ISO 9001:2000
FS 87377

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM
SURFACE WATER MANAGEMENT PLAN
(REF. NO. NB102-00181/7-3)

Rev. No.	Revision	Date	Approved
0	Issued in Final	May 17, 2007	

Knight Piésold Ltd.

1650 Main Street West
North Bay, Ontario Canada P1B 8G5
Telephone: (705) 476-2165
Facsimile: (705) 474-8095
E-mail: northbay@knightpiesold.com

Knight Piésold
CONSULTING

Knight Piésold CONSULTING

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM SURFACE WATER MANAGEMENT PLAN (REF. NO. NB102-00181/7-3)

EXECUTIVE SUMMARY

This plan is to be used during the 2007/2008 field season at Baffinland Iron Mine Corporation's Mary River Project. It will be used by the field crews to determine the surface water management requirements for each site. The following describes the specific sections of the report.

Drilling Descriptions

For the purposes of this water management plan the drilling that will be completed during the 2007/2008 field program has been divided into two types; exploration and geotechnical. The exploration drilling will involve coring into bedrock while the geotechnical drilling will consist primarily of drilling overburden. Both types of drilling will be completed using the same drill rigs; however, the quantity of water consumption will be higher for the exploration drilling.

Hydrology and Predicted Flow Rates

The average anticipated surface water runoff flows for the area are presented. The effect of these flows is reviewed with respect to the quantities required for the drill rigs and in particular how the flows may affect the drill schedule. Some locations not situated near to a larger water body may need to be completed during periods of highest flows to be within the requirements of the permits.

General Mitigation Measures

General surface water mitigation measures are discussed for use during the field season. The expected measures to be used are; silt fences, diversion/collection channels or berms, containment berms, in-ground sumps and portable containment sumps. Other measures will be used as required.

Water Management Areas

Each area where work is planned was reviewed and the following information provided; a description of the area including the site and the activities to be completed during the 2007/2008 field work season, a description of the surface water quantity and direction within the area and mitigation measures expected to be required to control the surface water runoff.

Monitoring Requirements

A summary of the monitoring and reporting requirements that will be completed by the field crews are outlined. Adaptive management strategies are discussed to review the situation and modify the mitigation measures if required.

ᕿᑭᖅᑖᓗᒻᒥ ᐅᔭᕆᓐᓂᐊᖅᑏᑦ ᑯᐊᐳᕇᓴᓐᖓᑦ
ᓄᓘᔭᓂ ᐱᓕᕆᐊᕆᔭᐅᔪᖅ

ᓄᓘᔭᓂ 2007/2008 ᖃᐅᔨᓴᖅᑕᐅᓂᖓᑦ ᐱᓕᕆᐊᖅ
ᐃᒪᖅ ᖄᖓ ᖃᐅᓴᖅᑕᐅᓂᖓᑕ ᐊᐅᓚᑕᐅᒐᔭᕐᓂᖓᑦ ᐸᕐᓇᒍᑎ
(ᑐᑭᓯᒋᐊᕈᑎ ᓈᓴᐅᑎᖓᑦ NB102-00181/7-3)

ᓇᐃᓈᖅᓯᒪᓂᖓᑦ

ᑖᓐᓇ ᐸᕐᓇᒍᑎᐅᔪᖅ ᐊᑐᖅᑕᐅᒐᔭᖅᑐᖅ 2007/2008 ᖃᐅᔨᓴᕐᓇᐅᓕᖅᐸᑦ ᕿᑭᖅᑖᓗᒻᒥ ᐅᔭᕆᓐᓂᐊᕐᕕᖓᑦ ᐱᓕᕆᐊᖃᓕᖅᐸᑕ ᓄᓘᔭᓂ. ᐊᑐᖅᑕᐅᒐᔭᖅᑐᓂ ᖃᐅᔨᓴᕆᐊᖅᓯᒪᓕᕈᑎᑦ ᓄᓇᒧᑦ ᓇᓗᓇᐃᕋᓱᐊᕐᓗᑎᑦ ᖄᖅᐸᓯᖓᑦ ᐃᒪᖓᑦ ᐊᐅᓚᑕᐅᓂᕆᒃᓴᐅᓗᓂ ᐊᑐᕆᐊᓕᖏᑦ ᐊᑐᓂ ᖃᐅᔨᓴᖅᑕᐅᕝᕕᒋᔭᐅᔪᒧᑦ. ᐅᑯᐊ ᑕᕝᕙ ᓇᓗᓇᐃᔭᑦᑎᐊᖅᓯᒪᔪᑦ ᐃᓗᐊᓃᑦᑐᑦ ᐅᓂᒃᑳᖏᓐᓂ ᐃᓚᖏᑦ.

ᐳᑑᓇᔪᑦ ᓇᓗᓇᐃᔭᖅᓯᒪᓂᖏᑦ

ᐱᔾᔪᑎᒋᓪᓗᒍ ᑖᔅᓱᒪᑉ ᐃᒪᖅ ᐊᐅᓚᑕᐅᔾᔪᑎᒃᓴᖓᑕ ᐸᕐᓇᒍᑎᖓᑦ ᐳᑑᓇᒌᖅᓯᒪᓕᕋᔭᖅᑐᑦ 2007ᕕ/2008 ᖃᐅᔨᓴᕐᓇᒥ ᒪᕐᕈᐃᓕᖅᑲᖓᓗᒍ ᐳᑑᓇᓂᖅ: ᖃᐅᔨᓴᕐᓂᐅᔪᖅ ᐊᒻᒪᓗ ᓄᓇᒥᖃᐅᔨᓴᕐᓂᖅ. ᖃᐅᔨᓴᕐᓗᑎᑦ ᐳᑑᓇᒐᔭᖅᑐᑦ ᖃᐃᖅᓯᒧ ᐳᑑᓇᓗᑎᑦ ᑖᒃᑯᐊᓕ ᓄᓇᒥ ᖃᐅᔨᓴᕐᓗᑎᑦ ᐳᑑᓇᔪᑦ ᓄᓇᒦᖔᖓᔪᒥᒃ ᐳᑑᓇᑐᐃᓐᓇᕋᔭᖅᑐᑎᑦ. ᐳᑑᖅᓯᔪᖃᕋᔭᖅᑐᖅ ᑕᒪᒃᑮᓐᓂᒃ ᐊᑐᕐᓗᑎᑦ ᐊᔾᔨᒌᓂᒃ ᐳᑑᕐᒑᒍᑎᓂᒃ; ᑭᓯᐊᓂᓕ, ᐃᒪᕐᒥᒃ ᐊᑐᕐᓂᖅᓴᐅᒐᔭᖅᑐᑦ ᖃᐅᔨᓴᖅᑎᓪᓗᒋᑦ ᐳᑑᕐᒑᓗᑎᑦ.

ᐃᒪᓕᕆᓂᖅ ᐊᒻᒪᓗ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐅᓕᑉᐸᓪᓕᐊᓂᖏᑦ

ᐃᒪᕐᒦᓐᖔᖅᑐᖅ ᓱᑯᑦᑎᐊᓘᓐᓂᐊᕐᓂᖓᑦ ᓴᖅᑭᑕᐅᓯᒪᕗᖅ. ᐊᐅᓚᓂᖃᕐᓂᖏᑦ ᑖᒃᑯᐊ ᑰᓕᖅᑎᑦᑎᓂᖏᑦ ᕿᒥᕐᕈᔭᐅᓲᖑᕗᑦ ᐊᒥᓲᖏᑕ ᐳᑑᓇᔪᑦ ᐊᒻᒪᓗ ᐱᓗᐊᖅᑐᒥᒃ ᖃᓄᖅ ᑕᒪᒃᑯᐊ ᐅᓕᐅᔪᑦ ᐊᑦᑐᐃᓂᖃᕐᓂᐊᕐᒪᖔᑦ ᐳᑑᓇᕕᒃᓴᓇᒐᔭᖑᐊᖅᑕᖏᓐᓂ. ᐃᓚᖏᑦ ᐃᓂᖏᑦ ᖃᓂᒋᔭᖑᓃᓐᖏᒪᑕ ᐃᒪᕕᒻᒥ ᐱᔭᕇᖅᑕᐅᔭᕆᐊᖃᖅᑐᑦ ᓴᓐᖏᔪᒥᒃ ᒪᓕᓕᖅᐸᑦ ᑭᓯᐊᓂ ᒪᓕᑦᑕᐅᒐᔭᖅᑐᓂ ᖃᐅᔨᓴᕈᓐᓇᐅᑎᒥᒃ ᐃᓗᐊᓃᑦᑐᑦ ᒪᓕᒋᐊᓕᑦᑎᓐᓂ.

