Preamble

To Type A Water Licence Application

Volume 3 of the FEIS presents a detailed description of all Project components. Many of the activities described in Volume 3 do not fall under the NWB's mandate. A summary of the activities subject to the Water Licence pursuant to the Regulations in presented below[(1)]:

Table 1: Activities Subject to Water Licence

Mary River Project - Activities Subject to Water Licence	
Site	**Water Use and Deposit of Waste**
Milne Port	• Water supply from Philips Creek and 32 km Lake • Site drainage and surface water management • Sewage treatment facilities for Milne Camp • Oily water treatment facility for wastewater treatment • Incinerator for camp and combustible wastes • Storage and management of hazardous materials • Landfarm for deposition of hydrocarbon contaminated snow and soil • Secondary containments for fuel tank farm and fuel dispensing area • Containment area for temporary storage of waste (waste transfer area)
Mine Site	• Water supply from Camp Lake • Site drainage and surface water management • Sewage treatment facilities for exploration camp, construction camp and permanent mining camp • Oily water treatment facilities for waste water treatment from maintenance facilities • Explosives storage and Explosive manufacturing facilities • Fuel tank farm secondary containment and fuel dispending area • Waste sorting facility and temporary storage facilities for hazardous wastes • Storage and management of hazardous materials • Landfill site for disposition of solid waste • Landfarm for treatment of hydrocarbon contaminated soils and snow • Incinerator for camp and combustible wastes • Waste rock stockpile and waste rock pile runoff management • Ore stockpiles runoff management
Steensby Port	• Water supply from 3 km and 10 km Lakes • Site drainage and surface water management • Sewage treatment facilities for construction camp and permanent port camp • Oily water treatment facilities for waste water treatment from maintenance facilities • Explosives storage and explosive manufacturing facilities • Fuel tank farm secondary containment and fuel dispending area • Waste sorting facility and temporary storage facilities for hazardous wastes • Storage and management of hazardous materials • Landfill site for disposition of solid waste • Landfarm for treatment of hydrocarbon contaminated soils and snow • Incinerator for camp and combustible wastes • Ore stockpile runoff management

Mary River Project - Activities Subject to Water Licence	
Site	**Water Use and Deposit of Waste**
Railway Construction	• Water supply for each construction camp • Sewage disposal for each proposed camp • Waste disposal for each proposed camp • Incineration of waste at each proposed camp • Secondary containment for fuel storage and hazardous materials(if any) at each camp location
Water Crossings	• Water course crossings including pipelines, bridges and roads • Watercourse training, including channel and bank alterations, culverts, spurs, erosion control, and, artificial accretion • Flood control • Diversions • Alterations of flow or storage by means of dykes or dams
(1) NWB, Guide 3, Activities that Require a Water Licence and Types of Water Licences, April 2010	

In addition to the Water Licence Application Form, the application contains a number of technical documents and drawings in support of the application. An overview of the structure of Baffinland's water licence application is presented below.

As discussed at the Pre-Hearing Conference, technical documents (design criteria) and drawings are stamped by a Professional Engineer licenced to practice in Nunavut. The drawings are stamped for "permitting purposes". As the detailed design of the facilities progresses, drawings "issued for construction" will be produced. Once the facilities are constructed and commissioned, as built drawings of the permitted facilities will be generated.

At the request of the NWB, Baffinland can provide drawings "issued for construction" prior to the start of the construction of each specific installation. As-built drawings can also be transmitted to the NWB upon request.

Structure of Type A Water Licence Application

Executive Summary

English
Inuktitut

Attachment 1: NWB Type A Water Licence Completed Application

Attachment 2: Baffinland Commercial Documents

Mineral Lease
IIBA Agreement
Crown Land Use Authorisation from AANDC
IOL Authorisation from QIA Consultation
Security Information
Financial Information
Annual Reports

Attachment 3: Project Wide Documents

Design Criteria
Technical Specification

Attachment 4: Site Specific Documents

Milne Port
Mine Site
Railway
Steensby Port

Attachment 5: Management Plans

Emergency Response & Spill Contingency Plan
Oil Pollution Emergency Plan - Milne Inlet Fuel Bulk Storage Facility
Oil Pollution Emergency Plan - Steensby Inlet Bulk Fuel Storage Facility
Surface Water and Aquatic Ecosystems Management Plan
Freshwater Supply, Sewage and Wastewater Management Plan
Waste Management Plan for Construction, Operation & Closure

- Incinerator Operation Information
- Mary River Project Landfill Operating Manual
- Landfarm Operation Information

Waste Rock Management Plan

- Stormwater Management and Drainage System Design
- Development of Permafrost in Waste Rock Dumps-Preliminary Geotechnical Evaluation
- Waste Rock Geological and Geochemical Characterization Program, Mary River Project
- Interim Waste Rock Stockpile Seepage Quality Model Report, Mary River Project
- Interim Open Pit Water Quality Model Technical Memorandum, Mary River Project

Hazardous Material and Hazardous Waste Management Plan
Environmental Monitoring Plan
Health and Safety Management Plan
Environmental Protection Plan
MMER Environmental Effects Monitoring Study Design Framework

