IRON ORE COMPANY OF CANADA
NEW EXPLOSIVES FACILITY, LABRADOR WEST

Environmental Assessment Registration

Pursuant to the *Newfoundland & Labrador Environmental Protection Act (Part X)*

Submitted by:
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Prepared with the assistance of:
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AMEC TF 1143028

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1.0 INTRODUCTION

Project Name: *New Explosives Facility, Labrador West*

The Iron Ore Company of Canada (IOC) has been operating in Labrador West since the early 1960s. The company's current mining operations consist of open pit mines, mineral processing (concentrator and pellet plant) and tailings management facilities, as well as transportation infrastructure and other associated components and activities.

IOC is proposing to construct and operate a new explosives facility at its Labrador West mine site. This *Environmental Assessment Registration* has been prepared in relation to the proposed Project by IOC, with assistance from AMEC Environment & Infrastructure.

1.1 Nature of and Rationale for the Undertaking

IOC's existing infrastructure in Labrador West includes an explosives manufacturing and storage facility at the mine site, which is owned by IOC but operated by Orica Canada Inc. The current operating license for this facility authorizes the manufacture of 60,000 metric tons of emulsion explosive per year, as well as the storage of up to 60,000 kg of explosives at any one time. Orica currently supplies explosives from this facility to IOC, Wabush Mines and various other local mining companies and contractors.

The current explosives facility has been in operation since the 1960s, and has some issues related to compliance with the guideline requirements of the Explosives Regulatory Division of Natural Resources Canada (NRCan), particularly with regard to its required distance from existing mine site roadways. There are also some general issues related to electrical code and building requirements that IOC will address.

Following an in-depth analysis of various potential options, IOC has decided to pursue the development of a new explosives facility at its Labrador West mine site. The construction and operation of this proposed explosives facility (the Project) is intended to address the various issues associated with the existing plant, as outlined above, as well as to provide additional capacity required for the current and on-going expansion of mining activity in Labrador West.

The proposed new explosives facility will be located within IOC's existing property boundaries, approximately 1 km north-northwest of the existing explosives plant, and will be capable of producing 90,000 metric tons of bulk ammonium nitrate explosive (ANE) annually.

The Project will include the construction and operation of a Process Building and adjacent Mobile Mixing Unit Building, as well as associated transportation components and other supporting infrastructure and activities.

1.2 The Proponent

IOC is the largest producer of iron ore in Canada, and a leading global supplier of iron ore pellets and concentrates.

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IOC currently operates an open pit mine, concentrator and pellet plant in Labrador West, and transports its products along a 418 km railway to its port facilities in Sept-Îles, Quebec on the St Lawrence Seaway. Approximately 2,250 persons are employed at its mining, processing, rail and port operations.

The company's existing mining operations in Labrador West consist of three active open pits – 1) Humphrey Main, 2) Sherwood and 3) Luce – which produced 34.4 million tonnes of crude ore in 2011, averaging 38.3 percent iron. Total concentrate production was 13.7 million tonnes. Reactivation of several other existing pits (Humphrey South, Spooks and Lorraine) is also underway. IOC's Labrador West properties also contain significant quantities of additional iron ore reserves for future development.

IOC's existing concentrator has an annual production capacity of approximately 18 million tonnes of iron ore concentrate, of which 13 million tonnes is pelletized and the balance is sold directly as concentrate. A concentrator expansion project was initiated in 2007, and although suspended in 2009 due to market conditions and uncertainty, was resumed in 2010 and is currently in the process of being commissioned. This concentrator expansion will increase the processing capacity of the existing concentrator to 22 million tonnes per annum (mtpa).

After processing at the Labrador City facilities, the iron ore concentrate and pellets are transported south via the Quebec North Shore and Labrador (QNS&L) railway to the company's shipping terminal and deepwater port in Sept-Îles, Quebec, which handles ore carriers up to 255,000 tonnes. IOC exports its concentrate and pellet products to major North American, European and Asian steel makers.

IOC has in place a comprehensive environmental management system (EMS) certified to the ISO 14001 Environmental Standard, including various associated plans and procedures designed to avoid or reduce the environmental effects of its activities. The proposed Project will be constructed and operated in accordance with applicable legislation, regulations and permits, including the environmental protection and planning measures defined through this EA review, and in compliance with IOC policies, procedures and standards. Rio Tinto's *Iron Ore Health, Safety, Environment and Quality Policy* is provided in Appendix A of this report.

1.3 Environmental Assessment Processes and Requirements

The Newfoundland and Labrador *Environmental Protection Act* (NL EPA, Part 10) requires anyone who plans a project that could have a significant effect on the natural, social or economic environment (an "Undertaking") to present it for examination through the provincial environmental assessment (EA) process.

Under the *NL EPA*, the proposed explosives facility is considered an Undertaking and therefore requires registration and approval under the provincial EA process, as specified in Section 41(l) of the associated *Environmental Assessment Regulations*: "An undertaking that will be engaged in manufacturing … explosive preparations, detonators and explosive devices … shall be registered".

On February 23, 2012 IOC wrote to the EA Division, NL Department of Environment and Conservation to seek a formal determination of whether the Project would require registration, and on March 21, 2012 IOC received confirmation from the Province that EA registration and review were indeed necessary.

Following public and governmental review of this EA Registration, the Minister of Environment and Conservation will determine whether or not the Project may proceed, subject to any terms and conditions and other applicable permits, or if further EA review is required.

2.0 PROJECT DESCRIPTION

The proposed Project involves the construction and operation of a new explosives facility at IOC's existing mine site in Labrador West.

The new explosives facility is being designed to produce 250,000 kg of Ammonium Nitrate Explosive (ANE) per 12-hour shift and 90,000 metric tons of explosive annually.

2.1 Geographic Location

The proposed explosives facility is located in Western Labrador within IOC's existing property boundaries. It will be established in the southeastern portion of IOC's existing mining project site, about 1 km to the north-northwest of the current explosives facility (Figure 2.1), and approximately at coordinates 641,932 E and 5,873,592N (NAD83 UTM Zone 19). The site is bounded to the southwest by the main mine road and to the east by a 50 m buffer zone from the adjacent waterbody (Patersons Pond).

The proposed location and design of the facility have been selected to ensure compliance with the Quantity-Distance Principles standards of the Explosives Safety and Security Branch (ESSB) of Natural Resources Canada (NRCan). The Quantity-Distance limits were defined considering a license of 35,000 kg for the new facility, as well as 60,000 kg for the explosives magazines and 100 kg for the detonators magazine (both of which are existing structures).

2.2 Project Components and Layout

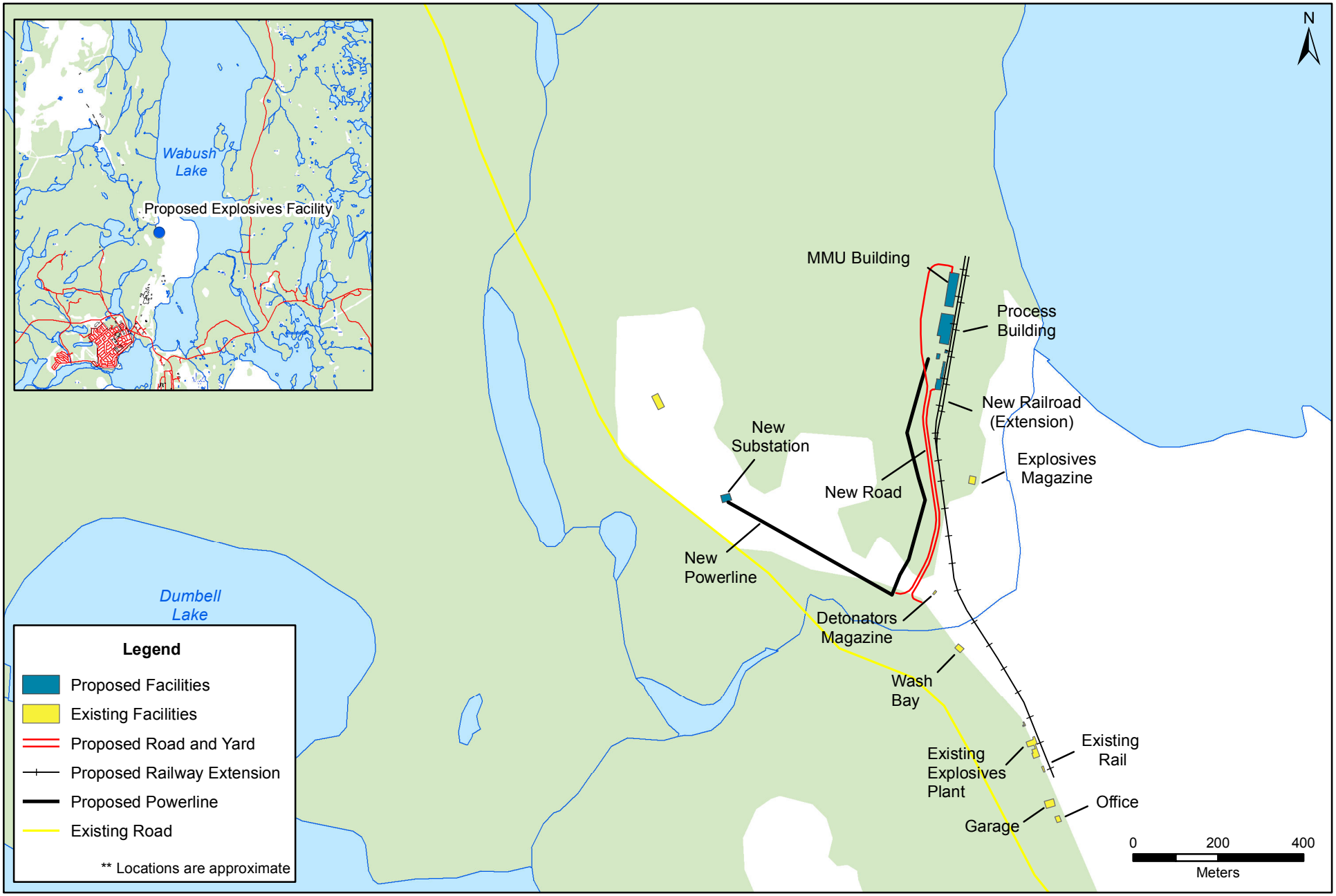
The new facility is being designed to produce 90,000 metric tons of bulk ammonium nitrate explosive annually.

It will comprise a Process Building and a Mobile Mixing Unit (MMU) Building, as well as associated supporting infrastructure including an extension of the existing railway line, access road (construction and re-building) and an electrical distribution line (Figures 2.2 and 2.3). The facility will be able to accommodate a maximum workforce of approximately 32 people (as required), and will have a site perimeter fence and gates to restrict access to authorized personnel only.

The overall Project site (including buildings, lots, roads and other components) will cover a total area of approximately 25,000 m^2.

2.2.1 Process Building

The Process Building comprises the core element of the explosives facility and its associated operations. It will consist of a pre-engineered steel building approximately 70 m by 20 m in size, with a concrete foundation and floors. This building will house the main electrical room, a compressor room, a boiler room and storage spaces or vessels for process materials.



IRON ORE COMPANY OF CANADA

Figure 2.1

IOC Proposed Explosives Facility

amec

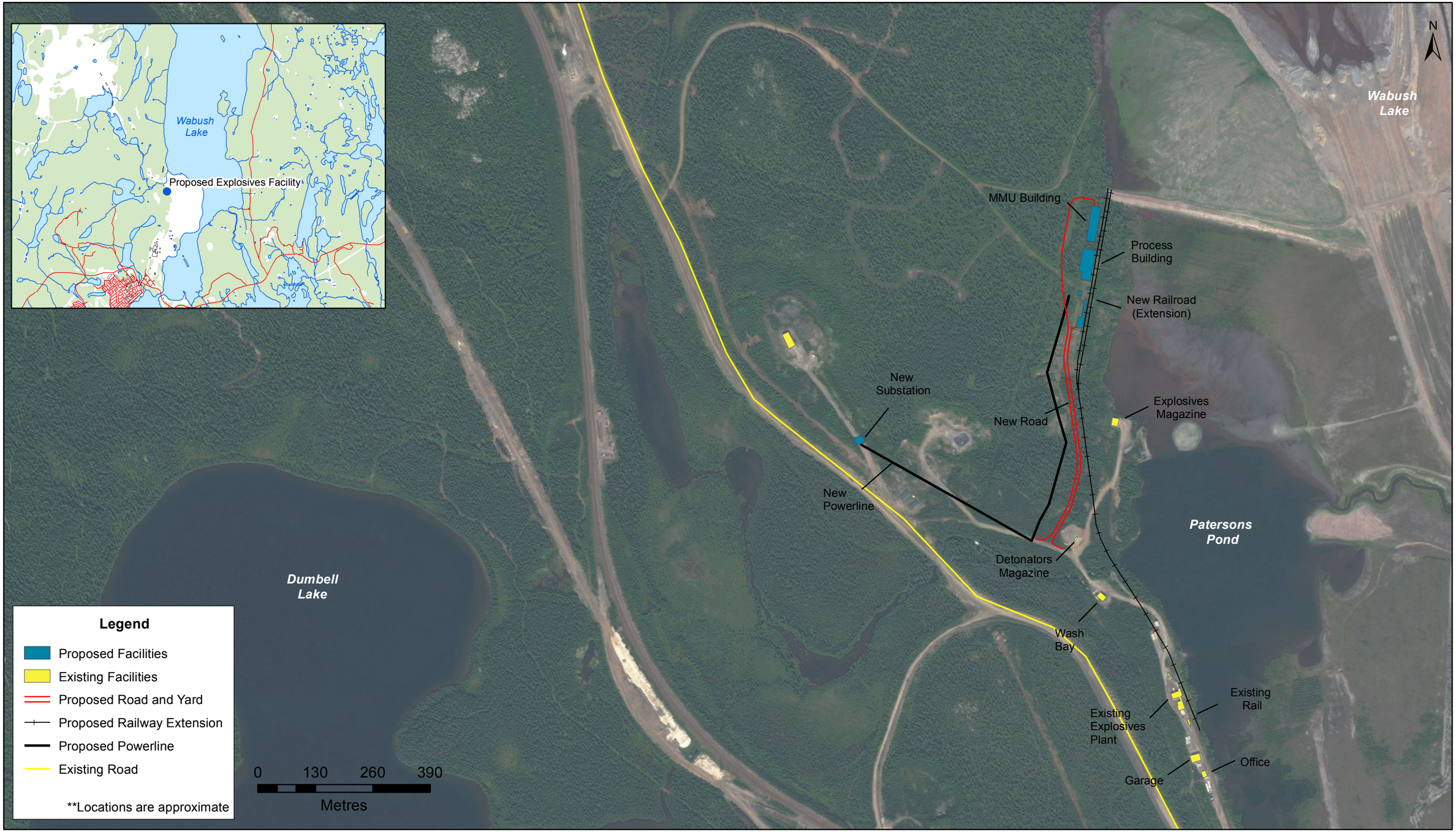


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Figure 2.2

IOC Proposed Explosives Facility (Air Photo)