ᐊᑲᐅᕇᖅᑎᑦᑎᔾᔪᑕᐅᓂᐊᖅᑐᑦ ᖃᓄᐃᓕᐅᖅᑕᐅᓗᑎᑦ

ᐊᑲᐅᔪᒃᑰᕈᑎᒋᔭᐅᒐᔭᖅᑐᑦ ᖃᐅᔨᓴᕐᓂᐅᔪᖅ ᑲᔪᓯᓂᖃᑦᑎᐊᖁᓪᓗᒍ ᐅᖃᐅᑕᐅᕗᑦ ᐊᑐᖅᑕᐅᒐᔭᖅᑐᑦ ᖃᐅᔨᓴᕐᓇᐅᑎᓪᓗᒍ. ᖃᓄᐃᓕᐅᕈᑕᐅᓂᐊᖅᑐᒥᔭᑦ ᑲᔪᓯᓂᖃᑦᑎᐊᖁᓪᓗᒍ ᐅᑯᐊᖑᕗᑦ: ᒪᕐᕋᖅᑕᐃᓕᒪᔾᔪᑕᐅᔪᑦ ᐳᑑᕐᒑᑦ; ᐊᓯᐊᒎᖅᑎᑦᑎᓂᖃᕋᔭᖅᑐᑦ/ᓄᐊᑦᑎᒍᓐᓇᕋᔭᖅᑐᑦ ᐊᓯᐊᓅᖅᑎᑦᑎᓗᑎᑦ ᐃᒪᕐᒥᒃ ᓄᖅᑲᑎᑦᑎᔾᔪᑏᓪᓘᓐᓃᑦ, ᓄᐊᑦᑎᔾᔪᑎᐅᔪᖅ ᐃᒪᖃᕐᕕᐅᓗᓂ, ᐅᐊᑦᑕᒃᑯᑕᖃᕐᕕᒃ ᓄᓇᑉ ᐃᓗᐊᓂ ᐊᒻᒪᓗ ᐅᐊᑦᑕᒃᑯᑕᖃᕐᕕᐅᔪᑦ ᓴᓇᔭᐅᓯᒪᔪᑦ. ᐊᓯᖏᑦ ᖃᓄᖅᑑᕈᑕᐅᓯᒪᔪᒥᑦ ᖃᐅᔨᓴᓂᐅᔪᖅ ᐊᑐᖅᑕᐅᔭᕆᐊᖃᓕᕈᑎᑦ.

ᐃᒪᑉ ᐊᐅᓚᑕᐅᓂᖓᑕ ᐃᓂᖏᑦ

ᐊᑐᓂ ᐃᓂᖏᑦ ᐱᓕᕆᐊᕆᕕᐅᒐᔭᖅᑐᑦ ᕿᒥᕐᕈᔭᐅᓯᒪᔪᑦ ᐊᒻᒪᓗ ᐅᑯᐊ ᑐᑭᓯᒋᐊᕈᑎᐅᔪᑦ ᑐᓂᔭᐅᕗᑦ; ᓇᓗᓇᐃᔭᖅᓯᒪᓂᖓᑦ ᐃᓂᖃᕐᕕᖏᑦ ᐱᖃᓯᐅᑎᓗᒋᑦ ᐃᓂᖏᑦ ᐊᒻᒪᓗ ᖃᓄᐃᓕᐅᕐᕕᐅᒐᔭᖅᑐᑦ ᐱᔭᕇᖅᑕᐅᒐᔭᖅᑐᑦ 2007/2008% ᖃᐅᔨᓴᕐ/ᐅᑎᓪᓗᒍ, ᓇᓗᓇᐃᔭᖅᓯᒪᓂᖓᑦ ᐊᖏᓂᖏᑕ ᐃᒪᑉ ᐊᒻᒪᓗ ᓱᑯᑦᑎᐊᓅᖅᑎᑕᐅᒐᔭᕐᒪᖔᑦ ᑕᐃᑲᓂ ᖃᐅᔨᓴᕐᕕᒋᔭᐅᔪᒥᒃ ᐊᒻᒪᓗ ᖃᓄᐃᓕᐅᕈᑕᐅᒐᔭᖅᑐᑦ ᖃᐅᔨᓴᖅᑎᓪᓗᒋᑦ ᑲᔪᓯᓂᖃᑦᑎᐊᕐᑯᓪᓗᒍ ᐊᐅᓚᑕᐅᑦᑎᐊᕐᑯᓪᓗᒍ ᐃᒪᖅ ᐊᓯᐊᓅᖅᑐᖅ ᒪᐅᖓᑐᐃᓐᓈᕋᔭᓐᖏᒃᑲᓗᐊᕐᒪᖔᑦ.

ᖃᐅᔨᓴᖅᑕᐅᔭᕆᐊᖃᕋᔭᕐᓂᖏᑦ

ᓇᐃᓵᖅᓯᒪᔪᑦ ᖃᐅᔨᓴᖅᑕᐅᓂᑦᑕ ᖃᐅᔨᓴᕐᓂᑎᓐᓂ ᐊᒻᒪᓗ ᐅᓂᒃᑳᓕᐅᕐᕕᖃᕆᐊᖃᕐᓂᑦᑎᓐᓂ ᐱᔭᕇᖅᑕᐅᖓᔭᖅᑐᑦ ᐃᖅᑲᓇᐃᔭᖅᑎᓄᑦ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᕗᑦ. ᓱᖏᐅᑎᔭᕆᐊᖃᕐᓂᕗᑦ ᖃᓄᖅᑑᕈᑏᑦ ᐅᖃᐅᑕᐅᕗᑦ ᕿᒥᕐᕈᔭᐅᕐᑯᓪᓗᒍ ᖃᓄᐃᓕᖓᓂᖓᑦ ᐊᒻᒪᓗ ᐊᓯᔾᔨᕋᔭᕐᓗᑎᑦ ᖃᓄᖅᑑᕐᓂᕗᑦ ᖃᐅᔨᓴᕐᓂᑎᓐᓂ ᑲᔪᓯᓂᖃᑦᑎᐊᕐᑯᓪᓗᒍ ᐊᓯᔾᔨᕋᔭᖅᑐᑎᒍᑦ ᐊᑲᐅᓈᖅᓯᓂᐊᕐᓂᕈᑦᑕ ᐊᐅᓚᓂᑦᑎᓐᓂ.

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM
SURFACE WATER MANAGEMENT PLAN
(REF. NO. NB102-00181/7-3)

TABLE OF CONTENTS

PAGE

TABLES

FIGURES

APPENDICES

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM SURFACE WATER MANAGEMENT PLAN (REF. NO. NB102-00181/7-3)

SECTION 1.0 - INTRODUCTION

1.1 PROJECT

The Mary River Project (the Project) is an iron ore exploration project in the North Baffin region of Nunavut. The Project is located about 160 km south of Mittimatalik (Pond Inlet) and 270 km southeast of Ikpiarjuk (Arctic Bay) as shown on Figure 1.1.

Baffinland Iron Mines Corporation (Baffinland) has been conducting seasonal mineral exploration since 2004, drilling known high-grade iron ore deposits that were originally staked and explored in the 1960's. An 80-person air access exploration camp has been established near the deposit in the vicinity of the Mary River, and was the base for 2006 field survey crews. This camp will be expanded to accommodate 100 people for the 2007 and 2008 field seasons. Figure 1.2 shows the Project Study Area.

Knight Piésold Ltd. is conducting environmental, social and traditional knowledge baseline studies on behalf of Baffinland for the Mary River Project. Knight Piésold is also conducting engineering studies to evaluate foundation conditions in advance of future applications that would be required to support a full-scale mining proposal.

The Mary River Project includes the following components which define the aerial extent of the project area:

- Mary River Project mine site (Including Deposit Nos. 1, 2, 3 and 4)
- Existing Milne Inlet Tote Road
- Milne Inlet port site and adjacent marine areas
- Potential future transportation corridor heading south from Mary River to Steensby Inlet
- A future potential port site at Steensby Inlet and adjacent marine areas

This report provides information on the Surface Water Management Plan for the work to be completed during the 2007 and 2008 field seasons.

1.2 SUMMARY OF PERMITS

The following permits relate to water use at the project site:

- Nunavut Impact Review Board (NIRB), Screening Decision for Baffinland's Mary River Geotechnical Drilling Project Proposal NIRB File No. 07EN004

- Nunavut Water Board (NWB), Licence No. 2BE-MRY0708, dated February 20, 2007

The work for the 2007 and 2008 field seasons will be completed following the requirements of these permits. Copies of the aforementioned permits are included in the appendices of this report.

A summary of the specific requirements of these permits as they relate to surface water management is as follows:

- The volume of water extracted for the project for the purposes of this Licence shall not exceed 475 cubic metres per day
- Streams cannot be used as a water source unless authorized and approved by the Board
- All water intake hoses shall be equipped with a screen of an appropriate mesh size to ensure fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen
- No material shall be removed from below the ordinary high water mark of any water body unless authorized
- The licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion
- Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water
- All waste disposal areas shall be located a minimum of 30 metres from the ordinary high water mark of any water body
- No land based drilling shall be conducted within 30 metres of the ordinary high water mark of any water body, unless approved

SECTION 2.0 - DRILLING PROGRAMS

2.1 EXPLORATION DRILLING

The exploration drilling program will be carried out to identify the quality and quantity of the ore located at Mary River Deposit Nos. 1, 2, 3 and 4. The exploration drilling will also provide geomechanical and geochemical data for the mine design.

The following drills are scheduled for use during the 2007 field program and will be shared between the exploration and geotechnical drilling programs:

- One - LM30 hydrostatic towerless drill
- Two - LF70 hydrostatic drills (with towers)
- Three - LY38 conventional drills

Calcium chloride brine will be used as the drilling fluid during the exploration drilling due to the cold temperatures at the site and permafrost in the ground. This will prevent the drill rods from freezing in the deep exploration holes. The brine consumption rate for the drilling will be a maximum of 12 gallons per minute per drill rig (approximately 2.73 cubic metres per hour).