Attachment 6: Quarry Documents

Borrow Pit and Quarry Management Plan
Operations and Management Plan: Milne Inlet Quarry
Operations and Management Plan: Mary River Mine Site Quarry
Operations and Management Plan: Steensby Inlet Quarry
Quarry Operations and Management Plan: Quarry Q7 + 500
Quarry Operations and Management Plan: Quarry Q133 + 500
Quarry Operations and Management Plan: Quarry Q77 + 200

Attachment 7: Water Crossings

Typical Water Crossings Summary Sheets
Crossing Type Correlation Tables

Attachment 8: Explosives

Explosives Management Plan
Permanent Facilities
Temporary Facilities
Mobile Mixing Unit

Attachment 9: Drawings

Milne Port Drawings
Mine Site Drawings
Steensby Port Drawings
Railway Section Drawings
Water Crossings Drawings
Explosives Drawings

Attachment 10: Preliminary Mine Closure and Reclamation Plan

Attachment 11: Maps

Attachment 12: Correspondence with NPC

Executive Summary for Type A Water Licence Application

1.0 The Mary River Project

The iron ore deposit, Deposit No. 1, is located on North Baffin Island, in the Qikiqtani Region of Nunavut. The Deposit No. 1 reserves consist of approximately 365 Mt of direct shipping iron ore at an average iron grade of 64%. The basis of the Mary River Project (the Project) is production and shipment of 18 million tonnes per annum (Mt/a) of high grade iron ore from this deposit. The high grade ore is suitable for shipment to international markets after crushing and screening with no need for additional processing requirements. Deposit No. 1 has associated resources capable of meeting the production design over the operating period of 21 years.

The Mary River Project consists of the construction, operation, closure, and reclamation of an open pit mine and associated infrastructures for extraction, transportation and shipment of iron ore from a newly constructed port at Steensby Inlet. After crushing and screening, iron ore will be transported from the Mine Site to Steensby Port for shipment.

Milne Port and the existing Milne Inlet Tote Road linking the Mine Site to Milne Port will be maintained throughout the life of the Project. A floating dock will be constructed at Milne Port at the onset of construction. At the onset of the Project, much of the construction material and supplies, fuel and mining equipment will be received at Milne Port during the open water season. For the operation phase (post construction), only oversized equipment will be received at Milne Port. The Milne Port will operate only during the open water season.

A railway will be constructed to connect Steensby Port to the Mine Site.

It is expected that the Steensby Port facilities and the Railway will take four years to construct. Once the Railway is operational, 18 Mt/a of iron ore will be transported by Railway and shipped from Steensby Port. All equipment, material and supplies required for the on-going operation of the Mine will be received at Steensby Port and transported to the Mine Site by the railway. Shipping of ore will occur year round from Steensby Port and will therefore require vessels with ice breaking capabilities. Figure 1.1 shows the location of the Mary River Project.

Current permits and authorisations governing Baffinland activities are listed in Table 1.