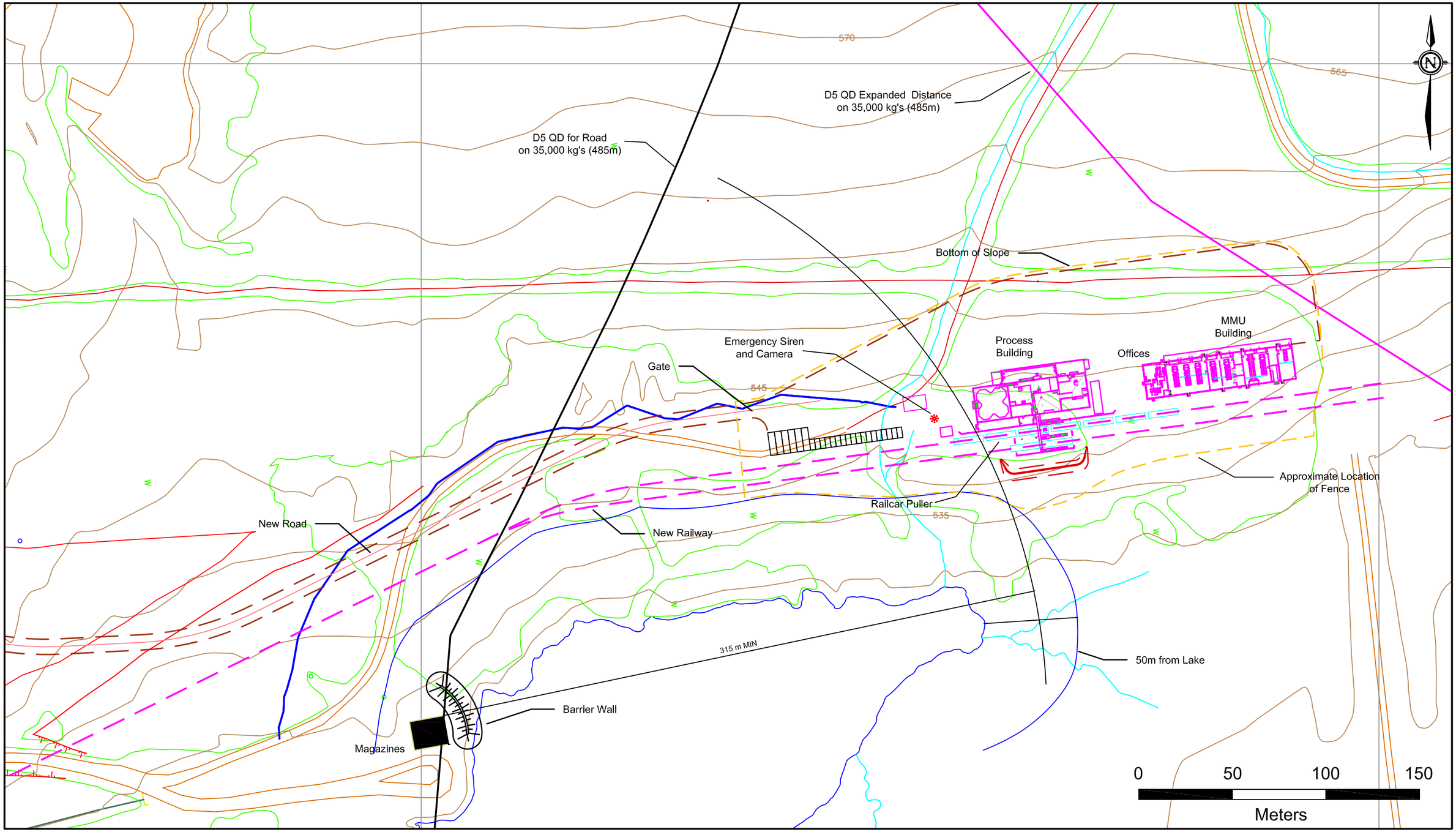

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Figure 2.3

IOC Proposed Explosives Facility: General Layout (Preliminary Engineering Drawing)

Original Drawing Created by Genivar

The Process Building will contain all of the production equipment and storage tanks / areas for the raw materials used in the mixing process, including the Ammonium Nitrate Solution (ANS) receiving tanks. Electrical, instrumentation, ventilation and heating systems will be designed and installed in accordance with relevant standards and operational requirements. The east wall of the Process Building will be designed as a barrier wall to isolate the railcar unloading bay from the production area.

All floors will be sealed and hardened, and will be sloped towards collecting pits. The concrete portion of the indoor walls and the door sills of the Process Building will be high enough to serve as retaining spill basins, and garage door sills will also be designed to confine any spilled liquids within the buildings. Any spilled material collected would be removed and processed through the evaporator.

An unloading bay for the ANS and Ammonium Nitrate Prill (ANP) railcars will be located adjacent to the building on the east side. A loading bay will also be established adjacent to the Process Building on the west side, where the MMU trucks will be weighed and loaded with the final products. The bay will have containment features for any spilled materials similar to those described above.

Diesel tanks for process and truck fuels will be located to the north of the building, as follows:

- 1 diesel oil Process Receiving Tank (45,000 L capacity, 8.0 Ft diameter x 30.5 Ft long); and
- 1 diesel oil Truck Fueling Receiving Tank (10,000 L capacity, 6.5 Ft diameter x 10.0 Ft long).

Each tank will be comprised of steel, be pre-fabricated and installed on a concrete pad, and will include a retaining basin and other components as per applicable guidelines, permits and IOC / Rio Tinto standards.

Steam will be generated to heat the process with either an electrical boiler or a Fuel Fired Boiler (FFB). The FFB capacity will be approximately 40 BHP (boiler horsepower). Its exhaust fumes will be evacuated by a stack installed through the roof. The fuel will be fed from the outside diesel oil storage tank using pumps on a re-circulating fuel loop. The FFB will utilize current technology to ensure maximum fuel consumption efficiency and minimize emissions, and will be compliant with associated regulatory standards and approvals.

The primary components and equipment that will be included within the Process Building are summarized below:

- production area
- storage areas for pallets and totes
- railway unloading bay
- truck loading bay with a truck scale (85 ft long, 80,000 lbs)
- electrical room
- compressor room
- boiler room (with redundant boiler)
- ammonium nitrate solution receiving tanks
- surfactant receiving tanks

- fuel oil storage tank
- oxidizer mixing tanks
- sulfamic acid mixing tank
- fuel phase mixing tank
- fuel oil day tank
- gassing solution mixing tank
- water lube tank
- ammonium nitrate prill conveyors
- ammonium nitrate prill hopper
- one 1,000 kg/min ELK mixer
- blend auger
- raw water tank
- water filter and treatment
- barrier wall integrated to east wall of building
- heating and ventilation
- safety showers and eye wash stations
- fire alarm system
- fire protection system
- lightning protection system
- cameras and telephones
- cold storage building

2.2.2 Mobile Mixing Unit (MMU) Building

The adjacent MMU Building will be approximately 85 m by 20 m in size, also consisting of a pre-engineered steel building with a concrete foundation and floors.

This structure is being designed to include MMU truck parking garages, truck wash bays, truck maintenance garages, a welding shop, evaporator room, mechanical room, compressor room, storage room and an electrical room. The building will also house the administration offices and the employees' quarters including a lunchroom, locker-rooms, laundry room and washrooms.

The wash bay will be used to clean and decontaminate the process vehicles, with all contaminated water being processed through an onsite evaporator system prior to discharge, with vapours vented as required. Wastewaters from the mixing process and the washing bay will be evaporated through the system and the remaining residues disposed of appropriately. The evaporator installation is located in the MMU Building for practical reasons since that building generates more wastewater than the Process Building. The evaporator will have a capacity of 7,000 litres and be capable of evaporating 80 percent of its capacity of waste solution within 48 hours.

Two or more artesian wells will be drilled to supply water to the facility. These will be approximately 30 m deep and will be located about 250 m from the MMU Building. Well water will be adequate for process uses, but will require softening and UV disinfection to meet Canadian drinking water standards for use as potable water. A septic system will also be established for non-process waste water, which will use UV disinfection prior to discharge.

The primary components and equipment that will be included within the MMU Building are summarized below:

- office area (1st floor employees quarters, 2nd floor administrative area)
- 3 truck parking garage
- 2 truck wash bay
- 2 truck maintenance garage with a truck lift
- truck welding shop
- storage room
- electrical room
- mechanical room
- evaporator room
- raw water room
- evaporator tank
- raw water tank
- water filter and treatment
- heating and ventilation
- safety showers and eye wash stations
- fire alarm system
- fire protection system
- lightning protection system
- cameras and telephones

2.2.3 Site Access and Security

Access to the site will be restricted by a fence installed along the site perimeter. The main entrance will have a gate with magnetic card readers. A lockable sliding gate, with a winter shelter, will secure the entrance when there are no personnel on site. An escape gate for personnel will be installed to the north of the premises should the site require evacuation and in the event that the main entrance is obstructed.

2.2.4 Access Roads and Railway

The Project will also include the construction of a new gravel surface access road extending from the existing mine road to the new facility, as well as the rebuilding of several sections of existing site road.

A new, 530 m long gravel-surface access road will be constructed to gain access to the new buildings. This road will extend from an existing secondary road that will need to be refurbished in sections, over a total distance of approximately 1,080 m. The new access road will be cleared to a width of approximately 7 m, with a roadbed width of approximately 4.5 m and a maximum road grade of ± 8 percent. Access road construction and rebuilding will involve installing a number of new culverts for drainage only. No new or modified stream crossings are planned as part of road construction or re-construction works.

In order to facilitate the bulk supply of materials to the new explosives facility, the Project will also include the extension of the existing railway siding from the current explosives magazines to the new Process Building and the refurbishment of a portion of the existing railway track in this area (Figure 2.1), for a distance of approximately 1,700 m. The end portion of the railway will have two parallel lines, with the west line used for the ANP carrying railcars and the east line for the ANS carrying railcars. One existing stream culvert may be replaced or repaired as part of this railway work, as well as the installation of one or more drainage culverts. In addition to the rails, the new railway section will require a switch, two derails, two bumping posts and grounding equipment.

A retaining spill basin will be constructed around the track sections at the Process Building to contain possible material spills when a railcar is being unloaded, which will be constructed of impervious materials and have the capacity to contain 110 percent of the volume of an ANS railcar.

2.2.5 Power and Communications

Electrical power will be supplied to the new explosives facility through a new distribution system, which will extend to the site from the existing power infrastructure at IOC's Labrador West mining operations. The total power consumption requirement for facility operation is estimated at approximately 3 MW.

A new electrical substation will be established just south of the proposed Project site, which will connect to existing power distribution lines that run along the existing mine site road. From there, a new overhead wood pole electrical distribution line (4160 V, 3-phase) line will extend to the Process Building for a distance of approximately 1 km, followed by about 50 m of underground line extending into the facility. An outside oil cooled step-down transformer will reduce the voltage to 600 V at the site.

Communication systems at the new facility will be established through a fibre optic cable connection to IOC's existing fibre optic network. New cable (24 strands, mono-mode) will be installed for a distance of approximately 6 km on existing posts. A copper telephone line will also be installed on existing posts. A backup hardwired line is included in case of emergencies in the event that the fibre optic communication link is interrupted.

2.2.6 Fire Suppression System

In the MMU Building, a wet sprinkler system will protect the office space, which will be hydraulically designed to light hazard occupancy. It will be provided with an indicating control valve supervised by the fire alarm system, a paddle type flow switch connected to the fire alarm, and a test point. A garage dry pipe sprinkler system will protect the remainder of the MMU Building, and will be hydraulically designed to ordinary hazard group II occupancy. The dry sprinkler system will be installed with galvanized piping and fittings, and will be provided with control valve supervisory switches, a low pressure supervisory switch, and an alarm pressure switch all connected to the fire alarm system.

The incoming water into the MMU building from the fire pump will be located in the garage. The main shutoff valve, dry pipe valve and ground floor wet system control valve will be located within a heated room to prevent the pipes from freezing. The electrical room will be protected with a FM-200 fire suppression system which can be safely discharged in the presence of humans. The building fire alarm system will monitor:

- main incoming water control valve – supervisory
- ground floor wet sprinkler control valve – supervisory
- ground floor flow switch - alarm
- second floor wet sprinkler control valve – supervisory
- second floor flow switch – alarm
- ground floor dry pipe system control valves (2x) – supervisory
- ground floor dry pipe system low air pressure – supervisory
- ground floor dry pipe system water flow – alarm

A vertical turbine diesel fire pump will be installed to feed the MMU Building. It will be installed in a dedicated structure or within a fire rated room within the building and the water supply will be located below the pump. The diesel fire pump will also be equipped with a double wall, vented, above ground fuel tank within the fire pump room. The fuel tank will be enclosed with a wall, curb or dike sufficient to hold the entire capacity of the tank. It will be equipped with a continuous method of indicating the amount of fuel in the tank and will indicate low fuel at two thirds capacity.