The mixing station to produce the calcium chloride brine is a steel tank equipped with hydraulic mixers. Water is added to the tank from a water pumping station. Salt is transported to the mixing station in bags and is added to the tank to be mixed with the water. The entire station is located more than 33 metres from any water body. Special care will be taken to ensure good housekeeping measures are completed at all times at the salt mixing station. The quantity of salt added will be kept to a minimum.

The water pumping stations will be located on bodies of water of sufficient quantity so as not to cause drawdown of the water level in the water body. Screens will be placed over the intake hoses to ensure that fish are not entrained. The pumping rate will also be kept at a rate to ensure that fish do not become impinged on the screens.

Water runoff from the exploration drill rigs will be collected using a “T” connection at the drill hole collar on top of the hole casing to allow capture and re-circulation of the drilling fluid (saline water and drill cuttings) using a sump or tank. Recirculation will minimize the amount of chloride brine and fresh water required for the drilling program.

During removal of the core barrel quantities of drilling fluid will not be recoverable and will be discharged to the ground surface. The discharge of the drilling fluid to adjacent surface water bodies will be controlled through the use of mitigation measures outlined in this report.

2.2 GEOTECHNICAL DRILLING

The geotechnical program will be conducted to identify and qualify the types and depth of soils at the project sites. Information from the geotechnical drilling will be used to assist in foundation design for project infrastructure.

The geotechnical drilling program will consist of overburden drilling and limited coring to confirm bedrock contact. The holes drilled for the geotechnical program will generally be shallow, most will be less than 30 metres deep.

The following drills are scheduled for use during the 2007 field program and will be shared between the exploration and geotechnical drilling programs:

- One - LM30 hydrostatic towerless drill
- Two - LF70 hydrostatic drills (with towers)
- Three - LY38 conventional drills

Calcium chloride brine will not be used for the geotechnical drilling. The drill rigs working on the geotechnical drilling program will use less water than the exploration drill rigs. The water use rate will be less than 10 gallons per minute (2.27 cubic metres per hour)

The water pumping stations will be located on bodies of water of sufficient quantity so as not to cause drawdown of the water level in the water body. Screens will be placed over the intake hoses to ensure that fish are not entrained. The pumping rate will also be kept at a rate to ensure that fish do not become impinged on the screens.

SECTION 3.0 - GENERAL MITIGATION MEASURES

The following measures will be used to mitigate any issues from discharge of water from the water management areas. If a need is identified, additional measures will be used.

3.1 SILT FENCE

Description

Silt fences are a geotextile or fabric barrier that slows the flow of surface water causing suspended sediment to be deposited and prevented from migrating from the site. The fabric is connected to the ground usually by excavating a trench and backfilling with compacted soil. Silt fence is typically supported using wooden stakes (usually attached to the fabric by the manufacturer) but can be supported by any suitable means. Attempts will be made to install silt fence in lines of equal elevation (along contour lines) to prevent channelling or focusing of the runoff.

Standards for installation including trench excavation, insertion of fabric and backfilling and compacting can be found on the Ontario Provincial Standard Drawing (OPSD) 219.110 - Light Duty Silt Fence Barrier and 219.130 - Heavy Duty Silt Fence Barrier.

Typical Locations of Use

Silt fence will be used in areas where surface water could be expected to escape from a site. Typical installation locations are:

- Downstream of drill rigs
- Along roads where surface runoff is expected
- Surrounding stockpiles of material or drill cuttings

Substitutes

Free standing silt fences may also be considered for use in areas where typical silt fence is impractical i.e. on rock or impenetrable surfaces. Diversion / collection channels or berms may also be used in certain locations.

3.2 DIVERSION/COLLECTION CHANNEL OR BERM

Description

Diversion channels or berms may be used to locally direct surface water runoff.

The structures will be constructed using suitable materials to divert the surface water without causing erosion or suspension of additional sediment. Excavation of channels may be an option, however, construction of berms using soil or man-made structures such as sand bags/tubes will also be evaluated.

Typical Locations of Use

Channels or berms will be used in locations where it is required to divert or collect surface water. Diversion structures may be installed to prevent runoff from entering a site where the surface soil

has been disturbed and would cause suspension of sediment. Additionally collection channels or berms may be constructed to collect runoff emerging from an area of soil disturbance.

One possible use of a collection/diversion channel or berm would be to ensure runoff is directed to a constructed mitigation measure such as an in-ground sump.

Substitutes
Silt fences may be an alternative to constructing a channel or berm.

3.3 CONTAINMENT BERM

Description
A containment berm may be constructed to establish a sump, basin or pond to contain or collect water. The sump could be used to contain discharge water to allow suspension of sediment prior to discharge or to temporarily contain the water for re-circulation. The berm will be constructed using native soils or other suitable man-made products.

Care will be taken when constructing berms to ensure the base is on a solid foundation. Soil placed to construct the berms will be nominally compacted to provide strength for the structure. Berm heights will be minimized (<1 m).

Typical Locations of Use
Containment berms will be constructed across small valleys or around natural depressions to augment the capacity of the berms. For example in previous years at the Mary River site a berm was constructed in a low lying area at the base of Deposit No. 1 to create a sump. The resulting sump was used to re-circulate water and collect surface water runoff.

Substitutes
In-ground sumps or portable containment sumps or tanks may be used in place of a containment berm.

3.4 IN-GROUND SUMP

Description
An in-ground sump may be constructed to establish a sump, basin or pond to contain or collect water, similar to the containment berm. An in-ground sump would be constructed by excavating a depression into soil to provide water containment. Excavated material from the sump could be used to construct a containment berm surrounding the sump to augment the capacity of the sump.

Typical Locations of Use
In-ground sumps may be used in any area where excavation in the soils is possible.

Substitutes
Containment berms, or portable containment sumps or tanks may be used in place of an in-ground sump.

3.5 PORTABLE CONTAINMENT SUMP

Description

Portable containment sumps may be used to establish a sump to contain water from a source such as a drill rig. The portable sump requires only minimal excavation or construction to provide a level base for the sump.

A series of portable containment sumps may be connected together to provide additional containment or settling capacity if required.

Collected sediment or drill cuttings from the portable containment sumps will be removed from the sumps, as necessary and disposed of in pit locations approved by Baffinland management and located at distances of at least 30 metres from water bodies.

Typical Locations of Use

Portable containment sumps may be used in areas where containment berms or in-ground sumps are impractical such as steep topography or in areas where overburden is not readily available.

Substitutes

Containment berms or in-ground sumps may be used in place of a portable containment sump.

SECTION 4.0 - HYDROLOGY AND PREDICTED SURFACE WATER RUNOFF RATES

4.1 SURFACE WATER RUNOFF EVALUATION

Regional Water Survey of Canada flow gauging stations were identified based on proximity to the project site and are identified as: Apex River, Allen River, Mecham River and Marcil Creek. Details of the stations are shown on Table 4.1 and the locations are shown on Figure 4.1.

A flow gauging station (H5) was installed on the Mary River and was operational for most of summer 2006. The location of H5 is shown on Figure 4.1. The flow data recorded at H5 were insufficient to be relied on, however, preliminary interpretation of the data was completed. The preliminary flow estimates are based on an un-calibrated rating curve and professional judgement for the flows from October to June. The H5 flows were compared to the regional flow gauging stations and found to be of similar magnitude. The flows from H5 and the regional stations are shown on Figure 4.2.

Average monthly unit flow rates based on the preliminary rating curves H5 were calculated and were:

Month	Average Monthly Unit Runoff Rate (cu.m/s/sq.km)
January to May	0.0000
June	0.0083
July	0.0500
August	0.0233
September	0.0167
October to December	0.0000

Note: Each of the unit flow rates are presented in cubic metres per second per square kilometre of catchment area.

4.2 WATER USAGE FOR DRILLING

The unit flow rates calculated for the Mary River gauging station H5 show the distribution of runoff flow rates for the year. The estimated runoff values indicate that from October to May there is no runoff and that just over half of the flows occur in July.

Based on the flow evaluation, special consideration for drill water requirements will need to be made when creating the drilling schedules. Locations not adjacent to larger water bodies may need to be drilled during periods of expected higher flows so that there is no drawdown of the water levels. Drill holes located adjacent to larger bodies of water can be completed when convenient.

The drilling programs will recycle water to reduce water usage from ponds, lakes and rivers. Any consumption of water from ponds, lakes and rivers will not result in measurable drawdown of the water bodies. No water will be used from streams where there is a potential for drawdown effect without first obtaining regulatory approval as necessary.