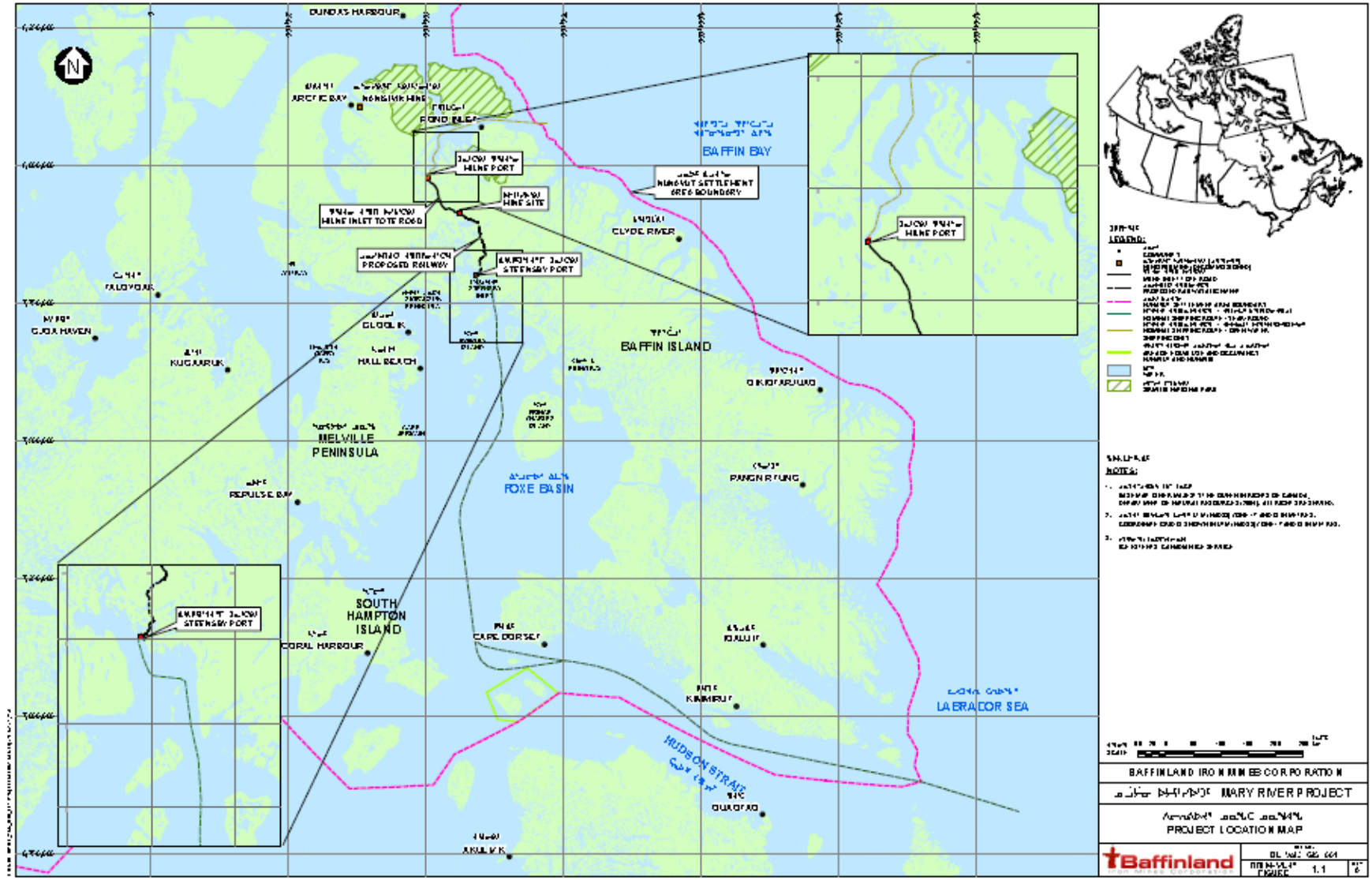

Figure 1.1: Project Location Map

Table 1: Current Permits and Authorization Governing Baffinland's Exploration Activities

Type of Authorisation	Permit No.	Authorizing Agency	Expiry
Water Licence	2BB-MRY1114 Type B	NWB	April 5, 2014
Letter of Advice	File No. NU-06-0084 File No. NU-07-0054	DFO	n/a
Authorization under S.35(2) Fisheries Act and Amendments 1 to 4 incl.	File No. NU-06-0084 and 06-HCAA-CA7-0084	DFO	no expiry
Approval under S.5(1) of Navigable Waters Protection Act	8200-09-10414 8200-09-10415 8200-09-10424 8200-09-10425	Transport Canada	June 30, 2015
Inuit Land Lease and Aggregate Concession	Q07L3C001	QIA	December 31, 2012
Class A Land Use Permit	N2007F0004	AANDC	July 4, 2012
Class A Land Use Permit	N2006C0036	AANDC	April 3, 2012
Quarry permit	2011QP0079	AANDC	June 12, 2012

2.0 Description of Undertaking

Key Project Facts of the Mary River Project are presented in Table 3-1.1, FEIS Volume 3. For convenience, this table is inserted below. A brief description of the undertaking at each Project Site follows.

Table 3-1.1: Key Project Facts

		Potential Development Area (PDA)	Footprint of Facilities within PDA
Potential Development Area (ha)	Milne Port	224 ha	35 ha
	Tote Road	865 ha	-
	Mine Site	2,739 ha	787 ha
	Railway	1,308 ha	47 ha
	Steensby Port	2,482 ha	213 ha
Number of Identified Potential Quarries/ Aggregate Site	Milne Port	One borrow area and one rock quarry	
	Mine Site	One existing borrow area (Borrow Area #3), One existing rock quarry (Rock Quarry #2) and one proposed quarry (QMR2)	
	Railway	79 rock quarries	
	Steensby Port	1 rock quarry (QS2), plus one large rock cut for airstrip	

Total Quantities Aggregate (m^3)		**Quarried Rock**				**Borrowed Sand and Gravel**
	Milne Port	600,000				80,000
	Mine Site	5,000,000				0
	Railway	16,000,000				0
	Steensby Port	12,500,000				0
Shipping of Freight and Fuel		**Construction Phase**				**Operation Phase**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5 - 26**
Shipping Milne Port	Freight vessels	20	20	3	3	Only oversized equipment delivered when required
	Freight (tonnes)	165,000	95,000	43,000	46,000	See above
	Fuel tankers	2	3	3	3	0
	Diesel delivery	20 ML	30 ML	30 ML	30 ML	0
Shipping Steensby Port	Freight vessels	22	20	7	4	3
	Freight (tonnes)	206,000	150,000	107,000	80,000	60,000
	Fuel tankers	2	4	4	3	3-6
	Diesel delivery	40 ML	35 ML	35 ML	120 ML	160 ML
	Marine diesel				50 ML	50 ML
Traffic		**Construction Phase**				**Operation Phase**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5 - 25**
Air Traffic (Total Annual Departures) *Smaller aircraft traffic not included.*	Milne Port (Dash-8/ATR)	210	210	105	105	occasional
	Mine Site (B737, C130)	550	550	550	550	365
	Steensby Port (B737, C130)	550	550	550	550	183
Road Traffic (Trucks/day)	Tote Road	30	30	30	30	No regular traffic