A water supply with a capacity of 90 minutes is required as the building is provided with a monitored fire alarm system. In addition to the water supply for the sprinklers, a supply of water will also be provided on site for fire fighting purposes. This supply may be combined with the water supply for the sprinkler system or provided separately. The water supply will be equipped with a low/high water level sensor and a temperature sensor connected to the building fire alarm system as supervisory points. It will be equipped with a connection to permit filling and an access hatch at the top to allow access for maintenance.

In the adjacent Process Building, the Main Control Center (MCC) will be equipped with a chemical fire suppression system, and the remainder of the building will have a fire detection and alarm system, as per applicable regulatory requirements.

2.2.7 Magazines

No new magazines are being proposed as part of the Project, as the facility will utilize the existing explosives and detonators magazines at IOC's existing operations (See Figures 2.1 and 2.2). As indicated previously, the proposed location of the facility and its various components has been selected to ensure compliance with the Quantity-Distance Principles of NRCan, which were defined considering a license of 35,000 kg for the plant, 60,000 kg for the explosives storage magazines (three 20,000 magazines housed in one building) and 100 kg for the detonators magazine. A barrier wall (comprised of topsoil) will be established at the 60,000 kg storage magazine building to facilitate Quantity-Distance compliance in terms of its distance from the new facility.

2.3 Construction

Subsequent to release from the EA process, and the receipt of formal corporate approval and all other required regulatory approvals and permits, construction activity would commence in the fall of 2012. Construction activities will not disrupt the existing mining operations in any way.

Standard and relatively routine construction methods will be used for the civil works, which will be carried out in accordance with environmental regulations, permits and applicable standards. Clearing and site preparation activities would begin in October 2012, followed by access road construction, development of water wells and piping, railway work, and the fencing of the Project area, each of which will be completed by late summer 2013. A very small ephemeral stream that currently flows through the site (Section 3.1) will also be re-routed to flow around the project area, and a ditch will be established along the south-eastern perimeter of the site to facilitate drainage.

Process Building construction would take place through the summer and fall of 2013, including constructing the foundation, assembly and erection of the building, installation of utilities and electrical system, as well as the receipt and installation of tanks and other installations and instrumentation, which will continue into the following year, followed by commissioning by December 2014. The construction of the MMU Building will follow a similar process and timeframes, commencing in the fall of 2012 and being commissioned by December 2014.

2.4 Operations

The proposed new explosives facility has been designed to produce 250,000 kg per 12-hour shift (90,000 metric tons annually) of ANE. A maximum workforce of 18 people will be at the facility at any time.

The following provides a summary of the various key operational criteria which have been applied in the planning of the new explosives facility, based on the current stage of planning:

- 90,000 metric tons per year
- 250 metric tons per 12-hour shift
- storage capacity for raw material for 7 days production at a rate of 250 t/day
- 18 people maximum on site
- 5 MMU Truck operation

- License limit of 35,000 kg.

The explosives mixing process is outlined briefly below, along with the associated delivery cycle:

1) Ammonium nitrate solution is delivered to the facility in railcars, which are placed within the unloading area and heated using steam to ensure that any chemical that may have crystallized during transport is reverted back to liquid form. The liquid chemical is eventually off-loaded from the railcar by pumping it into the ammonium nitrate storage tank.

2) Sulfamic acid, sodium nitrite and other required additives and surfactants (compounds that lower the tensions between substances, and act as emulsifiers) are brought to the site in trucks and off loaded to the relevant storage tank. Diesel fuel oil is also brought in by truck and off loaded to the fuel oil tank located immediately outside of the building. The ANS storage tanks capacity have been designed for seven days worth of production. The other storage capacities are sufficient to receive a truck's delivery.

3) Ammonium nitrate prills are brought in by railcar and spotted when needed (individually) over the prill off-loading hopper which contains an inclined screw that brings this material into a small indoor double hopper. Other required materials are brought in by truck and stored in the warehouse area for use as required.

4) During the mixing process, the plant operator pumps ammonium nitrate into the mix tank, where the temperature is adjusted to get it to within the required range. Surfactant and other additives (if desired) are also added.

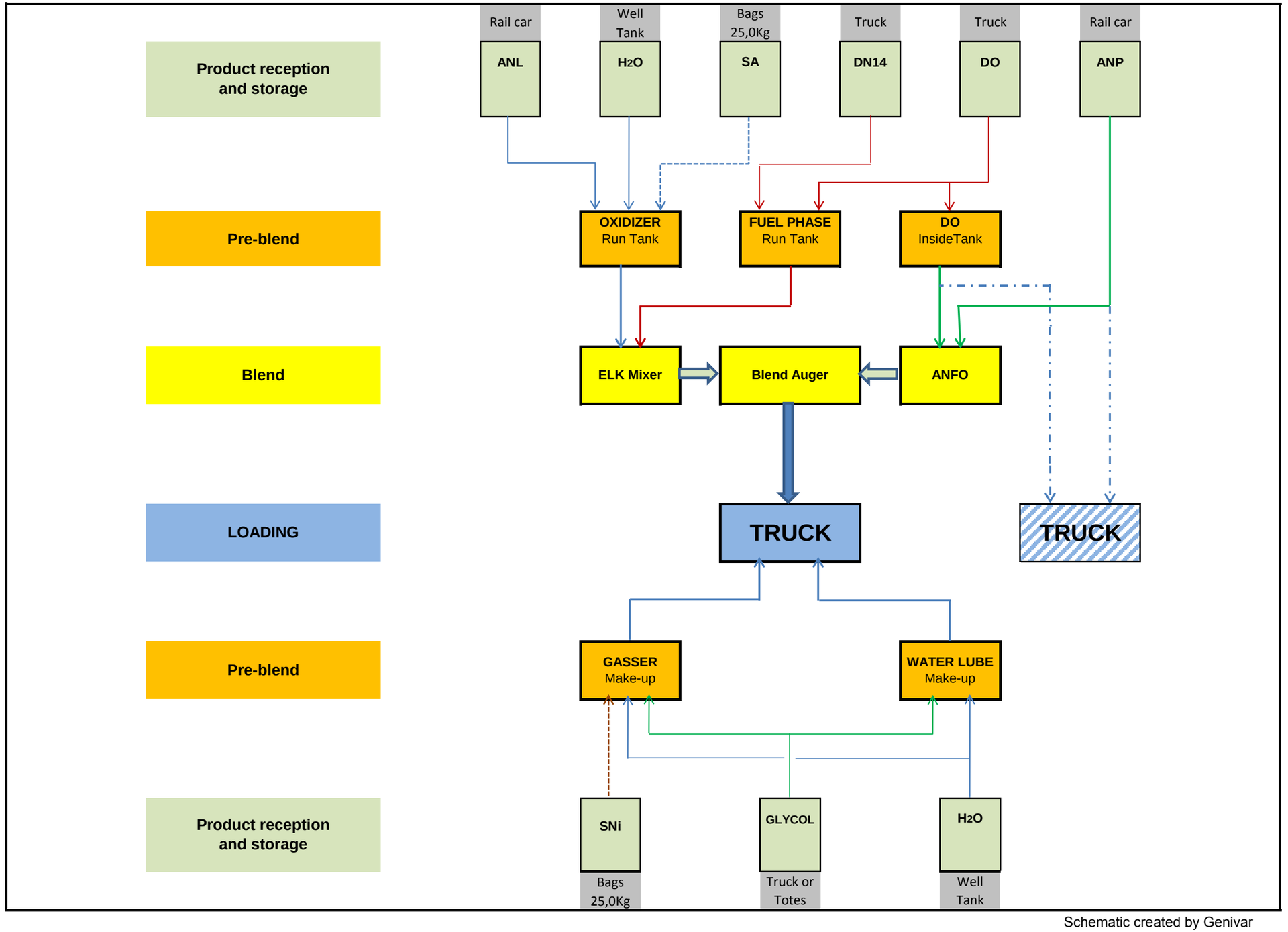
5) The mix tank product is blended with fuel oil in a specialized in-line mixer in the correct proportion of ammonium nitrate (with surfactant) and fuel oil. This is then fed into the screw conveyor which is conveying prill from the indoor hoppers. The speed of this screw sets the correct amount of prill to blend with the ammonium nitrate / fuel oil product from the in-line mixer.

6) The mixed product is fed directly into a truck, as is the separate gassing agent that is blended at the blast hole. When full, the truck is driven to the mine pit. From there the explosives are charged down the hole and mixed with the gassing agent.

7) The truck then returns to the plant, and is loaded until the mix tank is emptied. The cycle of blending another batch of explosives is then commenced as and when required.

A generalized schematic illustrating the process for materials receipt, mixing and product delivery is provided in Figure 2.4. The estimated turnaround time for an MMU truck is approximately 2 hours and 20 minutes. A total of 15 to 16 truck loads per day are required to address current demand and use.

Figure 2.4: IOC Proposed Explosives Facility - Generalized Process Schematic



Schematic created by Genivar

There are no planned discharges to the environment associated with the operation of the proposed facility, which functions as a "closed system" from the receipt of the raw materials and chemicals used in the mixing process, to the eventual transportation of explosives product from the facility in the MMU trucks. Once operational, the facility will be subject to regular inspection and maintenance, which will help to prevent any leakage, spills or other unplanned discharges to the environment.

IOC procedures for the storage, transport and use of fuel and hazardous material and contingency plans which are currently in place (Sections 2.5 and 2.12) will also apply to the operations phase of the proposed project.

2.5 Possible Accidents and Malfunctions

In the construction, operation and maintenance of an explosives facility (or indeed, any other development project), an accidental or other unplanned event is an unlikely, but unfortunately possible, outcome. Some of the potential accidental events or malfunctions that may be associated with the Project and which are relevant for EA purposes include:

- The unplanned detonation of explosives materials during their production, transportation or storage;
- A fire at the facility, potentially extending into adjacent areas and communities; and
- An accidental spill of chemicals, fuels or other deleterious substances into the terrestrial and/or aquatic environments.

Human health and safety and environmental protection have been paramount considerations by IOC in the planning and design of the new explosives facility, and these will continue to be the main priorities during the construction and operation of the Project.

As noted previously, a key rationale for the Project itself is to address various issues related to the existing explosives plant, which has been in operation since the 1960s. These include concerns regarding its current compliance with the guideline requirements of the Explosives Regulatory Division of NRCan, particularly with regard to its required distance from existing mine site roadways. The new facility has been designed to comply with these specifications, and the facility's various components were sited based on the relevant Quantity-Distance limits, which were defined based on a license of 35,000 kg for the plant, 60,000 kg for the explosives magazines and 100 kg for the detonators magazine. The existing facility is also an ageing one, with a number of general issues related to electrical code and other building requirements that IOC will address.

The new explosives facility itself may therefore be viewed as an overall environmental "mitigation" project, intended to address current environmental and safety considerations and to help ensure that the supply of explosives required for mining activity in Labrador West can continue in a manner that is safe and environmentally acceptable.

IOC and the operator of its current explosives plant (Orica) have significant and long-term experience in the manufacture, transportation and use of explosives and associated activities and materials, and have been carrying out these activities – without an accidental detonation of explosives materials - since the early 1960s. There are comprehensive Health, Safety and Environmental Management Systems and associated plans and procedures in place for IOC's overall Labrador West mining operations in general, as well as facility and activity specific plans and processes related to the existing explosives plant. For example, as a requirement of the federal licence for the existing explosives plant, the operator maintains a site specific Emergency Response Plan, and is currently completing a review and update of all site emergency response procedures to align them with CAN/CSA Z-731 standards.

These will be adopted and updated as required for the new explosives facility, which will be designed, constructed and operated in compliance with relevant legislation, regulations, standards and guidelines.

2.6 Decommissioning

The new explosives facility will be subject to maintenance, as required, and it is assumed that it would be operated on a permanent basis. As such, formal and separate plans for decommissioning have not been developed. The presence and possible future decommissioning of the Project will be incorporated into IOC overall Closure Plan for its Labrador West mining operations. Should decommissioning be required for all or a part of the facility in advance of any larger closure initiative, a detailed decommissioning plan would be developed and implemented in accordance with acceptable standards of the day, and in consultation with relevant regulatory agencies.

IOC's existing explosives plant was established in the 1960s, and consists of several buildings, including a chemical plant with associated railway line and fuel storage facilities, as well as various magazines and maintenance buildings (Figure 2.5). Once the new explosives facility is constructed and fully operational, operation of the current plant will cease and it will be decommissioned. The existing buildings will likely be kept in place for equipment storage or other uses.

Any planned decommissioning and site rehabilitation activities will be carried out in compliance with applicable regulatory requirements, and in consultation with relevant authorities. IOC will ensure the removal and appropriate disposal of chemicals and other hazardous materials from within this facility. The process building and washbay will be decontaminated of any explosive residue by qualified personnel. All tanks including associated infrastructure (lines, etc.) will be decommissioned adhering to relevant federal and provincial guidelines. The demolition of the site is included in the Closure Plan for IOC in Labrador City, and based on estimated closure costs, appropriate financial assurances are in place. An environmental site assessment will be completed to identify any contamination onsite and if necessary a remedial action plan will be developed.

Figure 2.5 IOC Existing Explosives Facility (Photographs of Some of the Existing Infrastructure)

2.7 Effects of the Environment on the Project

The proposed explosives facility has been planned and designed, and will be implemented, with due consideration of the local environmental conditions in and around the Project site. Topographic features, waterbodies, existing infrastructure, and other environmental factors have, to varying degrees, influenced the placement and design of the Project and its associated components. Weather conditions will also likely influence the timing of some construction activities.

No additional or specific mitigation measures are required or proposed in relation to the possible effects of the environment on the Project.

2.8 Labor Force and Occupations

The Project, through its construction and operations phases, will result in positive economic effects. The Project will create employment opportunities in a variety of occupations. In addition, the requirement for goods and services during Project construction and operation will provide opportunities for local businesses. These direct economic benefits will be supplemented by indirect and induced "spin-off" effects through, for example, spending by Project employees and contractors.

