community is also dominated by white spruce (*Picea glauca*) trees with associates such as tamarack (*Larix laracina*), or black spruce (*Picea mariana*). Groundcover consists of moss species. Tree cover is between 10 and 25%.	7.71
	Shrub	SDCI	Closed Dwarf Birch Deciduous Shrub Stand	This community is dominated by dwarf birch shrubs. Dwarf birch shrubs occur over a range of soil moisture regimes and can be found in most community types.	79.79
		SDOT	Open Labrador Tea Deciduous Shrub Stand	This community is dominated by Labrador tea and bunchberry (*Cornus canadensis*). Shrub cover is between 25 and 60%. The overall structure of this community is of tall shrub species over 3m tall.	6.70
		SDOL	Open Crowberry Deciduous Shrub Stand	This community is dominated by crowberry and a variety of blueberry species (*Vaccinium sp*). These species are relatively low in height.	4.09
	Non-Vascular	NVBC	Closed Moss Stand	This community is dominated by polytrichum species amongst exposed soils/rock.	10.89
Total	**130.54**				
Wetland	Shrub	SDCI	Closed Willow Deciduous Swamp with Sedges	This community is dominated by prairie willow (*Salix humilis*) species as the canopy and a variety of sedge and sphagnum species within the groundcover	0.39
		SDCL	Closed Willow Deciduous Swamp with Moss	This community is dominated by willow species within the canopy and moss species within the groundcover.	0.14
Total	**170.28**				

Map Code corresponds with Figure 7.9.

Figure 7.7 Conceptual Profile of Gill study area



Photographs representative of the typical communities encountered within the Gill study area are presented in Figure 7.8. A map of the vegetation community within Gill study area is provided in Figure 7.9.

7.7.2 Rare Plants

Rare plants with the potential to occur within the Gill Property are categorized as those species listed in Schedule 1 of the federal Species at Risk Act (SARA) and designated endangered or threatened under the Newfoundland and Labrador Endangered Species Act (NLESA).

The SARA Public Registry (COSEWIC 2011) and the Annotated Checklist of the Vascular Plants of Newfoundland and Labrador (Meades et al. 2000, Updated 2010) were reviewed for information on the potential presence of rare plants within or in proximity to the Gill Property. No listed plant species, protected federally under Schedule 1 of SARA or provincially pursuant to the NLESA, have been identified or are suspected to be within the property.

7.7.3 Timber

There are insufficient timber volumes to consider the properties suitable for the harvest of merchantable timber.