Railway traffic	Railway	N/A				4 round trips/day
Workforce		**Construction Phase**				Operation Phase
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5 - 25**
Workforce (numbers)	Exploration	150	150	150	150	150
	Construction On-Site	570	1,800	1,600	900	--
	Construction Payroll	800	2,680	2,440	1,710	--
	Operation	0	0	0	0	950
Camps, Water Supply and Wastewater		**Construction Phase**				**Operation Phase**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5 - 25**
Camp Capacity (peak # of people)	Milne Port	150	150	150	150	40
	Mine Site	1,200	1,200	1,200	1,200	500
	Mid-Rail Ravn River S. Cockburn N. Cockburn		200 400 300 200	200 400 300 200	200→0 400→0 300→0 200→0	Camps removed
	Steensby Camps					
	Floating Accommodation	600	600	600	600	Removed
	Land Based Camp	600	600	600	600	300
Water Demand m^3/day (expected)	Milne Port	70	70	70	70	30
	Mine Site	655	655	655	655	352
	Railway	440	440	440	440	0
	Steensby Port	426	426	426	426	245
Treated Sewage Effluent (m^3/day)	Milne Port	55	55	55	55	14
	Mine Site	560	560	560	560	200
	Ravn River	Trucked to the Mine Site WWTF				Camp removed
	Mid-Rail	Trucked to Mine Site WWTF				Camp removed
	Cockburn S.	Trucked to Steensby Port WWTF				Camp removed
	Cockburn N.	Trucked to Steensby Port WWTF				Camp removed
	Steensby Port	310	310	310	310	102
Waste						
Waste to Landfill m^3/yr	Mine Landfill	6,373	6,373	6,373	6,373	1,763
	Steensby Landfill	3,972	3,972	3,972	3,972	650

Waste to Incinerator Tonnes/yr	Milne Port	135	135	135	135	46
	Mine Site	980	980	980	980	550
	Steensby Port	490	490	490	490	202
Fuel Storage		**Construction Phase**				**Operation Phase**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5 - 25**
Milne Port	Arctic diesel	1 tank @ 5ML and 4 tanks @ 10ML				no requirements
	Jet A	2 tanks @ 1.5ML				no requirements
Mine Site	Arctic diesel	3 tanks @ 5.2ML				
	Jet A	2 tanks @ 1.5ML				
Railway	Arctic diesel	Multiple 20,000 L ISO containers positioned as required				no requirements
Quarries	Arctic diesel	Multiple 20,000 L ISO containers positioned as required				no requirements
Shipping Steensby Port	Arctic diesel	15 tanks @ 1ML 20ML fuel barge	15 tanks at 1 ML 4 tanks @ 40 ML		4 tanks @ 40 ML	
	Jet A	5 tanks @ 1ML				
	Marine diesel				1 tank at 7.5 ML and 2 tanks @ 25 ML	
Explosives						
Explosives	Milne Port	Magazine				
	Mine Site	Mobile Mixing Unit and magazines Temporary Emulsion Mixing Plant				Permanent Emulsion Mixing Plant
	Railway	Mobile Mixing Unit and magazines				
	Steensby Port	Mobile Mixing Unit and magazines Temporary Emulsion Mixing Plant				
Production		**Construction Phase**				**Operation Phase**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5 - 25**
Waste Rock & Overburden	Approximate Mt/a	0	0	0	22	30
Mine Ore Stockpiles	ROM, tonnes		0	0	400,000	400,000
	Rail Load-out, tonnes	--	--	--	--	1,400,000
Steensby Port	Steensby Port - 1.4 Mt fine ore stockpile capacity					900,000
	Steensby Port - 3.2 Mt coarse ore stockpile capacity					2,300,000
	Steensby Port Dedicated icebreaker ore carriers (160,000 to 190 ,000 DWT)					10

Power Supply		
Power Supply Milne Port	Camp generator	Mobile genset for camp
	Temporary generators installed for construction period	
Power Supply Mine Site	Annual consumption	114,000 MWh
	Running Load/Installed Power	9.8 MW/15.8MW
	Installed Power	15.8 MW
	Number/Size of unit	5 units at 5.6 MW each (2 standby units)
Railway Construction	Temporary generators installed at camps and quarries	
Power Supply Steensby Port	Annual consumption	120,000 MWh
	Running Load/Installed Power	11 MW/22MW
	Number/Size of unit	3 units at 5.6 MW each (2 standby units)

2.1 Milne Port

Site layouts, drainage plans and other relevant block flow diagrams and drawings for the Milne Port are presented in Attachment 9 of this water licence application.

All facilities required for the Project will be constructed at the onset of construction activities. These facilities include:

1. Expansion of the existing camp water supply from Philips Creeks and Km 32, incinerators, and, sewage treatment facilities;
2. An oily water treatment facility;
3. A landfarm; and,
4. The expansion of the secondary containment for fuel tank farm. Four additional diesel fuel steel storage tanks (10ML each) and two 1.5ML steel tank for storage of Jet-A aviation fuel will be constructed.

The expected peak construction water demand is presented in Table 2.

Supporting documentation for each of these facilities is presented in Attachment 3 (design criteria and technical specifications) and in Attachment 4 (Site specific information for Milne Inlet). Relevant drawings for the Milne Inlet facilities are presented in Attachment 5. Details of the Milne Port facilities are presented in the Project fact sheet (Table 3-1.1 presented above).

Baffinland requests that all Milne Port facilities licenced under the Type B licence that the Company currently holds (2BB-MRY1114), and the new Type B licence to be issued for the 2012 work plan, be rolled in the new Type A Water Licence for the Mary River Project.