Over its nearly two year construction phase, the Project will require an estimated 118 workers, including the following occupations (Table 2.1)*:*

Table 2.1 Occupations Likely to be Represented in the Engineering and Construction Work Force

Occupation	Estimated Number	Relevant NOC Code
Engineering Phase		
Civil Engineer	1	2131
Mechanical Engineer	1	2132
Project Manager	1	0711
Geotechnical Engineer	1	2144
Land Surveyor	1	2154
Total	5	
Civil and Railway Phase		
Land Surveyor	4	2154
Geotechnical Engineer	1	2144
Geotechnical Technician	1	2212
Hydrogeologist	1	2113
Civil Engineer	1	2131
Superintendant	1	7205
Foreman	1	7205
Chainsaw Operator	4	8421
Truck Driver	2	7411
Heavy Equipment Operator	2	7421
Mechanic	1	7312
Drafting Technologist	1	2253
Labourers	10	7611
Water Well Drillers	2	7373
Safety Officer	2	2263
Total	34	
Construction Phase		
Truck Driver	4	7411
Civil Engineer	1	2131
Mechanical Engineer	1	2132
Electrical Engineer	1	2133
Architect	1	2151
Cost Clerk	1	1411
Project Manager	1	0711
Site Engineer	1	2131
Site Inspection	3	2262
Superintendent	3	7205
Foreman	4	7205
Labourers	30	7611
Concrete Mason	4	7282
Pipe Fitter	4	7252
Electrician	4	7241
Telecommunications worker	2	7246
Welder	4	7265
Crane Operator	2	7371
Heavy Equipment Operator	2	7421
Construction Supervisor	4	0711
Safety Officer	2	2263
Total	79	
TOTAL (ENGINEERING AND CONSTRUCTION)	**118**	

Project construction will be carried out on a contractual basis, with workers hired at the discretion of the contractor and in accordance with its own hiring practices and policies. IOC supports employment and gender equity in its hiring and contracting practices, and is committed to maximizing the use of the local workforce and Newfoundland and Labrador companies to the extent possible.

Once commissioned and during Project operations, the Project will require an estimated 18 workers in the follow long-term positions (Table 2.2):

Table 2.2 Occupations Likely to be Represented in the Operations Work Force

Occupation	Estimated Number	Relevant NOC Code
Mobile Manufacturing Unit (MMU) Operators	10	9232
Plant Operators	3	0721
Mechanics	2	7312
Site Management / Administration	3	0114
TOTAL (OPERATIONS)	**18**	

As a result, the Project will make a strong contribution to local and provincial economies as a result of this employment and business activity, as well as by providing infrastructure to help facilitate on-going mining activities and future development and growth in this region and sector.

2.9 Project Documents

Apart from this EA Registration, no other EA-related documents have been produced by IOC in relation to this Project.

2.10 Project Schedule

Subsequent to release from the EA process, and the receipt of formal corporate approval and all other required environmental approvals and permits, construction activity would commence in the fall of 2012 and extend through to 2014, with facility commissioning and start-up currently planned for late 2014.

2.11 Project Cost and Funding

The estimated cost of the Project, based on the current stage of engineering design and planning, is approximately $40 million. The Project will be privately funded. Government financial assistance is not required or being requested.

2.12 Environmental Management and Protection

The proposed Project would be constructed and operated as part of on-going and long-standing work programs associated with IOC's Labrador West operations. The company has in place a comprehensive Health, Safety and Environmental Management System and associated environmental plans and procedures for its development and operational activities. These have been developed and are being implemented and continuously updated in accordance with its corporate Health, Safety, Environment and Quality Policy (Appendix A), other relevant corporate requirements and guidelines, and with a view to meeting, and seeking to surpass, the provisions of applicable legislation and regulations.

As part of its existing systems and processes, IOC has in place a comprehensive environmental management system (EMS) certified to the ISO 14001 Environmental Standard, including various associated plans and procedures designed to avoid or reduce the environmental effects of its activities. The proposed Project will be constructed and operated in accordance with applicable legislation and regulations, including the environmental protection and planning measures defined through this EA review, and in compliance with IOC policies, procedures and standards.

Table 2.3 provides a listing of some of IOC's existing environmental and other plans for its Labrador West development activities and operations. A review and updating of these and other existing procedures will be carried out as Project planning and implementation progress, including the incorporation of Project activities into IOC's overall integrated management system.

Table 2.3 IOC Environmental Management Plans (Select)

Title	Current Version
Contaminated Soil Management SOP-EM-702E	March 2011
IOC Labrador City - Contingency Plan for Environmental Releases	January 2011
Environmental Reporting SOP-EM-807E	March 2011
IOC Lab City – Operational and Development Environmental Protection Plan	December 2010
Hazardous Materials and Contamination Control Management Plan	August 2007
Non-Mineral Waste Management Plan	July 2007
Water Use and Quality Control Management Plan	July 2007
Land and Watercourse Disturbance- Site Clearance Permits SOP-EM-701E	March 2011
Land Disturbance- Vegetation Clearing and Grubbing SOP-EM-700E	March 2011
Spill Response and Reporting SOP-EM-808E	March 2011

2.12.1 Environmental Protection Plan(s)

Environmental protection planning is an integral part of IOC's construction, operations and maintenance programs. As a corporation with significant experience in constructing, operating and maintaining mining related infrastructure and activities in Labrador West and elsewhere, IOC has proven policies and procedures related to environmental protection and management which will be implemented during the construction and operation of this proposed Project.

An Environmental Protection Plan (EPP) is an important tool for consolidating environmental information and procedures in a format that provides sufficient detail for the implementation of environmental protection measures in the field. An EPP provides concise instructions to personnel regarding protection procedures and descriptions of techniques to reduce potential environmental effects associated with any construction or operations activity. IOC has developed and implemented EPPs for the previous phases of its Labrador West development activities, and these will be updated and expanded as required to address the proposed components and activities associated with this Project. An outline of IOC's current operational EPP is provided below, for illustration and general information.

IOC Labrador City – Operational Development: Environmental Protection Plan (December 2010)

1.0 Introduction
- 1.1 Purpose of the Environmental Protection Plan
- 1.2 Environmental Protection Plan Organization
- 1.3 Roles and Responsibilities
- 1.4 Environmental Orientation

2.0 Project Overview
- 2.1 Construction
- 2.2 Operations
  - 2.2.1 Ongoing Site Preparation Activities
  - 2.2.2 Mining Activities at IOCC (typical)
- 2.3 Decommissioning

3.0 Regulatory Requirements and Commitments
- 3.1 Approvals, Authorizations and Permits
- 3.2 Compliance Monitoring
- 3.3 Reporting
  - 3.3.1 Internal Communication
  - 3.3.2 External Communication

4.0 Environmental Protection Procedures
- 4.1 Marshalling and Storage Areas
- 4.2 Clearing Vegetation
- 4.3 Grubbing and Disposal of Related Debris
- 4.4 Erosion Prevention and Siltation Controls
- 4.5 Buffer Zones
- 4.6 Blasting
- 4.7 Watercourse Crossings
- 4.8 Development Site Water Body Discharge.
- 4.9 Equipment Use and Maintenance
- 4.10 Storage, Handling and Transfer of Fuel and Other Hazardous Material
- 4.11 Solid Waste Disposal
- 4.12 Mineral Waste Rock and Overburden
- 4.13 Vehicle Traffic
- 4.14 Dust Control
- 4.15 ATV and Snowmobile Traffic
- 4.16 Hazardous Waste Disposal
- 4.17 Road Maintenance
- 4.18 Trenching
- 4.19 Surveying

Depending on construction sequencing, one or several Project-specific EPPs would be prepared and implemented for the construction phase of the Project. As appropriate, each EPP will include procedures and measures relating to such activities as vegetation clearing, grubbing and grading, storage and handling of fuel, blasting, quarrying, dust control, waste and sewage disposal, work in or near water, contingency plans for unplanned events such as spills, rehabilitation and compliance monitoring.

2.12.2 Emergency Response and Reporting Plan(s)

IOC proactively identifies potential emergency situations and develops Emergency Response and Reporting Plans, the purpose of which are to identify responsibilities and procedures in the event of an unplanned incident, such as an incident that may affect human health or safety, or the accidental release of hazardous material, and to provide the information and procedures required for the effective response and reporting of such an incident. An outline of IOC's current Contingency Plan For Environmental Releases is provided below, for illustration and general information.

IOC Labrador City - Contingency Plan For Environmental Releases (Revision: January 2011)

IOC Labrador City - Contingency Plan For Environmental Releases (Revision: January 2011)
4.1.1 Response, Reporting and Follow-up 4.2 Other Chemicals 4.2.1 Response, Reporting and Follow-up Appendix A External Emergency Contacts Appendix B Emergency Call-out Procedure Appendix C Hazardous Waste Collection Points Appendix D Revision History Appendix E Plan Holders

There are comprehensive incident prevention, response and reporting plans and procedures in place for IOC's overall Labrador West mining operations in general, as well as facility and activity specific plans and processes related to the existing explosives plant. These will be adopted and updated as required for the new explosives facility, which will be designed, constructed and operated in compliance with relevant legislation, regulations, standards and guidelines.

The manufacture of explosives is regulated through the federal *Explosives Act*, which states that no person shall make or manufacture explosives either wholly or in part except in a licensed factory (Section 6.(a)). The associated *Explosives Regulations* further specify that when making an application for an explosives factory licence the applicant must submit for review an Emergency Response Plan (Section 7,b(iii)) prior to a license being issued. In accordance with these regulations, the operator of IOC's existing explosives facility (Orica Canada) has prepared and maintains a site specific Emergency Response Plan. The contents of this plan include the identification and subsequent response to potential accidental events and environmental issues. The specific response to spills, leaks and loss of containment are included in this response plan and are reviewed by NRCan prior to the issuance of a license. This is to ensure that the proper procedures, equipment and training are in place to be able to rapidly respond to these incidents should they occur. The operator is also currently completing a review and update of all site emergency response procedures to align them with CAN/CSA Z731-95 Emergency Planning for Industry standards. A revised Emergency Response Plan will be prepared in relation to the proposed Project, in accordance with the federal (NRCan) licensing requirements outlined above. This will be prepared, approved and in place prior to the commissioning of this proposed new facility.

IOC also recognizes that ammonium nitrate is listed in Schedule 1 of the *Environmental Emergency Regulations* under the *Canadian Environmental Protection Act*, administered by Environment Canada. Based on the quantities of ammonium nitrate that are likely to be used and stored at the proposed facility, these Regulations will apply, one of the requirements of which will be preparation and implementation of an acceptable Environmental Emergency Plan.

2.13 Other Required Environmental Approvals

In addition to approval under the provincial EA process, the proposed Project will also require a number of other permits and authorizations. A listing of some of the main permits, licences, approvals and other authorizations that may be required for the Project is provided as Appendix B.

3.0 EXISTING ENVIRONMENT

The following provides an overview of the existing environmental setting for the proposed Project, including a description of relevant components of the biophysical and socioeconomic environments.

3.1 Natural Environment

The proposed explosives facility is located in Western Labrador, in the southeastern portion of IOC's existing mining project site.

The site is located within the extensive *Mid Subarctic Forest* ecoregion (Meades 1989; 1990), which encompasses the upland plateaus of central and western Labrador. This area has a continental, subarctic climate with cool, short summers and long, severe, cold winters. At Wabush Lake, daily average temperatures range from - 22.7 ^{o}C in January to + 13.7 ^{o}C in July, with 482.6 mm of rainfall and 445.7 cm of snowfall per year and prevailing westerly winds (Environment Canada 2004). Black spruce is the dominant tree species, with intermittent hardwoods and open lichen woodlands being common and characteristic of this region. Extensive ribbed fen-string bog complexes, bordered by black spruce-sphagnum forest stands, dominate areas with little relief.

The proposed Project site itself is characterized by patches of mixed wood forest interspersed with areas of moss, lichen cover and exposed rock and earth (Figure 3.1), with roads, trails and other developed areas being present throughout the larger region (see Figure 2.2).

Figure 3.1 Environmental Setting (Typical Site Vegetation and Ground Cover)

The interior of Western Labrador, with its open, stunted forests and extensive wetlands, also provides habitats for a range of wildlife that are typical of boreal forest ecosystems. Wildlife species that are known or likely to occur in the general region include red fox, marten, voles, porcupine, lynx, wolf, moose and black bear, as well as various resident and migratory species of birds, including raptors, waterfowl, passerines and upland game birds. The presence of large-scale mining activity in and around the Project area for the past five decades has, however, limited the use of the site itself by most wildlife.

Although individuals from the migratory George River caribou herd have occasionally and sporadically entered the region in past years, the Project site is outside of the herd's current range (IFWD 2010). The area is also outside the range of the threatened Lac Joseph woodland caribou herd (Schmelzer et al, 2004), as confirmed through an aerial census conducted by the provincial government in March 2009 (Schmelzer 2010). A February 2012 aerial survey completed by IOC likewise did not find any caribou throughout a 40 x 40 km regional study area that encompassed the Project site (study report in prep.).

The new explosives facility is proposed to be located at least 50 m from the adjacent waterbody (Patersons Pond) (Figures 2.1 and 2.2). Wabush Lake is located to the east of the proposed facility, and is an existing, approved tailings disposal area into which IOC has been depositing tailings from its Labrador West operations since the early 1960s. There are no waterbodies or watercourses within or immediately adjacent to the location of the proposed facility, although there is a very small ephemeral stream at the site (Figure 3.1).

Previous aquatic baseline surveys have identified the fish species that inhabit the ponds and rivers in the general area, which include brook trout, lake whitefish, ouananiche (land locked Atlantic salmon), northern pike, burbot, mottled and slimy sculpin, longnose and white sucker.

The proposed access road construction / re-construction and railway extension associated with the Project will involve the following (Table 3.1, Figure 3.2):

- 1 existing stream (rail) culvert which may be replaced or repaired;
- 1 existing stream (road) culvert which will not be replaced or repaired;
- 5 new drainage culverts (road / railway); and
- 1 existing drainage culvert (road) which will not be replaced or repaired.