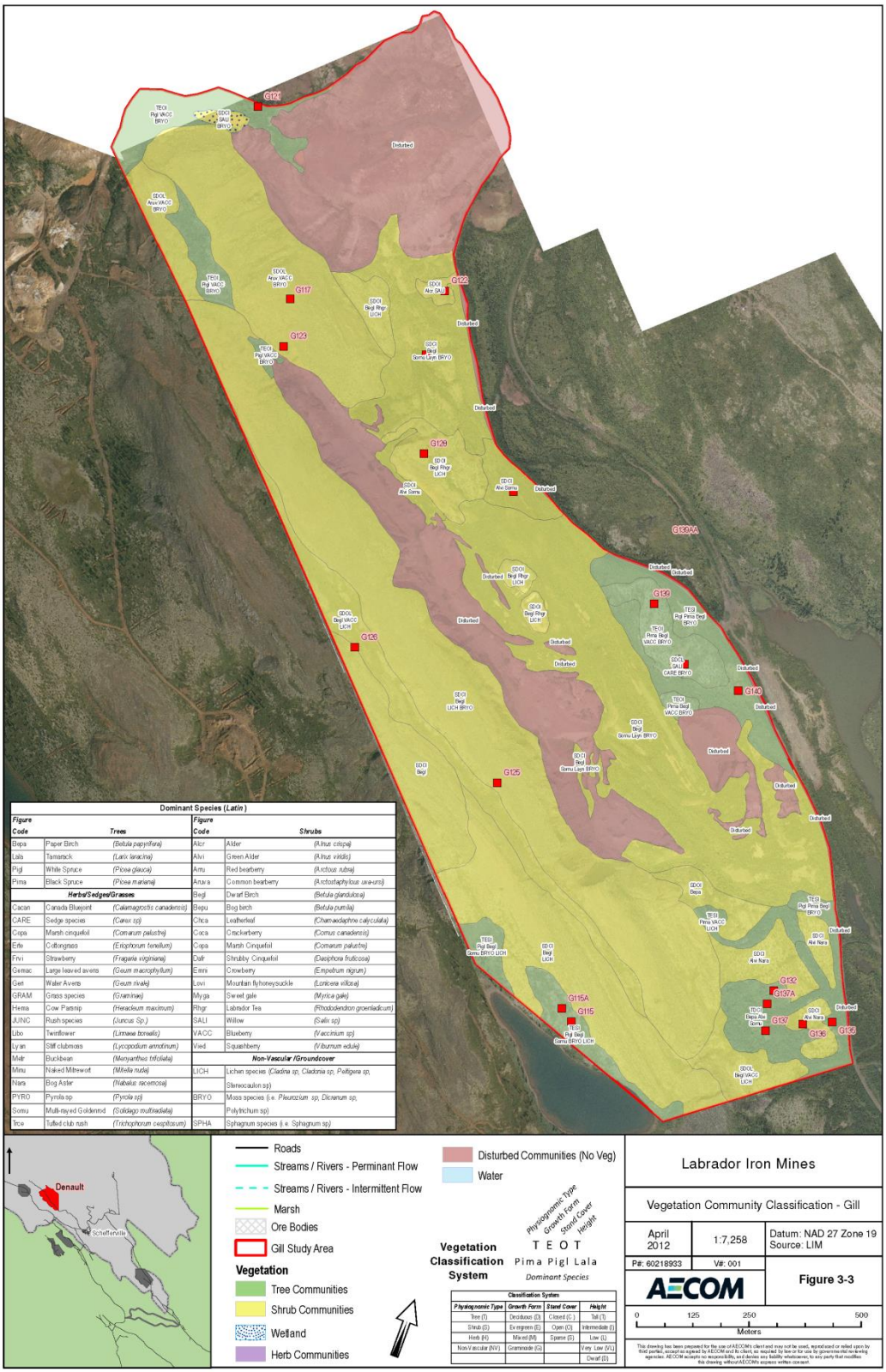
7.7.4 Wetlands

Where present, wetlands in the area of the properties are typically concentrated in previously undisturbed areas. The diversity of wetland types at the site are restricted to bogs and fens, most of which are relatively small (less than 1 ha), however, wetlands ranging in size from 1 to 5 ha were identified along the west and southwest boundary of the Gill property, outside of the development footprint.

Figure 7.8 Typical vegetation communities within the Gill study area.

Above: taken from the top of the ridge looking east and below from the base of the ridge

Figure 7.9 Vegetation Communities Map



7.8 Wildlife

7.8.1 Caribou

The Project overlaps with the range of the migratory George River Caribou Herd (GRCH). Specifically, this area of western Labrador overlaps a portion of the herd's winter range (Jacobs 1996). Straddling the Quebec-Labrador peninsula (Ungava peninsula), the George River Herd was once one of the world's largest caribou populations, with estimates peaking at almost 800,000 individuals in the 1980's (Couturier et al. 1996; Russell et al. 1996; Rivest et al. 1998). More recently, a 2004 survey estimated the GRCH at 300,000 animals (Courturier et al 2004) and a 2010 survey of the herd noted a substantial decline to approximately 74,000 animals (NLDEC 2010). A photo census completed in July 2012 estimated the herd at 24,300 animals, with projections for late fall 2012 around 22,000 animals (NLDEC, 2013). The initial decline can likely be attributed to wolf predation and both legal and illegal hunting (Hearn et al. 1990). Emigration to other herds has also been suggested as a possible reason for the decline (Boulet et al. 2007).

The severity of this downward trend, indicators of poor herd health, and the potential for the combined effects of hunting, disease, predation, range condition, human activities and climate change, add complexity to the situation. The results of the census, biological health indicators, population modeling projections, and consultations with stakeholders have prompted the Provincial Government to initiate a five year caribou hunting ban in Labrador for conservation purposes. Specifically, the hunting ban is intended to safeguard the viability of the herd and allow it to recover to a point where sustainable harvest can occur. The response of the remaining population to the closure of hunting will be monitored and an initial review of results conducted after two years (NLDEC 2013).

Although there is no evidence of sedentary caribou near the Project area at present, they were reported historically (e.g., Caniapiscau or McPhadyen Herds) (LWCRT 2005; Bergerud et al. 2008). The sedentary herds of this region have declined or disappeared since the 1960s with the advent of the snowmobile allowing greater access for hunting.

The Committee on the Status of Endangered Wildlife in Canada listed the sedentary caribou populations of Labrador as "Threatened" (COSEWIC 2008, SARA 2008). Hunting of sedentary herds is illegal.

For the migratory George River herd, habitat can be described as tundra, forest-tundra and boreal forest habitat characteristic of the Boreal and Taiga Shield Ecozones. Habitat use is affected seasonally as the ranges change from winter to summer. Following an increase in herd population, summer habitat is considered spatially limited and alternative summer range is not available (Messier et al. 1988). Animals tend to avoid areas grazed during the previous winter and select alternate sites with more abundant lichen cover (Schmelzer and Otto 2003) having a preference for Cladina spp. (Cote 1998).

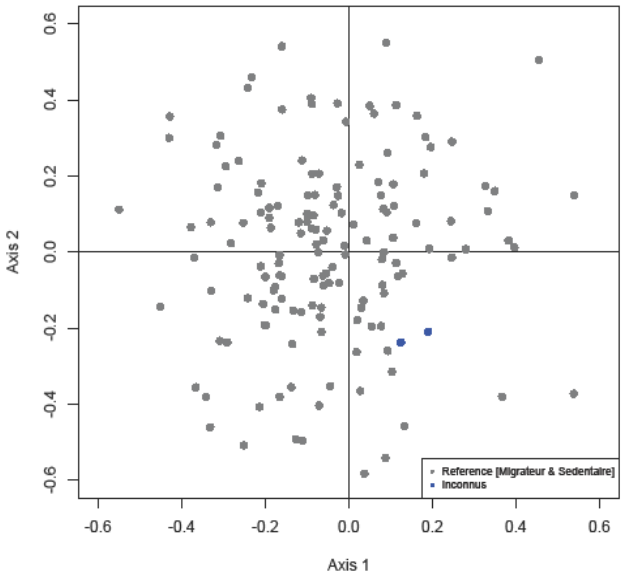
Woodland caribou do not make migratory movements but there is a seasonal shift during calving and post-calving periods to such forest types as black spruce forest, scrub or bog (Nalcor Energy 2009).