2.2 Tote Road

The Tote Road is the only overland transportation link between the Milne Port and the Mine Site. During the construction phase, the road and stream crossings will be maintained. Sections of the road will be upgraded to reduce hazards and risks. Some of the upgrade activities will consist of:

- Improvement to the road base
- Realignment of the road where necessary to facilitate passage of large loads and fuel tanker trucks
- Improvement to the grade in certain areas
- On-going efforts to reduce risk at stream crossings through the implementation of the freshet management plan

No work other than routine maintenance and some improvements to stream crossings are envisaged. Therefore, there is no requirement for an additional HADD authorization or NWB authorization for water crossings.

Large heavy loads will be transported during the winter months and over ice at stream crossings that do not have sufficient load bearing capacity. These crossings are likely limited to the four box culvert crossings. Damage to the stream bed and banks will be minimized through proper selection of crossing locations and the adoption of appropriate stream bank protection measures.

2.3 Mine Site

Site layouts, drainage plans and other relevant block flow diagrams and drawings for the future Mine Site are presented in Attachment 9 of this water licence application. Supporting design criteria and technical specification are presented in Attachment 3 and 4.

The existing facilities and the Mine Site landfill are licenced under the Type B Licence MRY-1114. Baffinland requests that all the Mine Site activities and facilities subjected to the NWB approval be rolled in a single Type A water Licence. Therefore, for the Mine Site, the Type A water licence will cover:

- Water supply from Camp Lake – (see Table 2);
- Site drainage and surface water management;
- Sewage treatment facilities for:
  - 120 persons exploration camp,
  - 1200 persons construction camp; this camp will be downsized to 500 beds for the operation period;
  - discharges from all sewage treatment plant subjected to new Type A licence discharge criteria.

- Oily water treatment facilities for waste water treatment from the mine maintenance facilities
  - discharge from all sewage treatment plant subjected to new Type A licence discharge criteria;
- Explosives storage and Explosive manufacturing facilities for both:
  - Construction period (mobile units);
  - Mining activities (permanent emulsion plant); and
  - Containment of spills and zero effluent discharge from these facilities.
- Fuel tank farm secondary containment and fuel dispending area for:
  - Tank farm containing 2 x 5.2 ML diesel fuel tank
  - Tank farm containing one 5.2 ML tank for the mining fleet;
  - Jet A aviation fuel tank of 2 x 1.5 ML; and
  - Containment of spills and zero effluent discharge from these facilities.
- Waste facilities which include:
  - A waste sorting facility;
  - Waste incinerator;
  - Landfill site;
  - Landfarm for treatment of hydrocarbon contaminated soil and snow;
  - Hazardous waste storage (transit) area;
  - Biomedical waste (from site first aid clinic) treatment/disposal; and
  - Containment of spills and zero effluent discharge from these facilities.
- Hazardous material storage;
  - Containment of spills and zero effluent discharge from these facilities; and
  - Handling in accordance with MSDS and Hazardous Material & Hazardous Waste Management Plan.
- Waste rock stockpile:
  - Deposit of waste rock (long term stability); and
  - Management of runoff from waste rock pile – discharge subjected to MMER discharge criteria.
- Ore stockpiles:
  - Management of runoff from stockpile – discharge subjected to MMER discharge criteria.

2.4 Steensby Site

Site layouts, drainage plans and other relevant drawings and block flow diagrams for the future Steensby Port are presented in Attachment 9 of this water licence application. Supporting design criteria and technical specification are presented in Attachment 3 and 4. The Type A water licence will cover:

- Water supply from local lakes (see Table 2);
- Site drainage and surface water management;
- Sewage treatment facilities for:
  - Construction of a 600 persons capacity land based camp for use as the permanent port camp; and
  - Discharges from all sewage treatment plant subjected to new Type A licence discharge criteria.
- Oily water treatment facilities for waste water treatment from the railway maintenance facilities

- discharge from all sewage treatment plant subjected to new Type A licence discharge criteria.

- Explosives storage and explosive manufacturing facilities for the Construction period:
  - Containment of spills and zero effluent discharge from these facilities.
- Fuel tank farm secondary containment and fuel dispending area for both construction and operation:
  - Construct a tank farm containing twenty 1 ML diesel fuel tank (first year of construction);
  - Expand the above tank farm (second year of construction) to include four 40ML arctic diesel tanks and two 25 ML marine diesel;
  - Jet A aviation fuel tanks of five 1 ML;
  - One 7.5 ML marine diesel tank within secondary containment at the freight dock; and
  - Containment of spills and zero effluent discharge from these facilities.
- Waste facilities which include:
  - A waste sorting facility;
  - Waste incinerators for the camp;
  - Landfill site;
  - Landfarm for treatment of hydrocarbon contaminated soil and snow;
  - Hazardous waste storage (transit) area;
  - Biomedical waste (from site first aid clinic) treatment/disposal; and
  - Containment of spills and zero effluent discharge from these facilities.
- Hazardous material storage;
  - Containment of spills and zero effluent discharge from these facilities; and
  - Handling in accordance with MSDS and Hazardous Material & Hazardous Waste Management Plan.
- Ore stockpiles:
  - Management of runoff from stockpile – discharge subjected to MMER discharge criteria.

2.5 Railway Construction

The construction of the railway is expected to take 3 years. Four temporary construction camps will be established to support construction efforts. Details on camp size and potable water requirements are presented Table 2.

All railway camps will be dismantled once the railway construction is completed. The Closure Plan addressed specific closure activities related to these facilities.