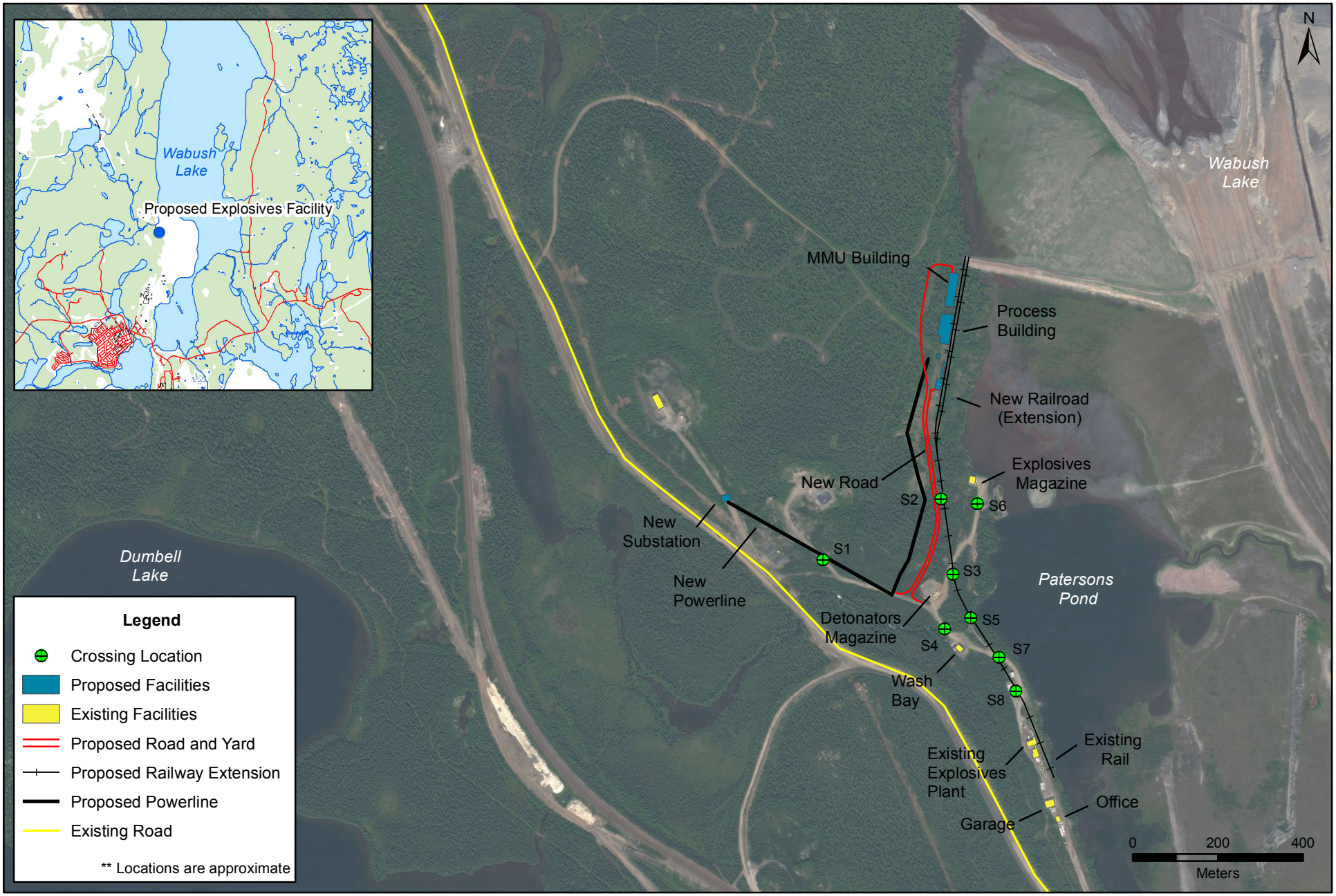
An estimation of the potential for fish habitat in the various watercourse crossing / drainage channels that are associated with the Project has been carried out based on an analysis of orthophotography / resolution Imagery, topography, waterbody locations, previous work in nearby areas, and fisheries knowledge of the area (Table 3.1). Stream surveys may be conducted to verify the desktop determinations and to comply with DFO requirements as part of regulatory permitting prior to construction.

No species that are listed under the Newfoundland and Labrador *Endangered Species Act* (NL ESA) or the Canadian *Species at Risk Act* (SARA) are known to occur within or near the proposed Project area.

Table 3.1 Potential Watercourse Crossings and Drainage Channels (New and Reconstructed) Associated with the Project

#	Crossing Type	Project Component	Apx Watershed Size (ha)	Apx Width (m)	Apx Slope (%)	Possible Fish Habitat (Y/N)	Notes
1	New Drainage Culvert	Existing road	-	-	-	N	Culvert for facilitating road drainage. Not considered fish habitat.
2	New Drainage Culverts	Proposed road / rail	-	-	-	N	Proposed set of two culverts for road and rail drainage. Not considered fish habitat.
3	New Drainage Culvert	Proposed rail / existing road	-	-	-	N	Proposed culvert for road and rail drainage. Not considered fish habitat.
4	Existing Stream Culvert	Existing road	~3,500	3.2	11.8	Y	Existing road crossing culvert upstream of Crossing 5. The stream drains a large watershed. High slope likely a barrier to fish migration. Existing culvert is not to be replaced or modified.
5	Repaired / Replacement Stream Culvert	Existing rail	3,539	4.5	4.8	Y	Based on large watershed size, upstream waterbody (Dumbell Lake), and low slope, potentially fish habitat. Culvert may be replaced or repaired
6	New Drainage Culvert	Existing road	-	-	-	N	Culvert for facilitating road drainage. Not considered fish habitat.
7	Existing Drainage Culvert	Existing road	-	-	-	N	Culvert for facilitating road drainage. Not considered fish habitat. Existing culvert is not to be replaced.
8	New Drainage Culverts	Existing road / Proposed rail	-	-	-	N	Proposed set of two culverts for road and rail drainage. Not considered fish habitat.

NOTE: ***Watercourse crossing numbers in the above Table correspond to those shown in Figure 3.2***



IRON ORE COMPANY OF CANADA

Figure 3.2

Potential Watercourse Crossings and Drainage Channels

amec

3.2 Human Environment

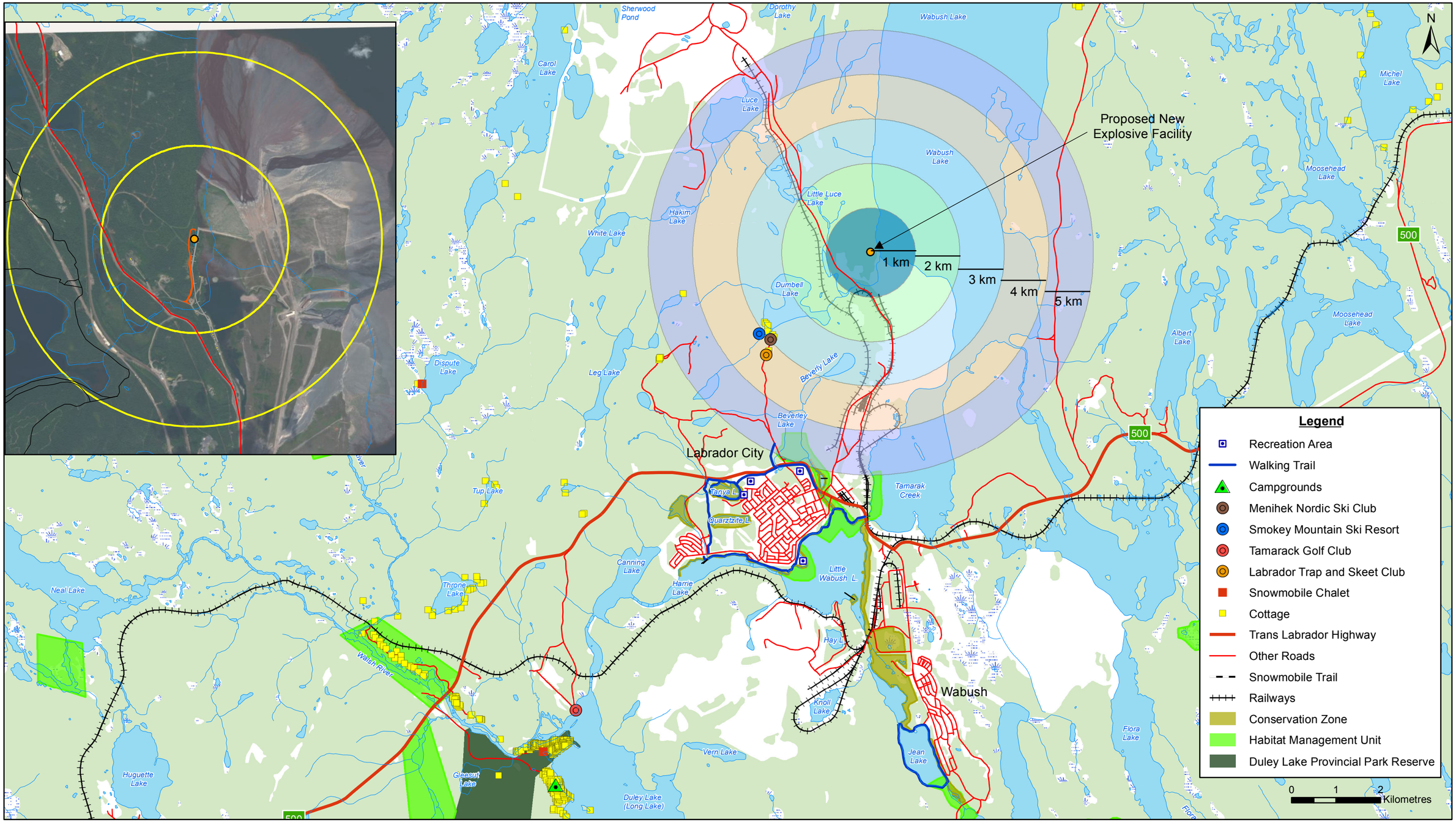
The Labrador West region includes the communities of Labrador City (38.83 km^2) and Wabush (46.25 km^2), which had a combined population of 9,228 residents and 3,751 residences in 2011 (Statistics Canada 2012). The proposed explosives facility will be located approximately 5 km to the north of Labrador City (Figure 3.3).

Labrador City and Wabush are modern, vibrant communities, which provide a wide and diverse range of public and commercial services and infrastructure to their residents and the general region (Labrador West 2012). The communities of Western Labrador are connected to each other and other parts of Labrador and Quebec by road and railway. A year-round highway to Baie Comeau, Quebec connects Labrador City and Wabush with the national highway system to the west, and the Trans Labrador Highway extends east and connects the region with Central and Southeastern Labrador. IOC also owns and operates the QNS&L railway, which extends for nearly 420 km from Labrador West to the Port of Sept-Îles, Quebec and transports iron ore concentrate, goods and freight. Wabush Airport lies approximately midway between the two communities.

Mining and mineral processing, together with related support industries, are the main economic focus of the region (Labrador West 2012). In 2006 the region had a total labour force of 5,310 workers, of which 2,215 (42 percent) worked in ”resource-based industries”. In that year, the region had a labour force participation rate of 73 percent, an unemployment rate of 9 percent (less than half the provincial rate), and over 85 percent of total income in the region came from employment earnings (Statistics Canada 2006). The average family income in these communities in 2007 was approximately $109,000, which was over 45 percent higher than that for the province as a whole that year (NL Community Accounts 2012).

In terms of human health and well-being, in 2009-2010, 12.4 percent of persons age 12 and over in Western Labrador rated their health status as excellent and 54.6 percent rated their health status as very good. This compares to 14.2 percent and 49.2 percent in Labrador as a whole, respectively, and 16.2 percent and 43.9 percent for all of Newfoundland and Labrador (NL Community Accounts 2012).

The proposed Project area itself is located in the southeastern portion of IOC’s existing mining project site Western Labrador, on IOC property. Public access to the site is therefore restricted at present, and land and resource uses and other public activities do not currently take place in the immediate area (Figure 3.3).



IRON ORE COMPANY OF CANADA	Figure 3.3	amec
	IOC Proposed Explosives Facility - Existing (Regional) Socioeconomic Environment	

4.0 CONSULTATION

Consultation is the cornerstone of the EA process, and a key aspect of IOC's approach to its planning and development activities. A number of consultation activities have been or will be undertaken in relation to the proposed Project. These include the provision of information to, and discussions with, relevant government departments and agencies, Aboriginal and stakeholder groups and others.

4.1 Regulatory Consultation

IOC has provided Project overview information to, and corresponded and met with, the provincial and federal governments on various occasions. Relevant government departments and agencies will participate in the review of this EA Registration and associated regulatory decisions.

The Project will also eventually require a range of additional environmental permits and other authorizations (see Section 2.14 and Appendix B). The post-EA permitting process will provide the opportunity for relevant regulatory departments and agencies to receive and review additional Project design information, and to establish specific terms and conditions to avoid or reduce environmental effects. IOC and/or its contractors will identify, apply for and adhere to all required permits and other authorizations that are required for Project construction and/or operations.

4.2 Aboriginal Consultation

A number of Aboriginal organizations have an asserted land claims to areas in Western Labrador. These land claims are at varying stages of acceptance, negotiation and settlement.

The Labrador Innu currently number about 2,500 and reside primarily in two communities - Sheshatshiu in Central Labrador and Natuashish on the Labrador North Coast. The Innu Nation has an asserted land claim which has been accepted for negotiation by both the federal and the provincial governments, and which extends to Western Labrador. The provincial and federal governments and Innu Nation have completed detailed agreements on these matters, including a tripartite Innu Land Rights Agreement-in-Principle, which were ratified by the Innu on June 30, 2011, and signed by the three parties on November 18, 2011.

The NunatuKavut Community Council (NCC) is an organization that reports a membership of over 6,000 members who reside primarily in Southern and Central Labrador. Originally established as the Labrador Métis Association in 1985, the NCC has asserted a land claim that covers much of Central, Western and Southeastern Labrador.