To complete the requirements of the environmental assessment for the James and Redmond properties, LIM and New Millennium Capital Corp (NML) were asked to perform a spring survey of the area within a specified radius of their properties in 2009 and 2010 to assess the presence of sedentary caribou herds. In 2009, only three sightings of caribou totaling seven individuals were confirmed over a 50km radius. One adult female was fitted with a satellite telemetry collar and on February 6, 2010 was legally shot on the Naskaupi River in the Grand Lake Extension Zone of the Caribou Management Area (D'Astous and Trimper 2009). Based on the migratory route of the GRCH during this time and the caribou's body length (192 cm), the Senior Wildlife Biologist in Labrador considered this animal to belong to the migratory ecotype rather than to the sedentary ecotype (D'Astous and Trimper 2009). This location was over 400 km distant from the capture location and its movements were consistent with the migratory George River Caribou Herd.

In addition to these surveys and marking efforts, D'Astous and Trimper (2009) collected caribou tissue samples for genetics analysis. Samples of ear dermis were collected from the same lone adult female that was collared by the field team, and from a recently killed (by wolf) adult female. These samples were stored frozen at Laval University, Québec, until they could be analyzed at the specialized laboratory directed by Dr. Steeve Côté.

The genetic analysis and comparison to on-file genetic reference samples from known individuals were completed in May 2011 by Mr. Glenn Yannic. Several multivariate techniques (e.g., Factor Correspondence Analysis, Bayesian STRUCTURE) were used to compare the tissue samples to those collected from known ecotypes and herd affiliations in northeastern Quebec and Labrador such as the George River and Leaf River Herds (migratory ecotype), the Red Wine Mountains and Lac Joseph Herds (woodland ecotype) and the Torngat Mountains Herd (montane ecotype) [as described in Bergerud et al. (2008)] (Figure 7.10).

Figure 7.10 Comparison of genetic components collected from two caribou in the Schefferville area with those from known ecotypes using multivariate analysis (AFC).