SECTION 5.0 - WATER MANAGEMENT AREAS

5.1 MARY RIVER CAMP SITE

Description

- 100 person camp consisting of tents, 2 steel Quonset style structures and 5 small wooden buildings
- Both grey water and sewage effluent are managed and discussed under separate documents
- Air strip (4,100 foot long summer strip, and 5,000 foot winter strip)
- Helicopter landing pad (one area with a built-in central fuel berm and refuelling system with capacity for four helicopters
- Fuel storage area consisting of three containment berms that can each hold up to 400 drums (205 litre drums) and a fourth smaller containment berm for lubricating oils and grease
- The location of the site is shown on Figure 1.2

Surface Water Direction and Quantity

The catchment areas for the Mary River Camp Site are shown on Figures 5.1 and 5.2. Ultimately the surface water at the site is directed towards Camp, Sheardown and Mary Lakes. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

Mitigation Procedures

The Mary River Camp Site is not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. The site will be regularly monitored (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they will be selected and installed as previously discussed in the section General Mitigation Measures.

5.2 MARY RIVER DRILLING AREA

Description

- No permanent structures or buildings
- An historic camp from the exploration work in the 1960's located on the way to the Deposit No. 1 has been partially cleaned up.
- No camps
- Exploration drilling focused on Deposit Nos. 1, 2, 3 and 3A
- Geotechnical and exploration drilling
- Water Pumping Station - Water will be pumped from the either the Mary River or nearby pond. This water is pumped to the salt mixing station.
- Salt Mixing Station - Salt is mixed with the water to create a brine solution. This solution is pumped from the salt mixing station to drill rigs. The brine may be heated in colder temperatures.
- Drill water discharge (using mitigation measures previously discussed)
- Fuel is stored at the Mary River Camp Site within the storage facility and flown to the drill sites as required
- The location of the site is shown on Figure 1.2

Surface Water Direction and Quantity

The catchment areas for the Mary River Drilling Area are shown on Figures 5.1 and 5.2. Ultimately the surface water at the site is directed towards Camp, Sheardown and Mary Lakes. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

During the field seasons there will be an additional surface water discharge from the drill rigs. This flow is estimated to be a maximum of 12 gallons per minute per drill. There are expected to be a maximum of four drill rigs operating at any one time at the Mary River Drilling Area which would represent a maximum of an additional 260 cubic metres of runoff per day (65 cubic metres per drill rig). Recirculation of the drill water will be carried out to reduce water and salt use.

Mitigation Procedures

The Mary River Drilling Area will experience drilling activities during the 2007 and 2008 field seasons. Sediment and erosion control measures will be required and will be installed as per the previous section General Mitigation Measures. The site will be regularly monitored (as discussed in the Monitoring section of this report).

5.3 TOTE ROAD - MARY RIVER CAMP SITE TO MARY RIVER DRILLING AREA

Description

- No permanent structures or buildings
- No camps
- Historic dirt road constructed in the mid 1960's
- Periodic ATV traffic to and from the drilling area for crew shift changes. The number of trips will be kept to a minimum. Helicopters will also be used as an alternative.
- The location of the site is shown on Figure 1.2

Surface Water Direction and Quantity

The catchment areas for the Mary River Drilling Area are shown on Figures 5.1 and 5.2. Ultimately the surface water at the site is directed towards Camp, Sheardown and Mary Lakes. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

Mitigation Procedures

The Tote Road between the Mary River Camp Site and the Mary River Drilling Area Drilling Area will experience periodic ATV traffic. This traffic will be related to transporting the drilling crews to and from the drilling area. The number of trips will be kept to a minimum. Sediment and erosion control measures will be installed if required as per the previous section General Mitigation Measures. The area will be regularly monitored (as discussed in the Monitoring section of this report).

5.4 MILNE INLET CAMP SITE

Site Description

- A temporary camp consisting of: 1 office tent, 4 ATCO style trailers, 2 recreational type trailers and one wooden structure as a wash tent.
- Both grey water and sewage effluent are managed and discussed under separate documents
- Air Strip
- Fuel storage area consisting of two containment berms one with a capacity for 100 drums (205 litre drums) and another with a capacity for 50 drums
- Geotechnical drilling
- Water taking for drilling (water will be taken directly from the ocean by pumping or transporting if required)
- Drill water discharge (using mitigation measures previously discussed)
- The location of the site is shown on Figure 1.2

Surface Water Direction and Quantity

The catchment areas for the Milne Inlet Camp Site are shown on Figure 5.3. The surface water at the site is ultimately directed to Milne Inlet. The estimated surface water runoff quantities for each catchment area are shown on Table 5.2.

Mitigation Procedures

The Milne Inlet Camp Site is not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. The site will be regularly monitored (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they will be selected and installed as previously discussed in the section General Mitigation Measures.

5.5 MILNE INLET ON-ICE DRILLING AREA

Description

- No permanent structures or buildings
- No camps
- No fuel storage
- On-ice geotechnical drilling
- Water for drilling will be drawn from the inlet
- Drill water discharge (see Mitigation Procedures below)
- On-ice probing (no water taking or discharge)
- The location of the site is shown on Figure 1.2

Mitigation Procedures

No drill water will be discharged on the ice. Only geotechnical drilling will be completed on the ice. All water will come out of the hole at the casing/ocean bottom interface. If drilling continues into bedrock the drill water will be discharged into a portable containment sump and removed from the ice. The water and cuttings contained in the portable containment sump will be disposed of in a pit location at least 30 metres from water to be determined by Baffinland and Knight Piésold.

There will not be any fuel storage on the ice. Any fuel required for the on-ice drilling will be transported to the site in large plastic containers. Drip pans will also be used under the tanks to prevent any fuel contamination.

5.6 STEENSBY INLET CAMP SITE

Description

- A temporary camp consisting of 7 tents and one wooden structure that will be a wash tent.
- Grey water and sewage effluent are managed and discussed under separate documents
- Air strip. There is no fixed runway at the Steensby Inlet Camp Site, however, a seasonal runway will be used on a lake 15 km NNW of the site
- Fuel storage area consisting of one containment berm with a capacity for approximately 60 drums (205 litre drums)
- Geotechnical drilling
- Water for drilling will be obtained from the inlet
- Drill water discharge (using mitigation measures previously discussed)
- The location of the site is shown on Figure 1.2

Surface Water Direction and Quantity

The catchment areas for the Steensby Inlet Camp Site are shown on Figure 5.4. The surface water at the site is ultimately reports to Steensby Inlet. The estimated surface water runoff quantities are shown on Table 5.3.

Mitigation Procedures

The Steensby Inlet Camp Site is not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. The site will be regularly monitored (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they will be selected and installed as previously discussed in the section General Mitigation Measures.

5.7 STEENSBY INLET ON-ICE DRILLING AREA

Description

- No permanent structures or buildings
- No camps
- No fuel storage
- On-ice geotechnical drilling
- Water for drilling will be taken from the ocean.
- Drill water discharge
- On-ice probing (no water taking or discharge)
- The location of the site is shown on Figure 1.2

Mitigation Procedures

No drill water will be discharged on the ice. Only geotechnical drilling will be completed on the ice. All water will come out of the hole at the casing/ocean bottom interface. If drilling continues into bedrock the drill water will be discharged into a portable containment sump and removed from the ice. The water and cuttings contained in the portable containment sump will be disposed of in a pit location at least 30 metres from water to be determined by Baffinland and Knight Piésold.

There will not be any fuel storage on the ice. Any fuel required for the on-ice drilling will be transported to the site in large plastic containers. Drip pans will also be used under the tanks to prevent any fuel contamination.

5.8 STEENSBY INLET TRANSPORTATION CORRIDOR

Description

- No permanent structures or buildings
- No camps. The previously discussed camps at Steensby and Mary River will be used.
- Fuel is stored at either the Milne Inlet or Steensby Inlet Camps within the storage facilities and flown to the drill sites as required.
- Geotechnical drilling
- Water taking for drilling
- Drill water discharge (using mitigation measures previously discussed)
- The location of the site is shown on Figure 1.2

Surface Water Direction and Quantity

The catchment areas for the Steensby Inlet Transportation Corridor are shown on Figure 5.5. The surface water along the corridor is ultimately directed to Cockburn River and Lake, Ravn River and Big Angajurjualuk Lake. Specific surface water runoff quantities were not calculated for the transportation corridor due to the large catchment area and the minimal quantity of water required for the drilling.

Mitigation Procedures

Sediment and erosion control measures will be required and will be installed as per the previous section General Mitigation Measures. The site will be regularly monitored as discussed in the Monitoring section of this report.

SECTION 6.0 - MONITORING

6.1 ROUTINE INSPECTIONS

6.1.1 Drill Sites

Routine inspections of the immediate area surrounding the drills will be completed as part of the safety/environmental inspection. This inspection will be completed by Baffinland and Boart Longyear personnel as part of daily pre-operation inspection.

Particular items for review are:

- Fuel leaks
- Equipment condition
- Sediment and erosion control measures
- Water intakes
- Water management systems

6.1.2 Camp Sites

Routine inspections will be completed at each of the three camps. This inspection will be completed by Baffinland.

Particular items for review are:

- Fuel leaks
- Sediment and erosion control structures

6.1.3 Tote Road - Between Mary River Camp and Mary River Drilling Area

Routine inspections will be completed along the Tote Road between the Mary River Camp and Mary River Drilling Area. This inspection will be completed by Baffinland.

Particular items for review are:

- Any rutting by the ATVs
- Sediment and erosion control structures

6.2 WEEKLY MONITORING PROGRAM

The weekly monitoring program will be completed by Knight Piésold personnel on behalf of Baffinland. It will involve the following:

- Surface water sampling from the locations shown on Figure 6.1. Additional sample locations will be added as required to ensure representative samples are taken downstream of all activities.