In addition to Aboriginal communities in Labrador, there are also Aboriginal organizations in Quebec who have asserted claims in areas in Western Labrador, including the Matimekush Lac John First Nation, the Naskapi Nation of Kawawachikamach and the Uashat mak Mani-Utenam First Nation.

IOC understands that this EA Report will be made available to all interested parties, including relevant Aboriginal organizations as the case may be, for their information, review and comment as part of the EA process, and that any concerns or other input received will be considered in governmental decisions around whether the Project may proceed, and if so, under what terms and conditions. Any consultation requirements involving relevant Aboriginal organizations would therefore be addressed through that governmental referral process.

IOC intends to communicate with relevant Aboriginal organizations shortly after the filing of the EA Registration to offer to meet with them, to answer any questions with respect to the Project, to gather any comments and concerns they may have in respect of the Project and to exchange information with them in this regard as required. IOC will inform the governmental authorities about its efforts with such Aboriginal organizations. IOC will be pleased to be guided by the governmental authorities on any additional requirements with respect to Aboriginal consultation.

4.3 Stakeholder and Public Consultation

IOC has been operating in Labrador West since the early 1960s, and is a long-standing and active participant in the local community and overall region. The company currently has a number of established consultative forums in place, through which it regularly communicates and discusses its on-going activities and upcoming plans with stakeholders.

In 2006, IOC formed a Community Advisory Panel (CAP), which consists of representatives of the town councils of Labrador City and Wabush and other community and stakeholder organizations, and which meets quarterly to discuss issues of common interest. IOC also recently participated in the establishment of a Labrador West Regional Task Force to bring mining companies together with local representatives (including the Mayors of both towns), senior provincial and federal government officials and others, to discuss on-going and future mining operations and expansion projects in the region and to identify and seek to address key associated socioeconomic issues and considerations.

IOC and the Town of Labrador City also participate in a Joint Planning Committee, which was established in 2008 and whose mandate is to provide a forum for regular discussion and harmonisation of land-use planning between the Town of Labrador City and IOC. The committee meets at minimum on a bi-monthly basis (or as required when specific issues arise), to address community issues and regional development, including residential, commercial and industrial development, mining and exploration plans and activity, and community needs for permanent and temporary accommodations.

IOC has and will continue to consult with local communities and stakeholders on its operations and upcoming activities – including this proposed Project - through these and other forums.

Again, the EA registration and review process also provide opportunities for interested parties to bring forward their views and to identify issues and ask questions about a Project, for consideration in governmental (regulatory) review and decision-making.

5.0 ENVIRONMENTAL ISSUES AND THEIR MANAGEMENT

The following sections provide the results of an environmental effects analysis for the proposed Project, including each of its associated components and activities. The analysis focuses upon, and is organized according to, the following themes:

1) Atmospheric and Acoustic Environment

2) Terrestrial Environment

3) Freshwater Environment

4) Socioeconomic Environment

The analysis for each includes a discussion and description of the likely environmental issues (adverse and positive) that may be associated with the Project, with separate subsections for the Construction and Operations phases. Environmental planning and mitigation measures to avoid or reduce environmental effects are identified and considered integrally with the analyses.

The assessment also includes possible accidental events and malfunctions that could potentially occur during each phase (construction, operations) of the Project. The potential cumulative environmental effects of the Project in combination with other projects and activities that have been or will be carried out are also assessed and evaluated. This is followed by a summary and evaluation of the likely residual (after mitigation) environmental effects of the Project.

The environmental analysis concludes with an overview of any environmental monitoring and follow-up which may be required during one of both phases of Project implementation.

5.1 Atmospheric and Acoustic Environment

The environmental analysis for the Atmospheric and Acoustic Environment includes consideration of any likely implications of the Project on air quality and noise levels within and around the Project area and nearby communities.

IOC has carried out extensive ambient air monitoring in Western Labrador for a number of years, which includes sampling on a 6 day NAPS schedule for total suspended particulate matter (TSP), particulate matter less than 2.5 microns (PM2.5) and sulfur dioxide (SO_2) at four locations throughout Labrador City. In late 2010, IOC began a major upgrade of this network which included monitoring for more pollutants on a continuous basis, the addition of several new monitoring locations and the relocation of existing ones. The upgraded program also includes monitoring for NO_x and the collection of meteorological information from two new stations. Government regulators have real-time access to the air monitoring data to ensure compliance with air quality standards.

5.1.1 Construction

The main potential interactions between the Project and the Atmospheric and Acoustic Environment relate to the use of equipment, primarily during Project construction, and the associated noise, dust and engine emissions that may be associated with these activities. Construction activity will include various activities associated with land clearing and site preparation, the construction of buildings and other site infrastructure, the movement and installation of materials and equipment, possible blasting during site preparation (as required), and other activities, which will result in some minor, temporary and localized air emissions due to project-related dust and emissions from vehicles and equipment.

Project construction will therefore be characterized by fairly standard and routine activities and practices, will occur within a localized area over a relatively short period. It will take place within an area that has been previously developed, is subject to on-going mining activity, and is within IOC's property and several kilometres from local communities. Project-related vehicles and equipment will be maintained in good repair and inspected regularly and any associated air emissions from equipment and vehicles will conform to applicable regulations and guidelines. Fugitive dust from construction activities will be controlled as necessary using dust control agents such as water.

Any potential emissions or interactions with the Atmospheric and Acoustic Environment during Project construction are therefore likely to be negligible (and within existing regulations or standards), localized and short-term (intermittent over the construction period).

5.1.2 Operations

During Project operations, the nature and degree of on-site activity will be considerably less than that during the construction phase, and will be characterized primarily by the movement of materials to and from the plant, associated activities and processes within the Process and MMU Buildings, as well as periodic maintenance of the facility.

The explosives preparation activities that will be undertaken within the facility are not particularly noisy, nor are they characterized by significant air emissions or other planned environmental discharges. They will be very similar in nature and magnitude to those which have been taking place at the existing explosives facility in Labrador West since the 1960s, and will occur on IOC's property within its existing mine site.

5.1.3 Potential Accidents and Malfunctions

The potential accidental events or malfunctions during Project construction and/or operations that would be most relevant to the Atmospheric or Acoustic Environments would be a fire at the facility, the potential environmental effects of which would depend upon the nature and magnitude of the event.

As described earlier, IOC currently has in place various measures, plans and procedures to prevent a fire, explosion or other associated event at its existing explosives facility and its overall Labrador West mining operations, as well as to respond to such an accidental event should one occur. These measures will also be further defined and reinforced through the eventual federal and provincial government permits and other approvals that will be required for the construction and operation of the facility.

5.1.4 Cumulative Environmental Effects

The proposed Project will occur on IOC property, within the area of its on-going mining operations in Labrador West. As noted above, air quality issues have been a key consideration and priority for IOC in relation to its existing and on-going mining activities, and the company has an extensive air quality monitoring program in place for its Labrador West operations. The construction and operation of the proposed explosives facility is not likely to contribute measurably to overall air quality or noise levels in the area.

5.1.5 Environmental Effects Summary and Evaluation

A summary of potential environmental interactions, identified mitigation measures, and the residual environmental effects of the Project on the Atmospheric and Acoustic Environment is provided in the Table below.

Table 5.1 Environmental Effects Assessment Summary: Atmospheric and Acoustic Environment

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Issues / Interactions		
Air Quality	•	•	▪ Equipment use (vehicles, fuel consumption, boilers) ▪ Possible accidental event (fire, others)	▪ Localized and short-term construction activity. ▪ Standard construction practices and equipment maintenance. ▪ Project operations have little or no air emissions or detectable noise, similar to existing activities. ▪ Location is on an existing mine site. ▪ Accidental event prevention and response.	NS
Noise Levels	•	•			NS

Key:

•	Potential Project Interaction (by Phase)
N	No likely adverse residual environmental effect
NS	Not significant adverse residual environmental effect
S	Significant adverse residual environmental effect
P	Positive residual environmental effect

The proposed Project is not likely to result in significant adverse environmental effects on the Atmospheric and Acoustic Environment.

5.2 Terrestrial Environment

The Terrestrial Environment is comprised of relevant components of the "on-land" biophysical environment which may interact with the Project, including vegetation, soils, landforms and wildlife.

5.2.1 Construction

Project construction will involve vegetation clearing and grubbing, site preparation and excavation activities, covering an overall area of approximately 25,000 m^2. The proposed Project site itself is characterized by patches of mixed wood forest interspersed with areas of moss, lichen cover and exposed rock and earth (see Figure 3.1), with roads, trails and other previously disturbed and developed areas being present throughout the larger region (see Figure 2.2). There are no listed or rare plant species that are known to occur within or near the proposed Project area.

The proposed project area is characterized by a relatively small footprint, and the area has been subject to previous development and disturbance in places. Vegetation clearing and other ground disturbance activities will be confined to only those areas where it is absolutely necessary. Limits of clearing will be marked in advance, and only designated areas will be cleared. Clearing will be completed in compliance with relevant permits and regulations, and any merchantable timber will be salvaged.

Given the presence of mining activity within and around the Project area for the past five decades, the Project site likely provides limited or no wildlife habitat at present. Recent studies have confirmed that the area is not within the current range of the migratory and sedentary caribou populations which occur in Western and Central Labrador. Any wildlife (such as avifauna) that do use the area have likely habituated somewhat to on-going human activity. The potential for interactions between the Project and wildlife is therefore limited. There are no listed species that are known to occur within or near the proposed Project area.

The following measures will be implemented during this phase of the Project to further reduce the potential for interactions between construction activity and any wildlife that may occur in the area:

- construction areas will be kept clear of garbage;
- construction personnel will not hunt of harass wildlife while on site;
- pets will not be permitted on the construction site;
- equipment and vehicles will yield the right-of-way to wildlife; and
- any nuisance animals will be dealt with in consultation with the NL Inland Fish and Wildlife Division.

IOC currently has procedures in place for the management of solid and hazardous wastes at its Labrador West operations, which will apply to the construction and operations phases of the proposed Project. Waste materials generated through construction activities will be removed from the area and disposed of at an approved site. Non-hazardous construction refuse will be stored in covered metal receptacles, and will be disposed of on an as-needed basis at an approved landfill site, as per IOC's on-going operations and practices. Waste materials will be reused / recycled where possible.

Any hazardous wastes will be stored in sealed, labelled containers and disposed of according to applicable regulations and IOC practice. These include procedures for the characterization / identification, storage, inspection, labelling and transportation of hazardous wastes produced at the facility, as well as emergency preparedness/prevention and training. There will therefore be no adverse interaction between construction waste materials and the environment.

5.2.2 Operation

During the operations phase of the project there will be no additional soil or vegetation disturbance, and therefore, little or no potential for further effects to these aspects of the terrestrial environment.

Operations activities will be characterized primarily by the movement of materials to and from the plant, associated activities and processes within the Process and MMU Buildings themselves, as well as periodic maintenance of the facility, none of which will be particularly noisy or otherwise disruptive, particularly in this area of long-standing and on-going industrial activity.

No interactions with or adverse effects on the Terrestrial Environment are therefore anticipated during this phase of the Project.

5.2.3 Potential Accidents and Malfunctions

Potential accidental events or malfunctions during Project construction and/or operations such as a fire or a spill of fuel other chemicals could affect vegetation, soils and/or other aspects of the Terrestrial Environment in or around the Project area. Again, the resulting environmental effects of such an incident would clearly depend upon the nature and magnitude of the event.

As indicated above, IOC has various measures, plans and procedures in place to prevent a fire, explosion or other associated event at its existing explosives facility and overall Labrador West operations, as well as to respond to such a accident should one occur. These measures will be applied to (and refined as required for) the new explosives facility, as well as further reinforced through the various federal and provincial government permits, other authorizations and regulations and compliance standards that will be relevant to the construction and operation of the Project.

5.2.4 Cumulative Environmental Effects

Although the Project will have some effect on vegetation and soils within the construction “footprint” during that phase of the development as a result of associated clearing and excavation activities, any such disturbances will not overlap or interact cumulatively with those of other projects and activities in the region. The Project will also not affect listed or rare species, and will therefore not have any effect on overall biodiversity in the region, nor will it affect caribou populations or other wildlife. The construction and operation of the proposed explosives facility is not likely to contribute measurably to any overall, cumulative environmental effects to the Terrestrial Environment in the region.

5.2.5 Environmental Effects Summary and Evaluation

A summary of potential environmental interactions, identified mitigation measures, and the residual environmental effects of the Project on the Terrestrial Environment is provided in the Table below.

Table 5.2 Environmental Effects Assessment Summary: Terrestrial Environment

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Issues / Interactions		
Vegetation	•		▪ Ground disturbance	▪ Localized and small project "footprint" ▪ Compliance with regulations and permits ▪ Accidental event prevention and response	NS
Soils	•				NS
Wildlife				▪ Existing mining activity ▪ Little or no current use by wildlife	N
Terrestrial Species at Risk				▪ None known to occur in or near Project area	N

Key:

•	Potential Project Interaction (by Phase)
N	No likely adverse residual environmental effect
NS	Not significant adverse residual environmental effect
S	Significant adverse residual environmental effect
P	Positive residual environmental effect

The proposed Project is not likely to result in significant adverse environmental effects on the Terrestrial Environment.

5.3 Freshwater Environment

The Freshwater Environment includes surface and groundwater (quantity and quality) and fish and fish habitat which may interact with the Project.

5.3.1 Construction

There are no waterbodies or watercourses within or immediately adjacent to the location of the proposed explosives facility, although there is a very small ephemeral stream at the site (Figure 3.1) which is dry for much of the year and serves as a drainage ditch during periods of heavy precipitation and run-off. This drainage channel will be re-routed during Project construction to flow around the Project area, and a ditch will be established along the south-eastern perimeter of the site to facilitate drainage.

Construction site drainage will be managed as required to prevent water containing sediment and/or other substances from entering adjacent waterbodies and watercourses. Silt-laden water will be discharged to a vegetated area or a sedimentation basin prior to release into a watercourse or waterbody. A clearly marked buffer zone will be maintained between any areas of ground disturbance and watercourses.