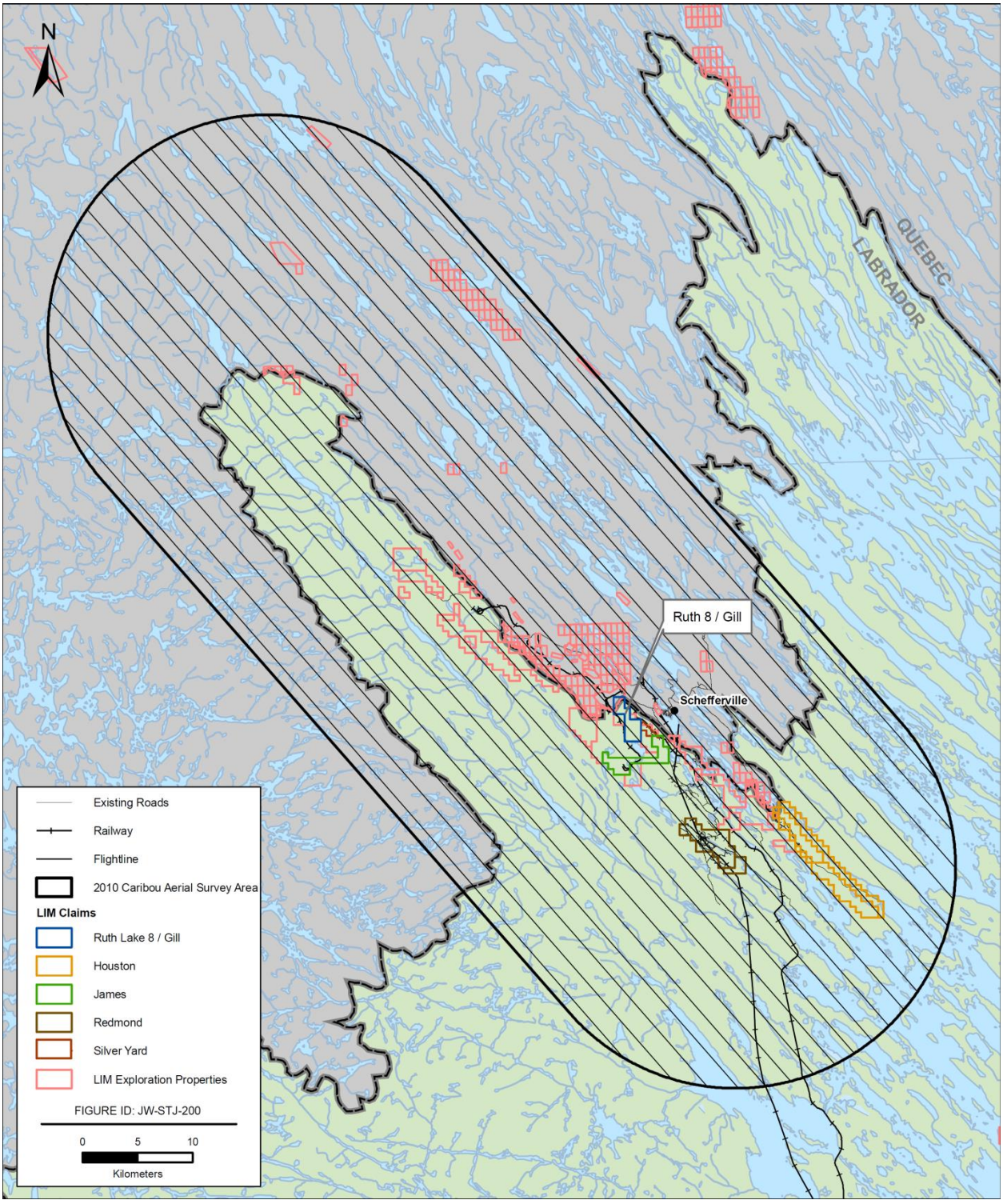


The results indicated the samples could not be assigned to any of the ecotypes or herds in the reference collection (below). Both caribou sampled are genetically similar, suggesting that they belong to the same ecotype. As a result of the extensive variability observed in the genetic testing, attributable to gene flow between the different migratory herds of caribou in the Quebec-Labrador Peninsula (Boulet et al. 2007), a clear assignment of the sampled individuals to a known reference herd, based solely on genetics, is not possible at this time. However, efforts expended to date indicate that the sampled caribou were of the migratory ecotype based on the following (D'Astous and Trimper 2010):

- body measurements;
- subsequent behaviour and movement of the collared caribou to a distance of over 400 km from the capture area prior to its demise from hunting on February 6, 2010 (D'Astous and Trimper, 2009 and 2010);
- statements from a Senior Wildlife Biologist that, based on the migratory route of the George River Caribou Herd in the fall of 2009 and winter of 2010, this caribou was considered to belong to the migratory ecotype rather than to the sedentary type (T. Chubbs, pers. comm.); and
- no other evidence of sedentary caribou has been identified during this period.

The 2010 survey was completed between April 26 and May 1 and the survey area was a radius of 20km centered on the James and Redmond properties (Figure 7.11). This survey area also included the Gill Project area. The survey was completed under good tracking conditions, yet no Woodland caribou were observed. The results from both years' surveys indicate that it is unlikely that sedentary caribou are present in the Project areas during the pre-calving period (D'Astous and Trimper 2010).

Figure 7.11 Caribou Survey Area



7.8.2 Regional Wildlife Surveys

Various field surveys have been undertaken to identify the presence of wildlife species in the Schefferville region. Winter tracking data collected during the winter of 2007 and 2008 indicate that red fox (Vulpus vulpus) and snowshoe hare (Lepus americanus) were abundant throughout LIM's properties. Incidental observations from the May 2009 caribou survey were made of moose (Alces alces), black bear (Ursus americanus), and wolf (Canis lupus). During this survey, Canada Geese (Branta Canadensis) were observed migrating through the area in large numbers. Flocks of 10 to 100 were often observed flying north or resting on ice or ashkui (areas of permanent or seasonally open water during winter). Over the course of the survey, other migratory avifauna (e.g., American Robin (Turdus migratorius), Common Snipe (Capella gallinago) began to appear in Schefferville and increased in abundance. (D'Astous and Trimper 2009). Incidental wildlife observed from the April 2010 Caribou survey were: moose, river otter (Lutra candensis), lynx (Lynx canadensis), porcupine (Erethizon dorsatum), snowshoe hare, red squirrel (Tamiasciurus hudsonicus), Spruce Grouse (Falcipennis canadensis), Willow Ptarmigan (Lagopus lagopus), Golden Eagle (Aquila chrysaetos), Osprey (Pandion haliaetus), Bald Eagle (Haliaeetus leucocephalus) and American Crow (Corvus brachyrhynchos) (D'Astous and Trimper 2010).

Though there was no sign of marten (Martes americana) observed during the surveys, they are known to have large home ranges and occupy a wide variety of forest habitats, providing their needs for small mammals and canopy cover are met (Smith and Schaefer 2002, Nalcor 2009).

7.8.3 Gill Wildlife Survey

A winter track survey was conducted on the Gill Property on February 29th, 2011 (AECOM, 2012). Wildlife tracks were seen in all transects surveyed and belonged to 4 different species or species group: Red Fox, Snowshoe Hare, small mustelids and Ptarmigan sp. (Figure 7.12) The Red Fox was the most frequent species detected with a total of 11 tracks overall and a mean weighed index (WI) of 0.0746 per transect (Table 7.6). This is a high track density of fox compared with other properties within the LIM Schefferville survey area for February 2012. The WI was more than 3 times higher than the mean WI of all surveys. The red fox WI for Gill is 7 times higher than that observed in the wooded areas of the headwaters of the Romaine River (Massé et al., 2000). All tracks in G-1 transects might have been produced by only one or two individuals trying to climb the abrupt slope.