The samples will be shipped for laboratory analysis for the following parameters:

- Calcium, Magnesium, Sodium, Potassium, Aluminium, Arsenic, Boron, Barium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Strontium, Vanadium, Zinc, Tin, pH, Conductivity, Alkalinity as $CaCO_3$, TDS (COND-CALC), Turbidity, Phenols, N-NH_3, SO_4, Cl, Br,N-NO_2, N-NO_3, NO_2 + NO_3 as N, Mercury, Hardness as $CaCO_3$, TOC and DOC

6.3 WEEKLY REPORTING

A weekly report will be compiled for distribution by Baffinland summarizing the results of the weekly monitoring program. The report will include the following:

- A comparison of the sampling results to the Canadian Council of Ministers for the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life
- A summary of any notes and observations made during the monitoring program.

The weekly report will be circulated to the appropriate supervisory staff of Baffinland, the drilling contractor and Knight Piésold. It will be available through Baffinland site management to the Water Resource Inspector and other responsible authorities upon request. Any issues of non-compliance with regulatory permits or exceedances of CCME guidelines will be reported upon identification to the Water Resource Inspector and other regulatory authorities as may be appropriate

6.4 ADAPTIVE MANAGEMENT STRATEGIES

The mitigation measures previously identified in this report and an increased focus on water recirculation and improved management of the salt mixing station are expected to address the concerns identified during the 2006 field season. The work procedures for the 2007 and 2008 field seasons will continuously be adapted with the goal of reduction of salt use and minimizing surface runoff.

If an issue is identified the adaptive management strategies will be implemented to manage the situation. The strategies will be to review the situation and modify the mitigation measures. The general strategies are as follows:

- Reduce salt content of drill water
- Review and modify salt handling techniques at the pump station
- Review drill water discharges
- Increase size of containment structures
- Install additional mitigation measures

Additional sampling and monitoring will be completed until the exceedance has been eliminated.

SECTION 7.0 - CERTIFICATION

This report was prepared, reviewed and approved by the undersigned.

Prepared by:

C. A. (Andy) Phillips, P.Eng.
Project Engineer

Reviewed by:

Steven R. Aiken, P.Eng.
Manager Environmental Services

REGISTERED PROFESSIONAL ENGINEER S.R. AIKEN LICENSEE NWT/NU

PERMIT TO PRACTICE
KNIGHT PIESOLD LTD.
Signature
Date May 17/07
PERMIT NUMBER: P 547
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

Approved by:

Ken D. Embree, P.Eng.
Managing Director

This report was prepared by Knight Piésold Ltd. for the account of Baffinland Iron Mines Corporation. The material in it reflects Knight Piésold's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, is the responsibility of such third party. Knight Piésold Ltd. accepts no responsibility for damages, if any, suffered by any third party, as a result of decisions made or actions, based on this report. This numbered report is a controlled document. Any reproductions of this report are uncontrolled and may not be the most recent revision.

Knight Piésold CONSULTING

TABLE 4.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM
SURFACE WATER MANAGEMENT PLAN

REGIONAL STREAMFLOW MONITORING STATIONS

Station Name	Station ID	Period of Record (yrs)	Catchment Area (sq.km)	Operated by
Apex River at Apex	10UH002	1973 - 1995	58.5	WSC
Allen River near mouth	10VC001	1970 - 1984	448	WSC
Soper River near Kimmirut [1]	10UJ001	1994 - 1999		WSC
Mecham River near Resolute	10VC002	1971 - 1979	86.8	WSC
Marcil Creek near Arctic Bay	10UB001	1978 - 1983	139	WSC

I:\102-00181-7\Assignment\Report\Report 3, Rev. 0 - Water Management Plan\[Table 4.1 - Regional Hydromet Stations.xls]Table 4.1

17-May-07

Notes:

1. Gauging station monitors lake levels.
2. WSC refers to Water Survey of Canada.
3. Blank cells indicate no data available.

Knight Piésold CONSULTING

TABLE 5.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM
SURFACE WATER MANAGEMENT PLAN

MARY RIVER AREA - CATCHMENT RUNOFF QUANTITIES

Catchment No.		MR-01	MR-02	MR-03	MR-04	MR-05	MR-06	MR-07	MR-08	MR-09	MR-10	MR-11	MR-12	MR-13	MR-14	MR-15	MR-16	MR-17	MR-18	MR-19	MR-20
	Unit Runoff Rate	Runoff Rate																			
	(cu.m/s/sq.km)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)
tchment Area (sq.km)		874.50	248.70	6,311.00	217.50	7,663.40	122.97	30.40	9.39	10.45	3.58	5.41	14.70	85.43	114.20	18.02	8.61	1.48	21.75	15.66	73.02
January	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
April	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
June	0.0083	7.26	2.06	52.38	1.81	63.61	1.73	0.25	0.08	0.09	0.03	0.04	0.12	0.71	0.95	0.15	0.07	0.01	0.18	0.13	0.61
July	0.0500	43.73	12.44	315.55	10.88	383.17	10.42	1.52	0.47	0.52	0.18	0.27	0.74	4.27	5.71	0.90	0.43	0.07	1.09	0.78	3.65
August	0.0233	20.38	5.79	147.05	5.07	178.56	4.86	0.71	0.22	0.24	0.08	0.13	0.34	1.99	2.66	0.42	0.20	0.03	0.51	0.36	1.70
September	0.0167	14.60	4.15	105.39	3.63	127.98	3.48	0.51	0.16	0.17	0.06	0.09	0.25	1.43	1.91	0.30	0.14	0.02	0.36	0.26	1.22
October	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
December	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

I:\102-00181-7\Assignment\Report\Report 3, Rev. 0 - Water Management Plan\[Table 5.1 to 5.3 - Catchment Runoff Quantities.xls]Table 5.1
17-May-07

Note:
1. Unit runoff rate is based on flow estimates at station H5 from preliminary and uncalibrated rating curve and professional judgement about flows from October to June.

Knight Piésold CONSULTING

TABLE 5.2

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM
SURFACE WATER MANAGEMENT PLAN

MILNE INLET AREA - CATCHMENT RUNOFF QUANTITIES

Catchment No.		MI-01	MI-02	MI-03	MI-04	MI-05	MI-06
	Unit Runoff Rate	Runoff Rate					
	(cu.m/s/sq.km)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)
Catchment Area (sq.km)		5.27	3.59	4.11	62.32	5.61	7.96
January	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
February	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
March	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
April	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
May	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
June	0.0083	0.04	0.03	0.03	0.52	0.05	0.07
July	0.0500	0.26	0.18	0.21	3.12	0.28	0.40
August	0.0233	0.12	0.08	0.10	1.45	0.13	0.19
September	0.0167	0.09	0.06	0.07	1.04	0.09	0.13
October	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
November	0.0000	0.00	0.00	0.00	0.00	0.00	0.00
December	0.0000	0.00	0.00	0.00	0.00	0.00	0.00

I:\102-00181-7\Assignment\Report\Report 3, Rev. 0 - Water Management Plan\[Table 5.1 to 5.3 - Catchment Runoff Quantities.xls]Table 5.2

17-May-07

Note:

1. Unit runoff rate is based on flow estimates at station H5 from preliminary and uncalibrated rating curve and professional judgement about flows from October to June.

Knight Piésold CONSULTING

TABLE 5.3

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

MARY RIVER 2007/2008 EXPLORATION PROGRAM
SURFACE WATER MANAGEMENT PLAN

STEENSBY INLET AREA - CATCHMENT RUNOFF QUANTITIES

Catchment No.		SI-01	SI-02	SI-03
	Unit Runoff Rate	Runoff Rate		
	(cu.m/s/sq.km)	(cu.m/s)	(cu.m/s)	(cu.m/s)
Catchment Area (sq.km)		13.68	21.77	1.99
January	0.0000	0.00	0.00	0.00
February	0.0000	0.00	0.00	0.00
March	0.0000	0.00	0.00	0.00
April	0.0000	0.00	0.00	0.00
May	0.0000	0.00	0.00	0.00
June	0.0083	0.11	0.18	0.02
July	0.0500	0.68	1.09	0.10
August	0.0233	0.32	0.51	0.05
September	0.0167	0.23	0.36	0.03
October	0.0000	0.00	0.00	0.00
November	0.0000	0.00	0.00	0.00
December	0.0000	0.00	0.00	0.00

31-7\Assignment\Report\Report 3, Rev. 0 - Water Management Plan\[Table 5.1 to 5.3 - Catchment Runoff Quantities.xls]Table 5

17-May-07

Note:
1. Unit runoff rate is based on flow estimates at station H5 from preliminary and uncalibrated rating curve and professional judgement about flows from October to June.