In addition to the water demand indicated in the Table 2, the following components are of particular interest to the NWB for each of these temporary camp sites:

1. No waste will be stored on site. Incinerators will be installed at each camp location to burn combustible and camp waste. Solid waste will be placed in a transit area and transported either to the Mine Site landfill site or to the Steensby landfill site on an as required basis. Waste oil and grease generated from temporary maintenance facilities will be collected, stored in drums, and, transported to Steensby or the Mine Site for treatment, re-use or, shipment off-site for ultimate disposal. Any biomedical waste generated from the first aid facilities will be placed in containers and transported to Steensby or Mary River for disposal

or shipment off-site. Contaminated soils or snow (from spills) will be trucked to the Mine Site landfarm or Steensby Site landfarm for treatment.

2. Diesel fuel required for mobile equipment or power generators will be stored in double walled ISO-containers. These containers will be re-supplied by tanker trucks from the Mine Site tank farm or the Steensby tank farm. Fuel dispensing will be done on impermeable surfaces. Detailed Environmental Protection Procedures (EPPs) will be developed for fuel dispensing and waste handling.
3. Each camp will be equipped with storage tanks for raw sewage. Raw sewage will be trucked to the Mine Site Sewage Treatment Plant (Ravn River and Mid-rail camps) or to the Steensby Sewage Treatment Plant (North and South Cockburn camps) for treatment.

2.5.1 Railway Tunnels

The railway alignment requires the construction of two tunnels on the eastern bank of Cockburn Lake. Construction of these tunnels will be done by drilling and blasting. A brine solution will be used for drilling. Water will be drawn from Cockburn Lake for the brine make up (North and South Cockburn camps water intake locations).

2.5.2 Summary of Water Demand for the Project

The source of fresh water for the mine sites as well as approximate consumptions during the construction and operation phases are presented in Table 2.

Table 2: Fresh Water Demand

Camp/Site	Intake	Coordinates	Use	Construction Consumption (m3/d)	Operation Consumption (m3/d)
Milne Inlet (Port)	Phillips Creek (summer) Km 32 Lake (winter)	N:795254.299 E:502830.385	Domestic	52	14
			Industrial	15	15
Mary River (Mine Site)	Camp Lake	N:7914695.647 E:557818.253	Domestic	367	202
			Industrial	288	150
Steensby (Port)	ST 347 Lake (permanent camp) 3 Km lake (dust suppression & other minor uses)	**ST347** N:7804826.580 E:596600.563 **3 Km Lake** N:7800206.654 E: 596698.129	Domestic	100	100
			Industrial	325	145
Ravn River Area	Ravn Camp Lake	N:7895658.80 E:594510.99	Domestic	132	-
			Industrial	13	-
Mid-Rail Area	Nivek Lake (summer) Ravn Camp Lake (winter)	N:7876430.04 E:595602.59	Domestic	66	-
			Industrial	13	-
Cockburn Lake Tunnels Camp	Cockburn Lake	N:7833929.50 E:603882.25	Domestic	66	-
			Industrial	34	-

Camp/Site	Intake	Coordinates	Use	Construction Consumption (m3/d)	Operation Consumption (m3/d)
Cockburn South Camp	Cockburn Lake	N:7820563.84 E:597661.01	Domestic	99	-
			Industrial	13	-

The discharges locations of treated sewage and wastewater are listed in Table 3.

Table 3: Treated Effluent Generation and Discharge/Outfall Locations

Camp/Site	Discharge/Outfall Location		Coordinates	Treated Effluent (m3/d)	
	Summer	Winter		Construction	Operation
Milne Inlet (Port)	Ocean at Milne Inlet		N: 7976482.047 E:503211.450	55	15
Mary River (Mine Site)	Mary River	Storage Pond	Mary River: N:7912429.349 E:562962.542	560	170
Steensby (Port)	Ocean at Steensby Port		N: 7801412.600 E: 593378.100	310	105
Ravn River Area	Conveyed to Mary River Sewage Treatment		n/a	n/a	
Mid-Rail Area	Conveyed to Mary River Sewage Treatment		n/a	n/a	
Cockburn Tunnels Area	Conveyed to Steensby Sewage Treatment		n/a	n/a	
Cockburn South Camp	Conveyed to Steensby Sewage Treatment		n/a	n/a	

Note: The treated effluent generated at the Mine Site and Steensby Port includes the treated sewage from the rail camps which is treated at these sites.

2.6 Water Crossings

The construction of the railway requires the crossing of over 200 streams and rivers. Relevant information related to each water crossing is presented in Attachment 7 of the Water Licence Application. This attachment presents an overview of the existing environmental conditions with the railway and road access corridor at each specific crossing, the potential effects of the water crossings on the water courses and how such effects can be mitigated.

At this early stage of the Project development, detail design information is limited. However, the design has been advanced on three typical bridge crossings and three typical culvert crossings. These crossing have been selected to represent the varying environmental conditions and crossing scenarios so that a full range of potential environmental impacts resulting from the railway and temporary construction road water crossings can be assessed.

Approximately 38 crossings will require the construction of bridges (25 for the railway and 13 for the temporary construction road). The locations of the bridge crossings are identified in Attachment 7. The construction of bridges requires water for the production of concrete (mobile concrete batch plants). The water demand for bridge concrete production will be drawn from the rivers upstream of the bridge construction site, or nearby ponds.