The next species group in abundance was the ptarmigan (Willow Ptarmigan or Rock Ptarmigan; but most likely Willow Ptarmigan) with a mean WI of 0.0600, which was roughly 2 times higher than the mean WI for LIM properties in February 2012 and the relative abundance found around the upper Romaine River Area (Massé et al., 2000).

Figure 7.12 Wildlife Survey Photos

Photo #1) General Habitat and Observed in Transect G-1, February 29, 2012.
Photo #2) Gray Wolf Track Observed in Transect R-1, March 1st 2012.
Photo #3) Ptarmigan Tracks Observed in G-C, February 29, 2012.

Photo # 1

Photo # 2

Photo #3

One Snowshoe Hare track was observed in the G-1 transect among a lot of fox tracks. The Snowshoe Hare WI (0.0068); (Table 7.6) is among the lowest of the Schefferville survey areas of February 2012 and reach 7% of the mean WI of that entire area. The relative abundance ofSnowshoe Hares in Gill Property is also much less than the one of the Upper Romaine River area in 2000. However, the Romaine River surveys were done during an abundance peak of snowshoe hare of a 9- to 10-year cycle (Massé et al., 2000).

A small mustelid track was observed in the control transect. The resulting WI for the Gill area tallied to 0.0067, which was more than 8 times higher than the mean value obtained for the Schefferville area and about 20% of the relative abundance observed in the Upper Romaine River area during the winter 2000 (Massé et al., 2000).

Table 7.6 Weighted Mean Abundance Index per Species Group or Group of Species in the Gill Transects (n=2), February 2012

Species or Species Group	Weighted Mean Index	Standard Deviation
Ptarmigan sp.[1]	0.0600	0.0849
Snowshoe hare	0.0068	0.0097
Red Fox	0.0746	0.0301
Small mustelids[2]	0.0067	0.0094
Total	**0.1481**	**0.0545**
1. Include willow and rock ptarmigan. 2. Include ermine and least weasel.		

Although, no small mammal tracks were observed in Gill Property, different species of small mammals (microtines) potentially present in the study area include the Masked Shrew (Sorex cinerus), the Pygmy Shrew (Microsorex hoyi), the Northern Water Shrew (Sorex palustris), the Black-backed Shrew (Sorex acrticus), the Mountain Phenacomys (Phenacomys intermedius), as well as one species that is likely to be designated as threatened or vulnerable in Québec – the Rock Vole (Microtus chrotorrhinus). In addition, the Star-nosed Mole (Condylura cristata), the Deer Mouse (Peromyscus maniculatus), the Southern Red-backed Vole (Clethrionomys gapperi), the Meadow Vole (Microtus pennsylvanicus), the Northern Bog Lemming (Synaptomys borealis), the Meadow Jumping Mouse (Zapus hudsonius) and the Woodland Jumping Mouse (Napaeozapus insignis) may be present. These species cannot be distinguished by their tracks in the snow and most of them dwell under the snow cover during winter, making tacking surveys rather inadequate to assess the abundance of small mammals in the winter.

Incidental sightings of a family group of five Canada Lynx were made in the area through the Town of Shefferville the day before the survey team arrival. However no Lynx tracks were detected during transects or on the transits.

7.8.3.1 Ptarmigan

Ptarmigan tracks abundance and shrub land were positively and significantly correlated ($p = 0.032$). The presence of wetlands was also correlated to ptarmigan abundance ($p = 0.046$) and it was linked to the presence of riparian shrubs. Ptarmigan are known to feed on willow and other shrub buds during winter time.

7.8.3.2 Snowshoe Hare

Surveys in the vicinity of Schefferville in 2012 showed that Snowshoe Hare presence was positively correlated with the abundance of dense black spruce stand ($p = 0.004$) and with the abundance of tree cover in the transect (Spearman $r = 0.695$, $p = 0.001$). Inversely, open lands did not seem to be used by snowshoe hare. The same results were found in the upper Romaine River area where open black spruce and open mixed forests with coniferous trees were selected while burns were avoided (Massé et al., 2000). In the Upper Sainte-Marguerite River, the tree cover was also positively correlated with Snowshoe Hare tracks (Consortium

Roche/Dessau, 1995). Preferred habitat of snowshoe hare may also vary following the abundance cycle of the species: only best habitats are used when populations are in the low level years of abundance (AECOM 2012). Snowshoe Hare tracks were observed at Gill Property despite the lack of dense forest stands.

7.8.3.3 Red Fox

Spearman correlations between Red Fox tracks (WI) and habitat type show that fox tend to use shrub land ($p = 0.023$) and barren or disturbed land ($p = 0.001$) but tend also to avoid treed habitats ($p = 0.009$). Its abundance was also negatively related with the cover percentage in transects (Spearman $r = -0.373$, $p = 0.055$). That was probably the reason why fox tracks were seen so often in Gill transects. Generally, red foxes are found in varied habitats, from open to dense forest stands. In this study, treed habitats containing deeper and powdered snow might have made it difficult to walk and to search for preys compared to wind-blown areas of open lands. As it is also the case for marten, the large home range of red foxes may make it difficult to properly establish relative abundance with 500-m transects.

7.8.3.4 Small Mustelids

Very few (2) small mustelids tracks were seen in LIM Schefferville February surveys making correlation analysis unsuitable. Ermine and least weasel were probably the species involved as they are known to live in various types of habitat: bush, wet meadows, regrowth, mixed and boreal forests and to feed on small mammals in their narrow home range (Banfield, 1974; Prescott and Richard, 2004).