XREF FILE(S): Routes_Settlements IMAGE FILE(S): 136-Jan12 137-Jan12 4 Baffinland logo-big corp Baffinland logo_new

LEGEND:

Water

Existing Community

Scale (Approx.) 65 32.5 0 65 130 195 260 325 Km

NORTH BAY ON. CREATED BY: mdemers SAVED: I:\102-00181-7\Assignment\Acad\Fig\A01, 5/17/2007 8:54:02 AM PRINTED: 5/17/2007 8:55:40 AM, Layout1, mdemers

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

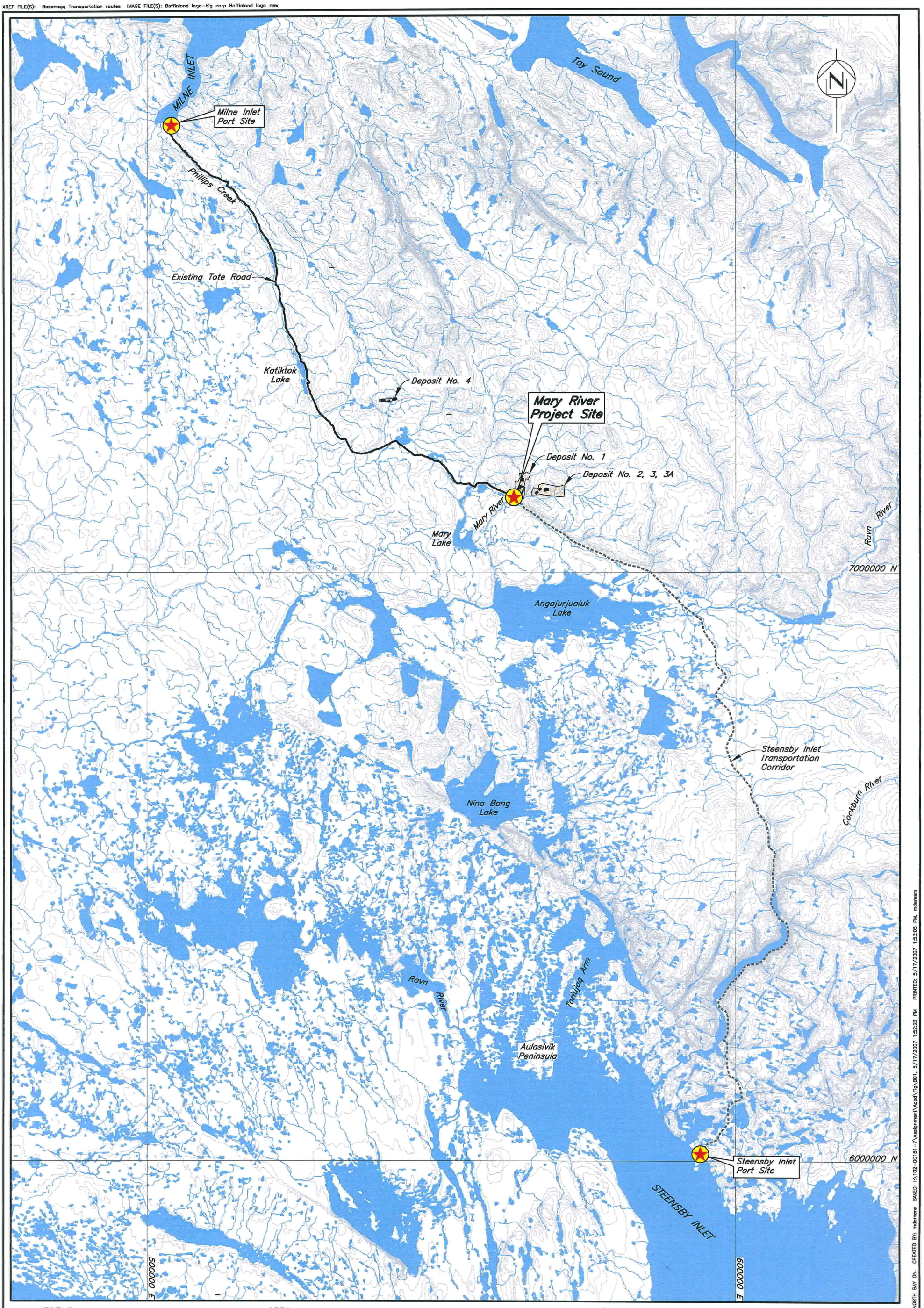
PROJECT LOCATION MAP

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 1.1

XREF FILE(S): Basemap; Transportation routes IMAGE FILE(S): Baffinland logo-big corp Baffinland logo_new



LEGEND:

- Water
- River
- Existing Tote Road
- Transportation Corridor
- Project Site Locations

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources. All rights reserved.
2. Coordinate grid is shown in UTM (NAD 83) Zone 17 West and is in metres.
3. Contours are in metres. Contour interval varies.

Scale 6 3 0 6 12 18 24 30 Km

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

PROJECT STUDY AREA

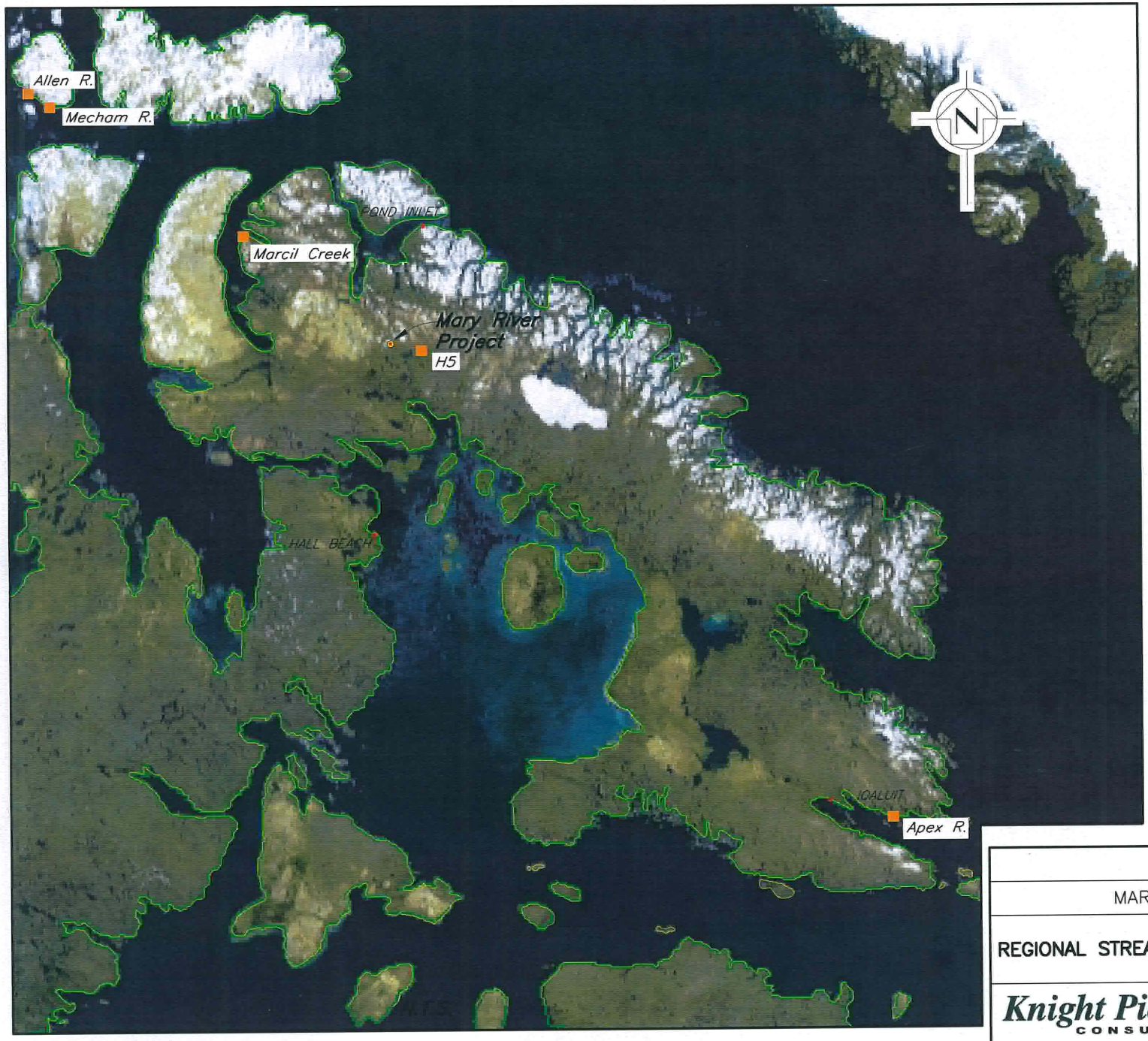
Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 1.2

NORTH BAY ON. CREATED BY: mdemers SAVED: I:\102-00181-7\Assignment\Acad\Fig\B01, 5/17/2007 1:52:22 PM PRINTED: 5/17/2007 1:53:05 PM, mdemers

XREF FILE(S): IMAGE FILE(S): Baffinland logo-big corp Baffinland logo_new NUNUVUT NUNUVUT_BORDERS



LEGEND:

■ Streamflow Monitoring Station

NORTH BAY ON. CREATED BY: mdemers SAVED: I:\102-00181-7\Assignment\Acad\Fig\A02. 5/16/2007 4:50:52 PM PRINTED: 5/16/2007 4:51:02 PM, Layout1, rjohnson