2.7 Quarry Sites

Aggregate required for construction will be produced from several local quarries. Over 65 potential quarry sites have been identified. Attachment 6 of the Water Licence Application presents relevant information on quarries. All quarries located on Crown Land will be subjected to a quarry permit application that will detail:

- Quantity of available quarry material;
- Timeframe for development and closure;
- Suitability of the material for use and testing for ARD/ML potential;
- Development plan and drainage plan; and
- Closure plan.

The IOL Commercial Lease authorises quarrying on the affected IOL land. A quarry development plan will also be submitted to QIA for any new quarries developed within the boundaries of the Commercial Lease.

All quarry sites will have a minimum set back of 31 m water course. No water will be used for drilling at quarry sites. Crusher trains will be moved to the quarry sites for sizing of the aggregate. Mobile diesel generators will be used for power generation and diesel fuel will be stored on site in double-wall ISO-containers. The EPP will contain detailed procedures for fuel dispensing and waste management at each quarry site. Waste generated at the quarry sites will be transported to Steensby Port or the Mine Site for disposal.

Four quarry permit applications and six Quarry Operations and Management Plans are presented in Attachment 6 of this Type A Water Licence Application.

3.0 Environmental Effects Assessment

As requested by NIRB, Baffinland has completed a detailed environmental assessment for the Project. The effect assessments is based on NIRB's "Guidelines for the Preparation of an Environmental Impact Statement for Baffinland Iron Mines Corporation's Mary River Project (NIRB File No. 08MN053), November 16, 2009. The detailed environmental effects assessments are presented in the following Volumes of the FEIS:

- Volume 4 : Effects on the Human Environment
- Volume 5 : Air Quality, Noise and Vibration
- Volume 6 : Terrestrial Environment
- Volume 7 : Freshwater Environment
- Volume 8 : Marine Environment
- Volume 9 : Cumulative Effects Assessment, Effects of the Environment on the Project, Accidents and Malfunctions, Transboundary Effects Assessment

The Project will be designed and executed in a manner that meets all regulatory requirements and that will avoid, limit, and, minimize negative effects where possible and will enhance socio-economic benefits. Management plans (Attachment 5 and FEIS Volume 10 and its Appendices) have been developed to ensure that the commitments made by Baffinland will be respected.

The environmental assessment of the Project concludes that residual effects of the Project on the valued ecosystem component (VECs) of the biophysical environment will be not significant. With respect to freshwater quality, aquatic ecosystems, fish and fish habitat, a number of proven mitigation measures have been included in the Project to reduce potential effects. These mitigations are detailed in the Surface Water and Aquatic Ecosystem Management Plan, the Fresh Water Supply, Sewage and Wastewater Management, the Waste Management Plan, the Waste Rock Management Plan, and, the Emergency Response and Spill Contingency Plan (Attachment 5).

Runoff from fuel storage and maintenance facilities will be contained and treated as necessary to meet regulatory discharge requirements. Sewage and wastewater from truck washing facilities will be treated to meet established standards prior to discharge to the receiving environment. An Emergency Response and Spill Contingency Plan will be in place to promptly clean up spills should they occur.

The roads and railway cross a large number of watercourses, and a portion of these contain fish habitat. Culverts and bridges for stream and river crossings will be designed to limit barriers to fish movement and where possible, minimum flows will be maintained in streams important for fish habitat. While some fish habitat will be inevitably lost, a compensation plan has been proposed to offset this unavoidable loss. This plan will be finalized in consultation with DFO.

As a result of these actions, the residual effect of the Project on water quality, water and sediment quality, aquatic ecosystems, fish and fish habitat is assessed to be not significant.

Concerns have been expressed over the possibility of a large diesel spill associated with refuelling at Milne and Steensby Inlets. In the unlikely event that it occurs, such a spill may have significant environmental effects. However, refuelling is a well mastered routine activity for all Arctic communities. Handling of fuel deliveries is regulated under the Canadian Shipping Act and subject to an Oil Pollution Emergency Plan (OPEP) which must be submitted and approved by Transport Canada prior to deliveries.

FEIS Volume 1, Table 1-2: Summary of Project Residual Effects for VECs presents a summary of the Project residual effects on the VECs.

Assessments of potential effects on the socio-economic environment have concluded that there will be significant positive effects on local employment and skills development. The effects of Project on the human environment will arise from interactions associated with employment of local residents during the life of the Project. FEIS Volume 1, Table 1-2: Summary of Project Residual Effects for VECs presents a summary of the Project residual effects on the VSECs.

4.0 Inuit Participation

Baffinland understand the importance of the Project for the Inuit of the Northern Baffin Region and the Company reiterates that underlying the economic provisions of the IIBA is the principle of mutual benefit for Inuit and for the Company from the Project. Benefits for Inuit will include financial participation, a comprehensive training strategy, and target levels of Inuit employment, capacity building, business opportunities, and Inuit content considerations in contracting.

During the IIBA negotiations, the Company and QIA have agreed that:

- A structure must be established that facilitates implementation the IIBA, and that implementation of the IIBA will require continuing participation from QIA and the Company over the life of the Project; and
- A process must be established that enables QIA to monitor the operation and management of the Project, and for the Company to get ongoing advice about Inuit concerns and interests.