7.8.3.5 Species at Risk

The Woodland Caribou (boreal population) was the only species at risk that could be present in the area and detected by track surveys around Schefferville. In Canada since May 2000, the threatened designation applies only to a widespread population ranging across the boreal forests of northern Canada (COSEWIC, 2011). The same status has been given in 2002 by the Newfoundland and Labrador Department of Environment and Conservation (2011). In Quebec it was designated as vulnerable species in 2005 (Ministère des Ressources Naturelles et de la Faune du Québec, 2010). The boreal population has decreased throughout most of the range and is threatened from habitat loss and increased predation, the latter possibly facilitated by human activities (Festa-Bianchet et al., 2011). Caribou from the northern migratory tundra herds can also be using the Schefferville area during winter (Bergerud et al., 2008).

D'Astous and Trimper (2009, 2010) found no evidence that the study area was used by sedentary Woodland Caribou of the boreal population during the pre-calving period in recent years. The only caribou seen during these surveys was equipped with a radio-collar and belonged to the migratory George River caribou herd which is not considered at risk although its population is declining and reaching extremely low levels (NLDEC 2013).

Wolverine (Gulo gulo) was designated endangered in Canada and in Newfoundland and Labrador in May 2003. In Québec, it has been considered a threatened species since 2000. The

wolverine's eastern population is thought to range throughout northern Québec and most of Labrador. Historically wolverine were trapped throughout most of Labrador; however numbers of animals trapped declined early in the 20th century. There have been no confirmed records in Labrador since the 1950s, although there continue to be occasional unconfirmed sightings (NLDEC 2013).

The Least Weasel is likely to be designated vulnerable or threatened in Québec. Although its distribution remains vast, it is considered as rare throughout its range. One small mustelid track was observed in Gill area, but it was not possible to determine if it was made by an ermine or a least weasel.

7.8.4 Avifauna

Point count surveys were conducted to collect information on abundance and species composition of songbirds occurring within the Gill Study area between July 5 and 12, 2011 (AECOM 2012). Of the 19 species observed, 12 were observed using the limited radius count (LRC) method (Table 7.7). A total of 7 additional species were observed using the unlimited distance index (UDI) method.

Table 7.7 Richness, diversity and mean density of breeding pairs based on the survey of 7 points counts at the Gill Property, July 2011

Species	Method	Tot	Avg	Std
Richness	LRC	12	3.50	2.07
	UDI	19	6.00	3.79
Shannon Diversity Index (LRC)	LRC	-	1.11	0.53
Density (BP/ha)	LRC	-	4.18	3.35

A mean density of 4.18 breeding pairs per ha (BP/ha) was obtained using the data from the LRC method (Table 7.7). The Gill Property had the highest Shannon Diversity Index (1.11) among other properties studied around Schefferville in 2011. It had also one of the highest bird density (4.18 BP/ha) (Table 7.8) compared to other properties surveyed in the vicinity of Schefferville.

The most abundant species were the Fox Sparrow (0.91 BP/ha) and the White-crowned Sparrow (0.91 BP/ha) (Table 7.8). The Fox Sparrow (0.57) and the White-crowned Sparrow (0.57) had also the highest constancy (Table 7.8). One woodpecker (Northern Flicker) was observed during the survey. All other bird species were passerines. The breeding status of all species observed was classified as either possible (8 individuals) or probable (11 individuals).

Table 7.8 Constancy, richness and mean density of breeding pairs per species at the Gill Property, July 2011 (n=7)

Species	Constancy	Richness				Density (BP/ha)	
		LRC (Breeding Pairs)		UDI (Breeding Pairs)			
	(LRC)	Avg	Std	Avg	Std	Avg	Std
Fox Sparrow	0.57	0.71	0.76	1.71	1.70	0.91	0.96
White-crowned Sparrow	0.57	0.71	0.76	1.71	1.11	0.91	0.96
Northern Waterthrush	0.29	0.29	0.49	1.14	1.57	0.36	0.62
Alder Flycatcher	0.29	0.29	0.49	0.43	0.79	0.36	0.62
Blackpoll Warbler	0.29	0.29	0.49	0.43	0.53	0.36	0.62
White-throated Sparrow	0.14	0.14	0.38	0.86	0.69	0.18	0.48
Swainson's Thrush	0.14	0.14	0.38	0.29	0.49	0.18	0.48
American Robin	0.14	0.14	0.38	0.29	0.49	0.18	0.48
Tennessee Warbler	0.14	0.14	0.38	0.29	0.76	0.18	0.48
Wilson's Warbler	0.14	0.14	0.38	0.29	0.49	0.18	0.48
Common Redpoll	0.14	0.14	0.38	0.29	0.49	0.18	0.48
Gray Jay	0.14	0.14	0.38	0.14	0.38	0.18	0.48
Common Raven	0.00	0.00	0.00	0.43	0.53	0.00	0.00
Northern Flicker	0.00	0.00	0.00	0.14	0.38	0.00	0.00
Yellow-bellied Flycatcher	0.00	0.00	0.00	0.14	0.38	0.00	0.00
Gray-cheeked Thrush	0.00	0.00	0.00	0.14	0.38	0.00	0.00
American Pipit	0.00	0.00	0.00	0.14	0.38	0.00	0.00
Yellow Warbler	0.00	0.00	0.00	0.14	0.38	0.00	0.00
Dark-eyed Junco	0.00	0.00	0.00	0.14	0.38	0.00	0.00

7.8.4.1 Species at Risk

Only one Species at Risk, the Gray-cheeked Thrush, was observed during the surveys. The Gray-cheeked Thrush is considered vulnerable by the Newfoundland and Labrador Department of Environment and Conservation (NLDEC 2011). The Gray-cheeked Thrush does not have a status in Quebec.