The Project (Process and MMU Buildings) is proposed to be located at least 50 m from the adjacent waterbody (Patersons Pond) (see Figures 2.1 and 2.2). Wabush Lake is located to the east of the proposed facility, and is an existing, approved tailings disposal area into which IOC has been depositing tailings from its Labrador West operations since the early 1960s.

The proposed access road construction / re-construction and railway extension associated with the Project will involve the following (Figure 3.2 and Table 3.1):

- 1 existing stream (rail) culvert which may be replaced or repaired;
- 1 existing stream (road) culvert which will not be replaced or repaired;
- 5 new drainage culverts (road / railway); and
- 1 existing drainage culvert (road) which will not be replaced or repaired.

Any in-stream work will be undertaken in compliance with government regulations, permits, and applicable IOC and DFO guidelines. To avoid sensitive periods for fish, any such activity will be conducted between June 15 and September 15, unless otherwise approved. Stream surveys may be conducted to verify the desktop fish habitat analyses presented earlier, and to comply with DFO requirements as part of regulatory permitting prior to construction.

Any stream culverts will be aligned to existing water channels on firm ground. They will also be installed such that scouring of the stream bed does not occur with peak water velocities. The culvert placement will be of appropriate depth to maintain water velocity to allow for fish passage. The use of open bottom culverts for stream crossings can potentially reduce or avoid environmental effects compared to cylindrical culverts. Decisions on which type of culvert to be used for any replacement will be made during detailed road design and permitting. The stream crossing methods chosen during the detailed design and construction phases will focus on those with the least in-water effect, so as to minimize potential effects on the aquatic environment.

Any watercourse structures will be installed in the dry by diverting or pumping water around the construction area. Precautions will be taken, to ensure that fish are not left stranded in the work area, and any fish recovered from the work area will be returned unharmed to the watercourse as directed by DFO officials. Erosion control measures (e.g., sediment traps and filter fabric will be put in place during construction) as appropriate to minimize erosion and siltation of waterbodies used by fish. Following construction, regular inspections will be completed to verify correct culvert installation and operation.

Work will be performed in a manner ensuring that no deleterious substances, such as (but not limited to) sediment, fuel and oil, enter waterbodies. Tools and equipment will not be washed in any body of water, and wash water will not be discharged directly into any waterbody. A designated cleaning area for tools will be established.

As described in Section 2, two water wells will be established to provide a water supply for the facility. These will be constructed and used in compliance with provincial *Water Resources Act* and associated permits and approvals from the Water Resources Management Division of the NL Department of Environment and Conservation.

5.3.2 Operation

During planned operations activities there will be no additional, direct interactions with the Freshwater Environment. Watercourse crossings and water wells established during the construction period will continue to be used and maintained / repaired as required, and site drainage will be controlled as necessary. Each of these activities which will occur in compliance with relevant regulations and permits.

There are no planned discharges to the environment associated with the operation of the proposed facility, which functions as a "closed system" from the receipt of the raw materials and chemicals used in the mixing process, to the eventual transportation of explosives product from the facility. Once operational, the facility will be subject to regular inspection and maintenance, which will help to prevent any leakage, spills or other unplanned discharges to the environment.

No additional interactions or adverse effects to the Freshwater Environment are therefore anticipated during this phase of the Project.

5.3.3 Potential Accidents and Malfunctions

A spill of chemicals or fuel or other accidental events during Project construction and/or operations may affect water resources and/or fish and fish habitat in or around the Project area. Again, the resulting environmental effects of such an incident would depend upon the nature and magnitude of the event.

IOC has various measures, plans and procedures in place to prevent a spill or other associated event at its existing explosives facility and overall Labrador West operations, as well as to respond to such an accident should one occur. These measures will be applied to (and refined as required for) the new explosives facility, as well as further reinforced through the various federal and provincial government permits that will be required for the construction and operation of the Project.

5.3.4 Cumulative Environmental Effects

Water resources and fish and fish habitat may be affected by other development projects and activities in the region. These will also be subject to applicable legislation, regulations and guidelines designed to help protect these aspects of the environment. Any effects resulting from this Project will be short-term and localized, and will not likely interact or accumulate with those of other projects or activities in the area. The construction and operation of the proposed explosives facility is not likely to contribute measurably to any overall, cumulative environmental effects to the Freshwater Environment in the region.

5.3.5 Environmental Effects Summary and Evaluation

A summary of potential environmental interactions, identified mitigation measures, and the residual environmental effects of the Project on the Freshwater Environment is provided in the Table below.

Table 5.3 Environmental Effects Assessment Summary: Freshwater Environment

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Issues / Interactions		
Surface Water (Quantity and Quality)	•	•	▪ Installation / maintenance of watercourse crossings ▪ Potential accidental spills	▪ Compliance with regulations and permits ▪ Design mitigation (culverts, spill containment, etc) ▪ Accidental event prevention and response	NS
Groundwater (Quantity and Quality)	•	•	▪ Installation / use of wells ▪ Potential accidental spills	▪ Compliance with regulations and permits ▪ Design mitigation (spill containment, etc) ▪ Accidental event prevention and response	NS
Fish and Fish Habitat	•	•	▪ Installation / maintenance of watercourse crossings ▪ Potential accidental spills	▪ Compliance with regulations and permits ▪ Design mitigation (culverts, spill containment, etc) ▪ Accidental event prevention and response	NS
Freshwater Species at Risk				▪ None known to occur in or near Project area	N

Key:

- • Potential Project Interaction (by Phase)
- N No likely adverse residual environmental effect
- NS Not significant adverse residual environmental effect
- S Significant adverse residual environmental effect
- P Positive residual environmental effect

The proposed Project is not likely to result in significant adverse environmental effects on the Freshwater Environment.

5.4 Socioeconomic Environment

The Socioeconomic Environment includes relevant components of the human and cultural environments, including historic and heritage resources, land and resource use (commercial, municipal, traditional, recreational), human health and well-being, community services and infrastructure, and economy.

5.4.1 Construction

Historic and heritage resources include sites, objects or other materials of historic and archaeological, paleontological, architectural, cultural and/or spiritual importance. In Newfoundland and Labrador, such resources are protected under provincial legislation and valued by Aboriginal and other people in the province. Construction activities and associated ground disturbance have the potential to disturb or destroy archaeological sites and other historic and heritage resources.

There are no known historic and heritage resources within the project area. The site itself is relatively small and has already been disturbed in places, and is located within an area that has been subject to on-going mining activity for the past five decades. It is therefore unlikely that the area contains, or that the Project will result in the disturbance or destruction of, historic and heritage resources.

During project construction, standard precautionary and reporting procedures will, however, be implemented. Should an accidental discovery of historic resources occur, all work will cease in the immediate area of the discovery until authorization is given for the resumption of the work. Any archaeological materials encountered will be reported to the Provincial Archaeology Office, including information on the nature of the material discovered and the location and date of the find.

The proposed Project area is located in the southeastern portion of IOC's existing mining project site Western Labrador, on IOC property. Public access to the site is restricted at present, and land and resource uses and other activities therefore do not currently take place in the area (Figure 3.3). No interactions with, or adverse effects upon, commercial, municipal, traditional or recreational activities in the area are therefore anticipated.

In addition, given that Project construction will be characterized by fairly standard and routine activities and practices, will occur within a localized area over a relatively short period, and will take place within an area that has been previously developed and is subject to on-going mining activity, and is within IOC's property and several kilometres from local communities, the Project is not expected to have any negative implications for human health and well-being in local communities or elsewhere.

A construction project can result in increased demands on local, regional and provincial services and infrastructure. This may include both direct Project requirements, such as in the use of local transportation and accommodations, as well as indirect demands from project workers and their families. The engineering and construction phase of the Project will require a workforce of nearly 120 persons, over an approximately one and a half year period. The construction workforce will likely be housed in IOC's on-site accommodations.

Potential requirements and issues will continue to be identified and evaluated through ongoing consultations with the local communities and other stakeholders, and efforts will be made to address these in Project design and in the scheduling and coordination of construction and maintenance activities.

Again, the Project will create employment opportunities during its construction and operations phases (approximately 120 and 20 positions, respectively) and will see capital expenditures in excess of $40 million during construction followed by on-going operations and maintenance related activities. The requirement for goods and services during Project construction and operation will provide opportunities for local businesses. These direct economic benefits will be supplemented by indirect and induced "spin-off" effects through, for example, spending by Project employees and contractors.

As a result, the Project will make a strong contribution to local and provincial economies as a result of this employment and business activity, and by providing infrastructure to help facilitate future development and growth in Labrador West's mining sector and overall economy.

5.4.2 Operation

During the operations phase of the project there will be no additional ground disturbance, and therefore, little or no potential for effects to historic and heritage resources. The precautionary and reporting procedures implemented for construction will, however, continue to be in place throughout the life of the Project.

Again, given the nature and locations of the Project and its operational activities, no interactions with local commercial, municipal, traditional or recreational land and resource use activities are anticipated, nor will there be any implications for human health and well-being.

The operations workforce of 18 positions will essentially replace (and add somewhat to) the existing workforce at the current explosives plant, and will be integrated into IOC's overall workforce at its Labrador West operations. No significant, additional demands on community infrastructure and services will therefore occur during this phase of the Project. The existence and operations of the new explosives facility will continue to have a positive effect on the economy of Labrador West and thus the province of Newfoundland and Labrador as a whole.

5.4.3 Potential Accidents and Malfunctions

An accidental event or malfunction during either phase of the Project, such as a fire or spill, could affect the Socioeconomic Environment through, for example, an effect on human health and well-being and an increased demand for local safety and health services. As described earlier, the probability of such an event occurring is low, and any potential effects would depend upon the specific nature and magnitude of the event.

IOC has various measures, plans and procedures in place to prevent a fire, explosion or other associated event at its existing explosives facility and overall Labrador West operations, as well as to respond to such an accident should one occur. These measures will be applied to (and refined as required for) the new explosives facility, as well as further reinforced through the various federal and provincial government permits that will be required for the construction and operation of the Project.

5.4.4 Cumulative Environmental Effects

The proposed Project will take place at a time when there are considerable proposed and potential mining developments, expansions and other projects and activities in Labrador West, which will, in different ways and to varying degrees, affect the existing environment of this region.

As described above, however, given the nature, scale and timing of this Project it will likely not affect most aspects of the socioeconomic environment, and any effects it does have will be primarily positive, particularly in terms of the economic benefits and opportunities it will create. The Project is not likely to contribute measurably to the overall, cumulative adverse effects of any past, on-going and future projects and activities in the region.

5.4.5 Environmental Effects Summary and Evaluation

A summary of potential environmental interactions, identified mitigation measures, and the residual environmental effects of the Project on the Socioeconomic Environment is provided in the Table below.

Table 5.4 Environmental Effects Assessment Summary: Socioeconomic Environment

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Issues / Interactions		
Historic and Heritage Resources	•		▪ Ground disturbance	▪ Localized and short-term construction activity ▪ Low potential for historic and heritage resources ▪ Standard precautionary and reporting procedures	N
Land and Resource Use				▪ Currently a restricted area, on IOC property ▪ No public use of the site	N
Human Health and Well-Being				▪ Distance from and minimal interaction with communities ▪ Accidental event prevention and response ▪ Potential positive effect due to safety / regulatory compliance of new facility	N P
Community Services and Infrastructure				▪ Timing and scale of Project activities ▪ Distance from and minimal interaction with communities	N
Economy	•	•	▪ Employment and business opportunities ▪ Infrastructure	▪ Positive effects (direct and indirect)	P

Environmental Component	Project Phase / Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Issues / Interactions		
			for future growth		

Key:

•	Potential Project Interaction (by Phase)
N	No likely adverse residual environmental effect
NS	Not significant adverse residual environmental effect
S	Significant adverse residual environmental effect
P	Positive residual environmental effect

The proposed Project is not likely to result in significant adverse environmental effects on the Socioeconomic Environment.

5.5 Environmental Monitoring and Follow-up

Any potential environmental issues which may be associated with the Project can be addressed and mitigated through the use of good construction and operational practices and procedures, supported by IOC's existing environmental and health and safety management system and associated plans and procedures. These will be further addressed through the specific environmental permitting requirements and compliance standards and guidelines which will apply to the proposed facility.

Once operational, the facility will be subject to regular inspections and maintenance as required. The proponent is committed to obtaining all required authorizations for the proposed project, and to complying will all applicable regulations. No other follow-up is considered necessary in relation to the proposed Project.

6.0 SUMMARY AND CONCLUSION

IOC is the largest producer of iron ore in Canada, and a leading global supplier of iron ore pellets and concentrates. The company has been operating in Labrador West since the early 1960s.

As part of its on-going operations and current infrastructure in the region, IOC is proposing to construct and operate a new explosives facility on its mine site in Labrador West. The Project is intended to address various regulatory and structural issues associated with the existing explosives plant, as well as provide additional capacity for the current and on-going expansion of mining activity in the region.

The Project will be planned and implemented so as to avoid or reduce potential adverse environmental effects and to optimize socioeconomic benefits. It will be undertaken in accordance with IOC's environmental and health and safety policies, plans and practices, to help ensure that it is constructed and operated in a safe and environmentally-responsible manner. IOC has in place a comprehensive environmental management system certified to the ISO 14001 Environmental Standard, including various associated plans and procedures designed to avoid or reduce the environmental effects of its activities.

The proposed Project will be constructed and operated in accordance with applicable legislation and regulations, including the environmental protection and planning measures defined through this EA review, and in compliance with IOC policies, procedures and standards. IOC is committed to complying with all relevant legislation and regulations, and the conditions of these required approvals.

In addition to EA review, the Project will eventually require a range of additional environmental permits and other authorizations from federal and provincial government departments and agencies. The post-EA permitting process will provide the opportunity for relevant regulatory departments and agencies to receive and review additional Project design information, and to establish specific terms and conditions to avoid or reduce environmental effects. IOC and/or its contractors will identify, apply for and adhere to all required permits and other authorizations that are required for Project construction and/or operations.

The Project will make a strong contribution to local and provincial economies as a result of the employment and business activity that it will create during its construction and operations phases, as well as by providing infrastructure to help facilitate future development and growth in Labrador West's mining sector and overall economy.