As a result, Baffinland and QIA have agreed to the creation of a management structure that can best ensure that the goals and objectives of the IIBA and environmental protection are attained. This management structure will consist of:

- A senior Executive Committee composed of three Baffinland and three QIA executive; the role of this committee will be to oversee the implementation of economic, social/cultural and environmental provisions of the IIBA; and
- A joint Management Committee consisting of four representatives of the Company and four representatives of the QIA. The role of this committee will be to monitor the Project on a continuous basis and review progress of the Project as it relates to the goals and objectives established. This committee will report to the Executive Committee.

Baffinland has agreed to fund the operation of these two committees as well as to fund a position for QIA representatives as IIBA Coordinator. Baffinland has agreed to fund Training Officers and a QIA-appointed IIBA Coordinator. In consultation with QIA, Baffinland will also establish a position of Inuit Employment and Training Coordinator and will fund QIA to hire an Inuk for a second position as Inuit Employment and Training Coordinator.

The IIBA has provisions for a number of initiatives intended to alleviate adverse effects that may occur as a result of the Project activities. In all aspects of these provisions, Baffinland has clearly indicated its willingness to work jointly with QIA in order to address these challenges.

To ensure ongoing Inuit participation, Baffinland's has made the following commitments:

- *Establish an Executive Committee to oversee the implementation of the IIBA*
- *Establish a Management Committee to monitor the Project on a continuous basis and provide ongoing Inuit input for environmental and social monitoring of the management plans.*
- *Maintain an active stakeholder management plan to inform and involve Inuit communities with the Mary River Project*

5.0 Environmental Monitoring and Follow up

Within its EHS Management Framework, Baffinland has developed a series of management plans that will enable the Company to effectively manage environmental, health, and, safety risks associated with the Project activities. This management framework is founded on the concept of continuous improvement and adaptive management. The EHS framework incorporates the principles of ISO 14000 and OSHA 18001 for effective environmental, health and safety management. Baffinland's EHS framework, risk management process and adaptive management approach are described in FEIS Volume 10, FEIS Appendix 10A and 10B.

In this context of the EHS Management System, Environmental Mitigation and Monitoring Plans (EMMPs) have been developed for specific Project activities or VECs. Each plan identifies the regulatory framework, the objective, the purpose, the applicable mitigation measures, the roles and responsibilities for implementation, the monitoring and reporting requirements. Management plans relevant to the Type A Water Licence are presented in Attachment 5 of this water licence application. All other management plans are presented in FEIS Volume 10 and its Appendices.

5.1 Biophysical Environment

Regulations of land based discharges are within the mandate of the NWB. Baffinland has identified all locations for water intake and wastewater discharges at the Milne Port, Mine Site, Steensby Port, and the railway construction camps. Approximate water intakes locations for water crossing bridge construction have also been identified. The exact coordinates of these intake and discharge locations are shown on the following drawings:

Project Site	Water Intake	Wastewater Discharge	Reference Drawing
Milne Port	Philips Creek 32 km Lake	Milne Inlet	H337697-4610-07-042-0001
Mine Site	Camp Lake	Mary River Sheardown Lake tributary	H337697-4610-07-042-0002
Steensby Port	3 km Lake ST347 Lake	Steensby Inlet	H337697-4610-07-042-0003
Railway Construction			
• Ravn River	Unnamed Lake	No discharge	H337697-7000-10-014-1003
• Mid-Rail Camp	Unnamed Lake	No discharge	H337697-7000-10-014-1004
• North Cockburn	Cockburn Lake	No discharge	H337697-7000-10-014-1005
• South Cockburn	Cockburn lake	No discharge	H337697-7000-10-014-1005
• Water Crossings	Local rivers	No discharge	refer to Attachment 7
Reference drawings are presented in Environmental Monitoring Plan (Attachment 5) and with the site layout drawings in Attachment 9.			

Wastewater treatment facilities (sewage treatment and oily water treatment) at Milne Port, the Mine Site, and Steensby Port will be designed to meet the water quality discharge criteria established by the current Type B MRY-114 water licence. Discharge of runoff from ore stockpiles and the waste rock stockpile at the Mine Site will be in compliance with the MMER discharge criteria (MMER Schedule 4 and Schedule 5).

In addition to monitoring effluent quality at these discharge locations, Baffinland has identified a number of surveillance monitoring locations (SMP) which are identified on the reference drawings listed above. These SMP will enable Baffinland to monitor the performance of its operations and confirm its predictions that the Project will have no significant residual effects on the aquatic ecosystems. All proposed monitoring and reporting requirements for the Mary River Project are regrouped in a comprehensive document entitled Environmental Monitoring Plan (EMP) which is presented in Attachment 5 of this application.

6.0 Closure Plan

The Mine Site Reclamation Policy for Nunavut (2002) and the Mine Site Reclamation Policy for the Northwest Territories (2002) also require that contingency measures be established in the Closure Plan for both Temporary Closure and Long Term Closure of a mine site. A Preliminary Mine Closure Plan has been prepared to address this requirement (Attachment 10). The plan incorporates progressive rehabilitation during the course of the Project to limit the work required after cessation of operations and to limit the environmental effects during the Project life. It addresses temporary and long-term closure as well as final cessation of operations. The preliminary closure plan also presents a cost estimate for closure.