No nests of Golden Eagle or Bald Eagle were found in the vicinity of the Gill Property although observations of flying birds were made within 20 km of the site.

7.9 Historic Resources

No archaeological or cultural sites are known or registered in the Project areas. A Stage 1 Historic Resources Overview Assessment (Stage 1 HROA) was completed on the Gill property in June 2011 (Stassinu Stantec, 2011). A review of the Newfoundland and Labrador Archaeological Site Record Inventory and Site Record Forms at the Provincial Archaeology Office in St. John's indicated that no historic resources research has taken place within the claim block and no archaeological, contemporary or cultural sites are known to exist or registered for it. The closest registered site to the Gill property is the remains of a small cabin of less than 50 years old identified on a point of land at the north end of a small lake situated to the south of Schefferville. The water-body is referred to as Lejeune Lake on some modern mapping (Jacques Whitford Stantec Limited 2009).

An analysis of aerial photography suggests that in general the topography is hilly and there are many areas that have been de-vegetated, leaving large tracts of exposed rock, gravel and sand, particularly within the northern Section where a large pile of mining spoil makes up approximately half of the block. While it appears that less ground disturbance has occurred in the more southern sections of the property, the topography there, as determined from the analysis of aerial photography, is such that it was probably not considered attractive from a human settlement point of view. As a result of these factors, it appears that the historic resources potential of the entire Gill property is low.

7.10 Current Land and Resource

In the fall of 2012, a survey was conducted to collect information on current land use activities within the Schefferville area by residents of the communities of Matimekush-Lac John and Kawawachikamach (Sikumiut 2013). Land use activities were divided into: gathering, hunting, fishing, trapping, recreation, and religious, spiritual or cultural activities. The information on will be used by LIM for planning and assessment purposes for its iron exploration and mining projects in the Schefferville area. There was no hunting, trapping fishing or recreational activities identified within the Gill property. There was some gathering activities identified for the general region, however, no specific activities were reported on the Gill property. There were no sites of religious, spiritual or cultural significance identified within 15 km of the property. It is not anticipated that the project will have an adverse effect on current land or resource use within the area.

7.11 Socio-Economic Environment

The construction of the Project will have a negligible short-term direct effect on the physical infrastructure or provision of social services by communities of Labrador West and Upper Lake Melville. It will only employ approximately 14 workers for three months, and some of these workers will already be residents of these communities when hired. As a result, it is very unlikely that any workers will move to these communities as a result of Project construction, and hence unlikely that there will be a long term effect on public or community health services, or other

community social or physical infrastructure or services, as a result of Project-related population increase.

The commute system for construction workers will be designed to transport construction workers to and from their communities as efficiently as possible. As a result, there will be few occasions when commuting workers will spend more than a short period in Labrador West and Upper Lake Melville communities while en route to or from the workplace. There is a very small likelihood of negative interactions between workers and local residents that might place long term demands on policing or healthcare services and infrastructure.

Most workers will continue to receive general healthcare in their home communities. Any minor injuries or health problems will be addressed through the provision of first-aid at the worksite. If additional care is required, workers will use the health clinic in Schefferville, Quebec. If more specialized care is needed, workers will be transported to the Captain William Jackman Memorial Hospital in Labrador City. However, the effects of the construction phase on local healthcare services and infrastructure will also be minor because the labour force will be small, the workers will mostly be in the prime of life, and accidents will be minimized through rigorous enforcement of LIM's occupational health and safety standards. As a result, no substantial new Project-related demand on health services and infrastructure is anticipated.

The Project will also help build the capacity of, and support, local labour market and businesses during operations. In total, the mine will directly require 32 positions (Table 3.2), mostly for approximately eight months per year.

As with the construction phase, the commute system for non-local workers will be designed to minimize the possibility of negative interactions between workers and local residents that might place demands on policing or healthcare services and infrastructure. Furthermore, most workers will continue to receive general healthcare in their home communities, minor injuries or health problems will be addressed through worksite first-aid, and if additional care is required, workers will utilize the health clinic in Shefferville. Only when more specialized care is needed, workers will be transported to the Captain William Jackman Memorial Hospital in Labrador City, but the workers will again mostly be in the prime of life, and accidents will be minimized through rigorous enforcement of LIM's occupational health and safety standards. As a result, no substantial new Project-related demand on health services and infrastructure is anticipated.

8.0 CONCLUSION

Based on the preliminary assessment of potential environmental effects, considering the mitigation and effects management measures, overall Project construction, operation and decommissioning are not likely to result in significant adverse environmental effects. The potential residual effects of accidental events will not be significant and are unlikely to occur. No significant adverse cumulative effects have been identified for the Project.