Baffinland
Iron Mines Corporation

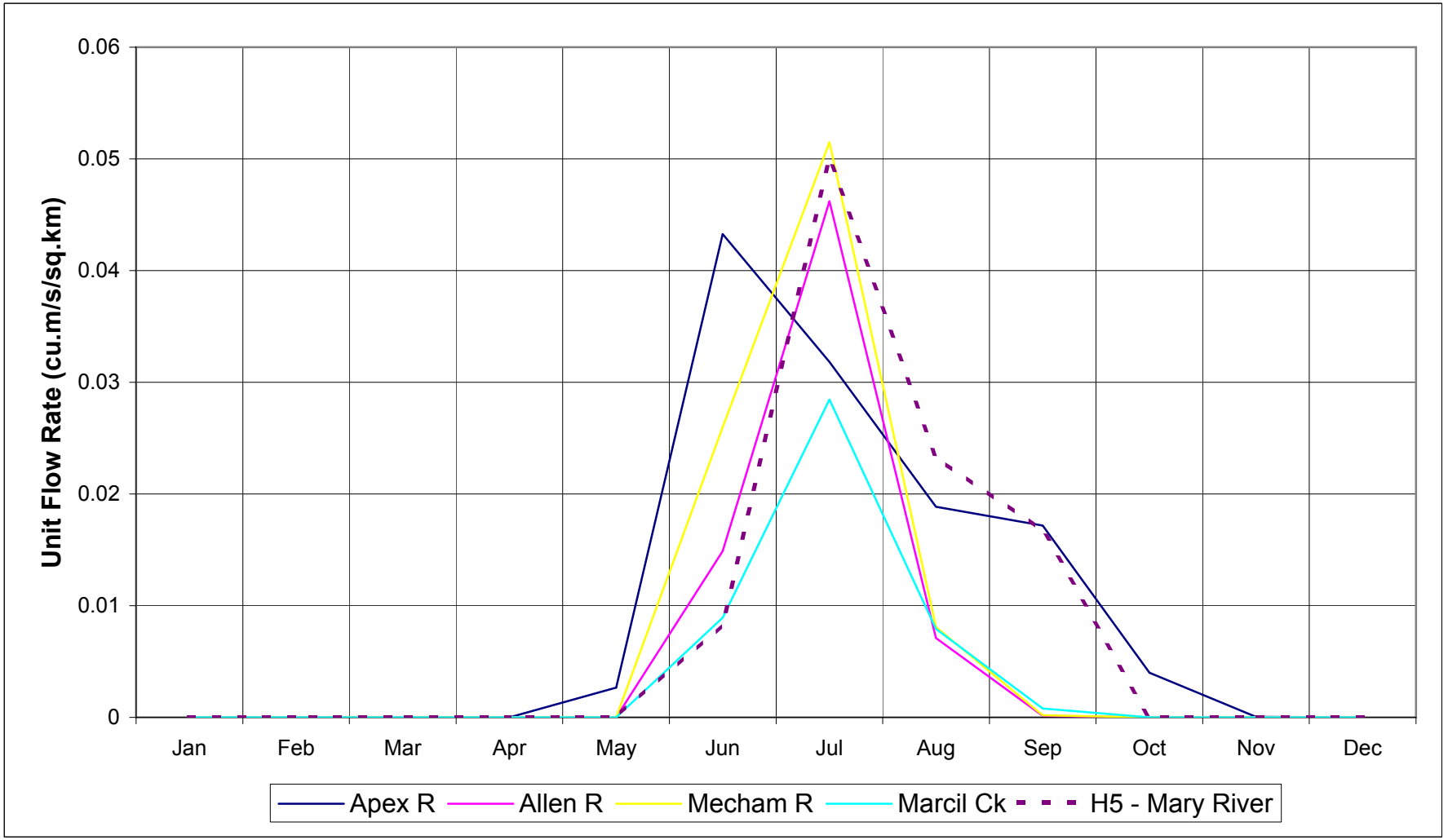
MARY RIVER PROJECT

REGIONAL STREAMFLOW MONITORING STATIONS

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 4.1



Notes:

1. Allen and Mecham rivers are located near Resolute.
2. Apex River is located near Iqaluit.
3. Marcil creek is located near Arctic Bay.

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

REGIONAL SURFACE RUNOFF RATES

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 4.2

MR–01
MR–02
MR–03
MR–04
MR–05
MR–06
MR–07
MR–08
MR–09
MR–10
MR–11
MR–12
MR–13
MR–14
MR–15
MR–16
MR–17
MR–18
MR–19
MR–20
Deposit No. 1
Deposit No. 2, 3, and 3A
Deposit No. 4
Existing Tote Road
Mary River Camp Site
See Figure 5.2
7940000 N
7930000 N
7920000 N
7910000 N
530000 E
540000 E
550000 E
560000 E
570000 E
580000 E
590000 E
600000 E

LEGEND:

- Water
- Mineral Lease Boundary
- River/Stream
- Direction of surface water runoff
- Existing Tote Road
- Catchment Boundaries

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources. All rights reserved.
2. Coordinate grid is shown in UTM (NAD83) Zone 17 West and is in metres.
3. Contours are in metres. Contour interval varies.
4. Areas calculated using Mapinfo.

Scale 2 1 0 2 4 6 8 10 Kilometres

CATCHMENT	AREA (km^2)
MR–01	874.5
MR–02	248.7
MR–03	6311
MR–04	217.5
MR–05	7663.4
MR–06	122.97
MR–07	30.40
MR–08	9.385
MR–09	10.45
MR–10	3.58

CATCHMENT	AREA (km^2)
MR–11	5.412
MR–12	14.70
MR–13	85.43
MR–14	114.2
MR–15	18.02
MR–16	8.61
MR–17	1.48
MR–18	21.75
MR–19	15.66
MR–20	73.02

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MARY RIVER AREA – CATCHMENT AREAS

Knight Piésold CONSULTING

P/A NO. NB102–00181/7 | REF. 3 | REV. 0

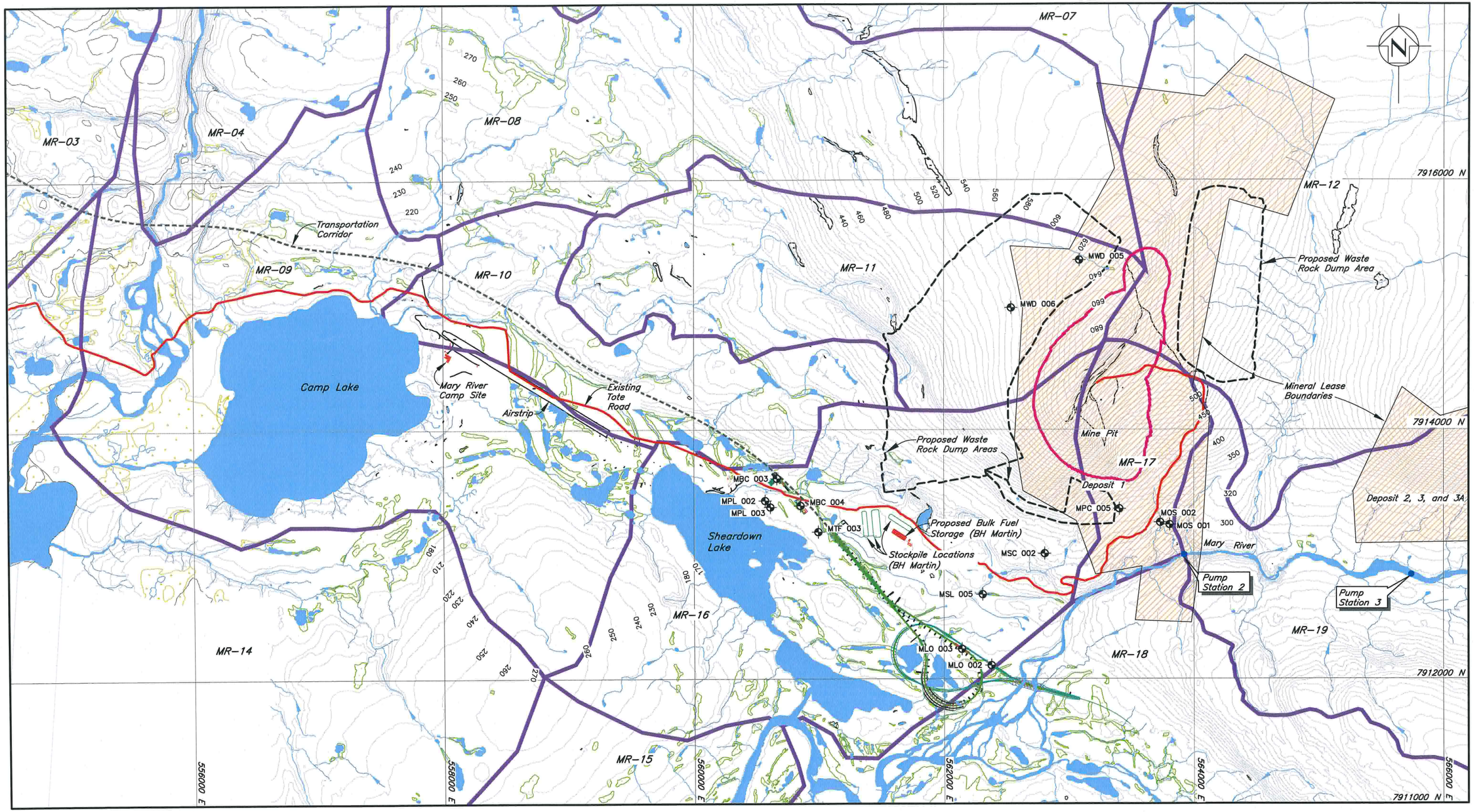
FIGURE 5.1

XREF FILE(S): Base Map_Overall_RC; CATCHMENTS nad83 IMAGE FILE(S): Baffinland logo-big corp