July 27, 2012 , for

Date

Patrick Lauzière
Manager - Environment and Sustainable Development
Iron Ore Company of Canada

7.0 REFERENCES

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APPENDIX A

Rio Tinto Iron Ore Health, Safety, Environment and Quality Policy

Iron Ore Health, Safety, Environment and Quality Policy

Rio Tinto's Iron Ore group comprises mining and processing operations in Australia and Canada, with development projects in India and Guinea, dedicated sales offices in Asia and Europe, and a global marine freight management network.

Our global operations include:

- Pilbara projects and operations
- Corporate sites
- HIsmelt operations
- Iron Ore Company of Canada operations
- Dampier Salt operations
- Marine operations
- Simandou project
- Orissa project

We consider excellence in health, safety and environmental performance, as well as product quality, an essential component to long term success.

Through effective leadership and management practices, we strive to continuously improve our HSEQ performance for the benefit of our employees, contractors, suppliers, customers, shareholders and local communities.

Our success in this area requires active participation and a shared commitment by our stakeholders to achieving our goals.

We will:

- Relentlessly work towards achieving our goal of zero harm while preventing property damage, process loss and business interruption
- Strive for consistency in product quality
- Demand visible leadership, with clear accountabilities, that encourages effective employee, contractor and supplier participation in achieving our goals and in recognising the business value of good HSEQ performance
- Strengthen the capability of employees and contractors to recognise and control the potential impact of their activities
- Build from a foundation of compliance with applicable laws, Rio Tinto Standards and Policies, and our HSEQ Management System including our voluntary commitments
- Implement systems to identify, control and monitor HSEQ risks in development, construction and operational areas
- Ensure our risk-based objectives, targets and actions are set, reviewed and integrated into business planning and decision-making processes
- Provide and develop adequate resources and expertise to manage our HSEQ performance
- Closely monitor market and customer needs to identify and act upon opportunities for improvement and to satisfy customer requirements
- Strive to implement the best available practices and technology to deliver HSEQ excellence, minimise impacts to land, make a positive contribution to biodiversity and improve our efficiency in water and energy use
- Be active contributors to the climate change solution and ensure the effective implementation of our climate change work programs
- Ensure service and technical support to our suppliers and customers is responsive, fair, courteous and timely
- Positively contribute to local communities in the areas of health, safety and environment to provide a lasting benefit
- Report regularly to all stakeholders on our performance and seek their feedback

This policy shall be communicated to all Iron Ore group employees and made available to the public.

Sam Walsh, chief executive – Iron Ore
23 July 2009






APPENDIX B

List of Potentially Applicable Permits and Authorizations

List of Potentially Applicable Permits and Authorizations (Provincial, Federal, Municipal)

Approval Potentially Required	Legislation / Regulation	Project Component / Activity Requiring Approval or Compliance	Department or Agency	Requirements
Government of Newfoundland and Labrador				
Certificate of Approval for any Alteration to a Body of Water	*Water Resources Act*	Any activities which may alter a water body	Water Resources Division, Department of Environment and Conservation	Permits are required for construction activities within 15 m of the high watermark of any water body. An application form is required for each alteration.
Certificates of Approval for any Instream Activity (including Culvert Installation, Bridges and Fording a Watercourse)	*Water Resources Act*	Any in-stream activity	Water Resources Division, Department of Environment and Conservation	Approval is required for any in-stream activity, including culvert installations and fording activities, before undertaking the work. This also includes any development within 15 m of the high watermark of any water body.
Certificate of Approval for Construction Site Drainage	*Water Resources Act*	Any run-off from the project site being discharged to receiving waters	Water Resources Division, Department of Environment and Conservation	Approval is required for any run-off from the project site being discharged to receiving waters.
Water Use Authorization	*Water Resources Act*	Water withdrawal for use at temporary camps or during construction and operation activities	Water Resources Division, Department of Environment and Conservation	Water use authorization is required for all beneficial uses of water.
Application for Water Well Drilling Licence	*Water Resources Act*	Drilling activity for a water well	Water Resources Division, Department of Environment and Conservation	A licence is required to carry on the business of water well drilling in Newfoundland and Labrador.
Application for Permit for Constructing a Non-Domestic Well	*Water Resources Act*	Establishment of a water well	Water Resources Division, Department of Environment and Conservation	A licence is required to establish a non-domestic water well in Newfoundland and Labrador.
Policy Directives	*Water Resources Act*	Project activities	Water Resources Division, Department of Environment and Conservation	The Department has a number of potentially applicable policy directives in place, including those related to: Infilling Bodies of Water; Use of Creosote Treated Wood in Fresh Water; Treated Utility Poles in Water Supply Areas; Land and Water Developments in Protected Water Supply Areas; Development in Shore Water Zones; and Development in Wetlands.

Approval Potentially Required	Legislation / Regulation	Project Component / Activity Requiring Approval or Compliance	Department or Agency	Requirements
License to Occupy Crown Land	*Land Act*	Any development on Crown Lands	Lands Division, Department of Environment and Conservation	Approval is required for Project activities and infrastructure on Crown Land.
Quarry Permit	*Quarry Materials Act* and *Regulations*	Extracting borrow material	Mineral Lands Division, Department of Natural Resources	A permit is required to dig for, excavate, remove and dispose of any Crown quarry material.
Cutting Permit Operating Permit	*Forestry Act* and *Cutting of Timber Regulations*	Clearing land areas for the right-of-way, borrow pits, camp sites or laydown areas	Department of Natural Resources	A permit is required for the commercial or domestic cutting of timber on crown land.
Permit to Burn	*Forestry Act* and *Forest Fire Regulations*	Any burning required during the Project	Department of Natural Resources	A permit is required to light fires outdoors between April and December. Permits are not issued during forest fire season.
Certificate of Approval for Storing and Handling Gasoline and Associated Products	*Environmental Protection Act,* and *Storage and Handling of Gasoline and Associated Products Regulations*	Storing and handling gasoline and associated products	Engineering Services Division, Service NL	A Certificate of Approval is required for storing and handling gasoline and associated products.
Fuel Cache Permit	*Environmental Protection Act* and *Environmental Guidelines for Fuel Cache Operations*	Temporary fuel storage	Engineering Services Division, Service NL	A permit is required for any temporary fuel storage in a remote location.
Permit for Storage, Handling, Use or Sale of Flammable and Combustible Liquids	*Fire Prevention Act,* and *Fire Prevention Flammable and Combustible Liquids Regulations*	Storing and handling flammable liquids	Engineering Services Division, Service NL	This permit is issued on behalf of the Office of the Fire Commissioner. Approval is based on a review of information provided for the Certificate of Approval for Storing and Handling Gasoline and Associated Products.
Compliance Standard	*Dangerous Goods Transportation Act* and *Regulations*	Storing, handling and transporting fuel, oil and lubricants and other dangerous goods	Department of Transportation and Works	If the materials are transported, handled and stored fully in compliance with the regulations, a permit is not required. A Permit of Equivalent Level of Safety is required if a variance from the regulations is necessary. Transporting goods considered dangerous to public safety must comply with regulations.

Approval Potentially Required	Legislation / Regulation	Project Component / Activity Requiring Approval or Compliance	Department or Agency	Requirements
Certificate of Approval for Installation of a Sewage System	*Sanitation Regulations,* under the *Health and Community Services Act*	Sewage disposal and treatment	Department of Health and Community Services	Sewage disposal systems designed, constructed or installed to service a private dwelling or a commercial or other building with a daily sewage flow less than 4,546 L must be approved by an inspector before installation.
Certificate of Approval for Septic Systems > 4,546 L per day and Well Approval	*Environmental Protection Act*	Sewage disposal and treatment	Engineering Services Division, Service NL	A Certificate of Approval is required for commercial septic systems and wells in an unserviced area, not covered by a municipality.
Certificate of Approval for a Water Withdrawal System of ≥ 4,500 L per day	*Water Resources Act*	Water supply for use in construction or operations activities	Water Resources Division, Department of Environment and Conservation	Certificate of Approval is required for any private water withdrawal system of 4,500 L/day or greater.
Certificate of Approval for Installation of Water Supply System	*Sanitation Regulations*, under the *Health and Community Services Act*	Water supply for use in construction or operations activities	Department of Health and Community Services	Water supply systems designed, constructed or installed to service a private dwelling or a commercial or other building, including systems not governed by a municipal council, local service district or local water committee, must be approved by an inspector before installation.
Certificate of Approval for a Waste Management System	*Environmental Protection Act* and *Waste Management Regulations*	Waste disposal associated with construction and operation	Department of Environment and Conservation, Department of Health and Community Services	Approval is required for waste disposal (e.g., incineration or burying). Used tires must be disposed according to regulations.
Permit to Destroy Problem Animals	*Wildlife Act*	Dealing with nuisance wildlife	Department of Natural Resources	The Department provides direction on handling nuisance animals. Details on the situation must be provided for a permit to be issued.
Compliance Standard	*Fire Prevention Act,* and *Fire Prevention Regulations*	On-site structures (temporary or permanent)	Engineering Services Division, Service NL	All structures must comply with fire prevention standards.
Compliance Standard	*Environmental Control Water and Sewage Regulation* under the *Water Resources Act*	Any waters discharged from the project	Pollution Prevention Division, Department of Environment and	A person discharging sewage and other materials into a body of water must comply with the standards, conditions and provisions

Approval Potentially Required	Legislation / Regulation	Project Component / Activity Requiring Approval or Compliance	Department or Agency	Requirements
			Conservation	prescribed in these regulations for the constituents, contents or description of the discharged materials.
Compliance Standard	*Sanitation Regulations*, under the *Health and Community Services Act*	Sewage and waste disposal	Department of Health and Community Services	Outlines standards for sewage and waste disposal.
Compliance Standard	*Occupational Health and Safety Act* and Regulations	Project-related occupations	Service NL	Outlines minimum requirements for workplace health and safety. Workers have the right to refuse dangerous work. Proponents must notify Minister of start of construction for any project greater than 30 days in duration.
Compliance Standard	*Workplace Hazardous Materials Information System (WHMIS) Regulations*, under the *Occupational Health and Safety Act*	Handling and storage of hazardous materials	Operations Division, Service NL	Outlines procedures for handling hazardous materials and provides details on various hazardous materials.
Certificate of Operating Approval	*Environmental Protection Act* and associated *Regulations*	Project operations	Pollution Prevention Division, Department of Environment and Conservation	Certificate of Approval (CofA) pursuant to the NL Environmental Protection Act (2002)
Government of Canada				
Explosives Factories and Magazines	*Explosives Act* and *Regulations*	Project operations	Natural Resources Canada	Permit required and required compliance with legislation and associated regulations.
Authorization or Letter of Advice for Works or Undertakings Affecting Fish Habitat	*Fisheries Act*,	Construction of watercourse crossings, etc	Department of Fisheries and Oceans	Application must be made if fish habitat may be affected. Where potential for harmful effects to fish habitat can be prevented, a Letter of Advice will be issued outlining appropriate mitigation procedures or conditions to be followed. Authorizations will only be issued where there will be a loss of fish habitat that cannot be avoided by

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				mitigation measures. The authorization requires a habitat compensation plan to be developed and agreed to by DFO and proponent before the authorization is given.
Permit for Construction Within Navigable Waters	*Navigable Waters Protection Act* and *Regulations*	Construction of watercourse crossings,	Transport Canada	A permit is required for any works or construction activity located below the high water mark, either over, under, through or across any navigable waters. This could include any structure, device or thing that may interfere with navigation. An application must be submitted for each alteration to a navigable waterway.
Radiocommunication Permit	*Radiocommunication Act* and *Regulations*	Establishment and use of radio equipment	Industry Canada	Approval of the Minister of Industry may be required to approve sites on which radio apparatus, including antenna systems, may be located, and approve the erection of all masts, towers and other antenna-supporting structures.
Explosives Purchase and Possession Permit	*Explosives Act*	Purchase and possession of explosives	Natural Resources Canada	A permit is required to purchase and possess explosives.
Explosives Transportation Permit	*Explosives Act*	Transportation of explosives	Natural Resources Canada	A permit is required for transporting explosives.
Compliance Standard	*Fisheries Act*, Section 36(3), Deleterious Substances	Any run-off from the project site being discharged to receiving waters	Environment Canada Department of Fisheries and Oceans	Environment Canada is responsible for Section 36(3) of the *Fisheries Act*. However, DFO is responsible for matters dealing with sedimentation. Discharge must not be deleterious and must be acutely non-lethal.
Compliance Standard; Permit may be required.	*Migratory Birds Convention Act* and *Regulations*	Any activities which could result in the mortality of migratory birds and endangered species and any species under federal authority	Canadian Wildlife Service, Environment Canada	Prohibits the deposit of oil, oily wastes or any other substances harmful to migratory birds in any waters or any area frequented by migratory birds. The Canadian Wildlife Service should be notified about the mortality of any

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				migratory bird in the project area, including passerine (songbirds) and waterfowl species. Prohibits disturbing, destroying or taking a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, and possessing a live migratory bird, carcass, skin, nest or egg, except when authorized by a permit.
Policy	Federal Policy on Wetland Conservation	Any disruption of wetland habitat	Environment Canada	The goals of this policy should be considered where a project could affect wetland habitat.
Compliance standards; permits may be required.	National Fire Code	On-site structures (temporary or permanent)	Service NL	Approval is required for fire prevention systems in all approved buildings.
Compliance standards; permits may be required.	National Building Code	On-site structures (temporary or permanent)	Service NL	Approval is required for all building plans.
Municipalities				
Development or Building Permit	*Urban and Rural Planning Act, 2000,* and Relevant Municipal Plan and Development Regulations	Development within municipal boundary	Community Council	A permit is required for any development or building within municipal boundaries.
Approval for Waste Disposal	*Urban and Rural Planning Act, 2000,* and Relevant Municipal Plan and Development Regulations	Waste disposal	Community Council	The use of a community waste disposal site in Newfoundland and Labrador by proponents/contractors to dispose of waste requires municipal approval. Restrictions may be in place as to what items can be disposed of a municipal disposal site.