However, the Project will result in socio-economic benefits. It will continue the considerable direct and indirect employment and business opportunities that LIM has already contributed to the economy of the local region as well as that of the Province as a whole.

October 2, 2013

Date

President & COO
for J F Kearney

Signature of Chief Executive Officer

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APPENDIX A - AECOM Baseline Report

2011 Natural Environment Baseline Report – Gill Property

(AECOM 2012)

[CD ROM]

APPENDIX B – Aboriginal Consultation

Aboriginal Consultation

IBA Implementation Committee Presentation

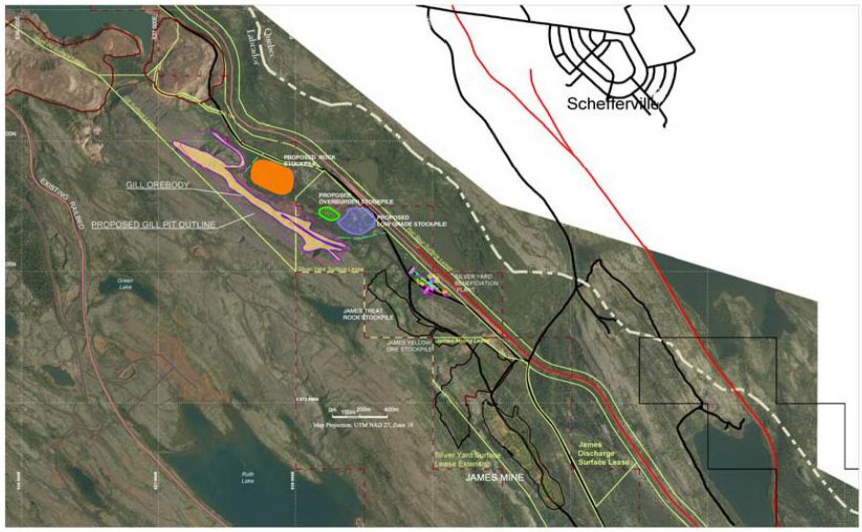
August 28, 2013

LABRADOR IRON MINES
LIMITED

Implementation Committee Meeting, August 28, 2013
LIM Proposed Activities

- Gill Reactivation Project
- Updates:
  - Quebec Stockpiles
  - Main Track Extension & Silver Yard Re-configuration
  - Fish Habitat Compensation Project

Gill Reactivation Project



Background

- Gill is a brownfield site, located near LIM's existing James mine.
  - Previously mined by IOC in 1956 and 1957, the site has significant surface disturbance present where flooded abandoned open pits, abandoned rail beds, and stockpiled materials are present.

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Gill Pit – May 2013

Gill Pit – (May 2013)

Project Description

- LIM proposes to re-activate the Gill Project as a phased development.
- The limited construction required will be accomplished in 1 to 3 months, followed by open pit mining for a planned 4 year period.
- Mining will be carried out using conventional open pit mining methods, employing drilling and blasting operations as required.
- No new infrastructure will be required as existing facilities will be used, including the Silver Yard Beneficiation plant, Silver Yard train loading facility, the Bean Lake accommodation camp, as well as the Silver Yard laboratory, maintenance shed and warehouse facilities,

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Occupations during Construction

National Occupational Classification	Number	Position Description
0711	1	Site Manager
0721	1	Lead Foreman
2254	1	Surveyor
7421	2	Equipment Operator – Heavy
7421	2	Equipment Operator – Light
7411	3	Truck Driver
7611	2	Labourer – Specialised
7612	2	Labourer
Total Construction Employment	**14**	

Occupations during Operations

National Occupational Classification	Number	Description
1221	1	Administration Officer
1411	1	General Office Clerk
1475	1	Dispatcher/Radio Operator
2113	1	Geologist
2148	1	Professional Engineer
2154	1	Land Surveyor
2212	2	Geological Technologist and Technician
6651	2	Security Guard
7372	2	Driller, Blaster (Surface Mining)
7411	8	Truck Driver
7421	8	Heavy Equipment Operator
8221	2	Supervisor – Mining and Quarrying
8614	2	Mine Labourer
Total Operation Employment	**32**	

LABRADOR IRON MINES LIMITED

Development Schedule

Activity	2013				2014							
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
EA Registration & Approval												
Development, Rehabilitation and Closure Plan approval												
Mining Lease approval												
Establishment of site services												
Grubbing												
Site preparation												
Overburden stripping												
Access and haul road onstruction/upgrade												
Sediment and retaining pond construction												
Drainage ditches, pipeline construction												
Waste Mining												
Ore Mining												

Estimated Annual Production

Year	Tonnes		
	Ore	Waste	Total
2014	750,000	1,875,000	2,625,000
2015	1,500,000	3,750,000	5,250,000
2016	1,500,000	3,750,000	5,250,000
2017	500,000	1,250,000	1,750,000
OVERALL	4,250,000	10,625,000	14,875,000

Environmental Assessment

- Registration required under the NL Environmental Assessment Regulations.
- Project Description required under the *Canadian Environmental Assessment Act*
- Environmental Registration and Project Description to be submitted in fall of 2013.