SAVED: I:\102-00181-7\Assignment\Acad\Fig\BRL, 5/17/2007 11:55:37 AM PRINTED: 5/17/2007 11:55:55 AM, Layout1, mdemers

NORTH BAY ON. CREATED BY: rjohnson

XREF FILE(S): PROJECT SITE PLAN 2m INTERVAL; Mine_Site_Water Hatch; Drillhole and Test Pits_2006_ALL; PROPOSED 07 DRILLHOLES (AKER); WASTE DUMP AREA; Basemap_2.5m interval IMAGE FILE(S): Baffinland logo-big corp EagLogo Baffinland logo-big corp 037005_1079892884802 Baffinland logo-big corp EagLogo Native Land Use



LEGEND:

- Water
- Mineral Lease Boundary
- River/Stream
- Direction of surface water runoff
- Proposed Boreholes (to be completed in 2007)
- Pumping Station
- Existing Tote Road
- Transportation Corridor
- Catchment Boundaries
- Proposed Waste Dump Rock Boundary
- Pit Boundry

NOTES:

1. Mapping provided by Eagle Mapping.
2. Coordinate grid is shown in UTM (NAD 83) Zone 17 West and is in metres.
3. Contours are in metres. Contour interval varies.

Scale 300 150 0 300 600 900 1200 1500 Metres

Baffinland
Iron Mines Corporation

MARY RIVER PROJECT

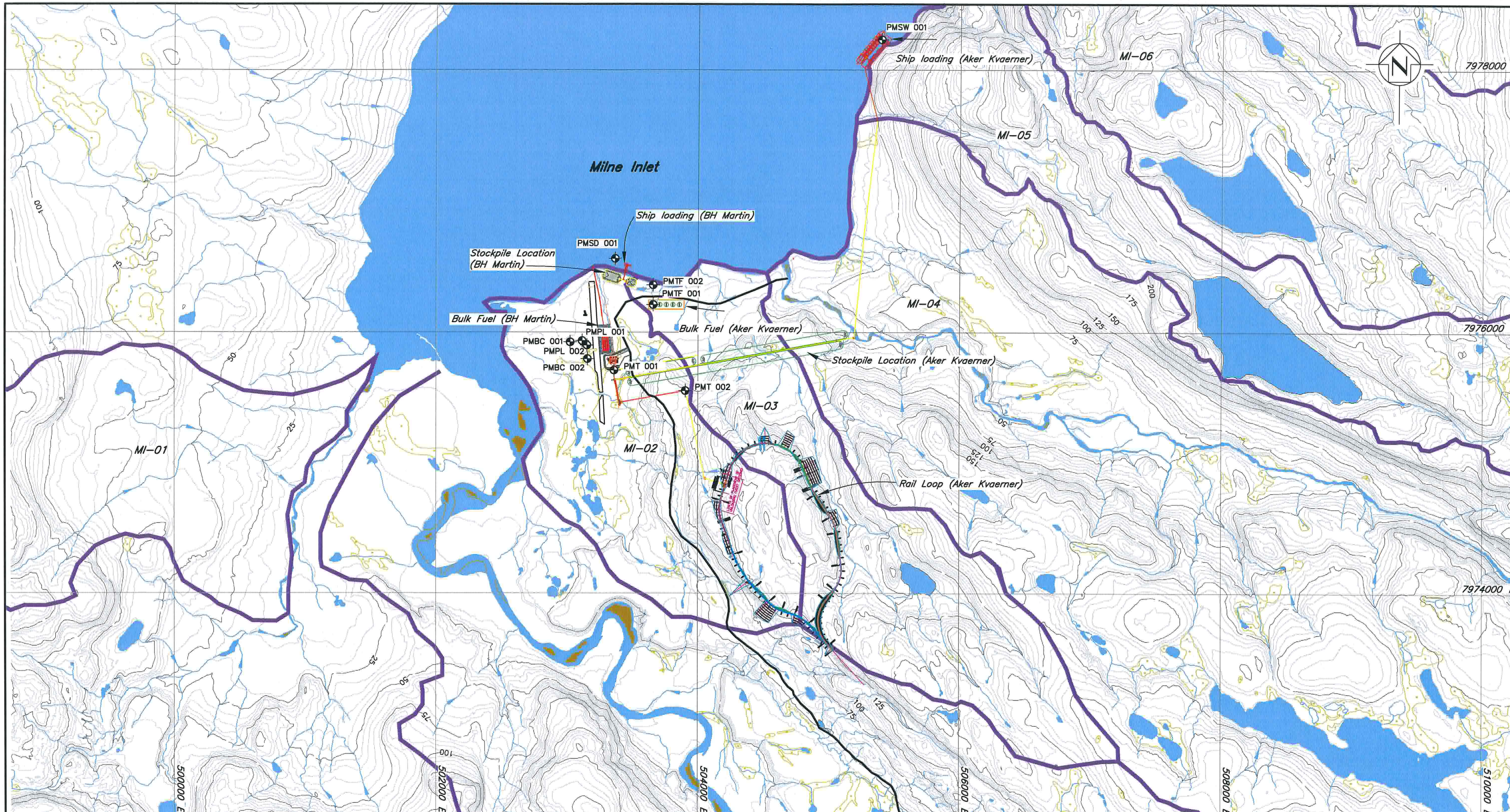
MARY RIVER DRILLING AREA CATCHMENT AREAS

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 5.2

NORTH BAY ON. CREATED BY: mdemers SAVED: I:\102-00181-7\Assignment\Acad\Fig\805, 5/17/2007 2:03:38 PM, mdemers PRINTED: 5/17/2007 2:04:31 PM



LEGEND:

- Water
- River/Stream
- Direction of surface water runoff
- Existing Tote Road
- Catchment Boundaries

NOTES:

1. Mapping provided by Eagle Mapping.
2. Coordinate grid is shown in UTM (NAD83) Zone 17 West and is in metres.
3. Contours are in metres. Contour interval is 5 metres.
4. Areas calculated using Mapinfo.
5. Infrastructure layout shown is preliminary.

CATCHMENT	AREA (km^2)
MI-01	5.27
MI-02	3.59
MI-03	4.11
MI-04	62.32
MI-05	5.61
MI-06	7.96

Scale 300 150 0 300 600 900 1200 1500 Metres

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MILNE INLET AREA – CATCHMENT AREAS

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 5.3

LEGEND:

- Water
- Swamp
- River/Stream
- Direction of surface water runoff
- Catchment Boundaries

NOTES:

1. Mapping provided by Eagle Mapping.
2. Coordinate grid is shown in UTM (NAD 83) Zone 17 West and is in metres.
3. Contours are in metres. Contour interval is 5 metres.
4. Areas calculated in Mapinfo.
5. Infrastrucutre layout shown is preliminary.

Scale 300 150 0 300 600 900 1200 1500 Metres

CATCHMENT	AREA (km^2)
ST-01	13.68
ST-02	21.77
ST-03	1.99

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

STEENSBY INLET AREA – CATCHMENT AREAS

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 5.4

XREF FILE(S): PROPOSED 07 DRILLHOLES (AKER)_steensby, STEENSBY_2; ORE_LOADING_DOCK_NO_TEXT; Drillhole and Test Pits_2006_ALL IMAGE FILE(S): Baffinland logo-big corp EpsLogo
NORTH BAY ON. CREATED BY: bpark SAVED: I:\102-00181-7\Assignment\Acad\Fig\BG3, 5/17/2007 1:57:03 PM PRINTED: 5/17/2007 1:57:18 PM, Layout1, mdemers

XREF FILE(S): Southern Route; M_TITLE; Canarail Proposed BH 2007 IMAGE FILE(S): Baffinland logo-big corp

0+00
5+00
15+00
20+00
25+00
30+00
35+00
40+00
45+00
50+00
55+00
60+00
65+00
70+00
75+00
80+00
85+00
90+00
95+00
100+00
105+00
110+00
115+00
120+00
125+00
130+00
135+00
140+00
145+00
145+40

Mary River
Mary Lake
Potential Borrow Locations for Sand and Gravel along this portion of route
Ravn River
Angajurjualuk Lake
Nina Bang Lake
Harder River
Tariujaq Arm
Aulasivik Peninsula
STEENSBY INLET
Cockburn River
Cockburn Lake
Steensby Inlet Transportation Corridor

7900000 N
7875000 N
7850000 N
7825000 N
7800000 N
575000 E
600000 E
625000 E

N

LEGEND:

- Water
- River/Stream
- Direction of surface water runoff
- Transportation Corridor
- Catchment Boundaries

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources. All rights reserved.
2. Contours are in metres. Contour interval Varies.
3. Coordinate grid is shown in UTM (NAD 83) Zone 17 West and is in metres.

Scale 3 0 3 6 9 12 Km

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

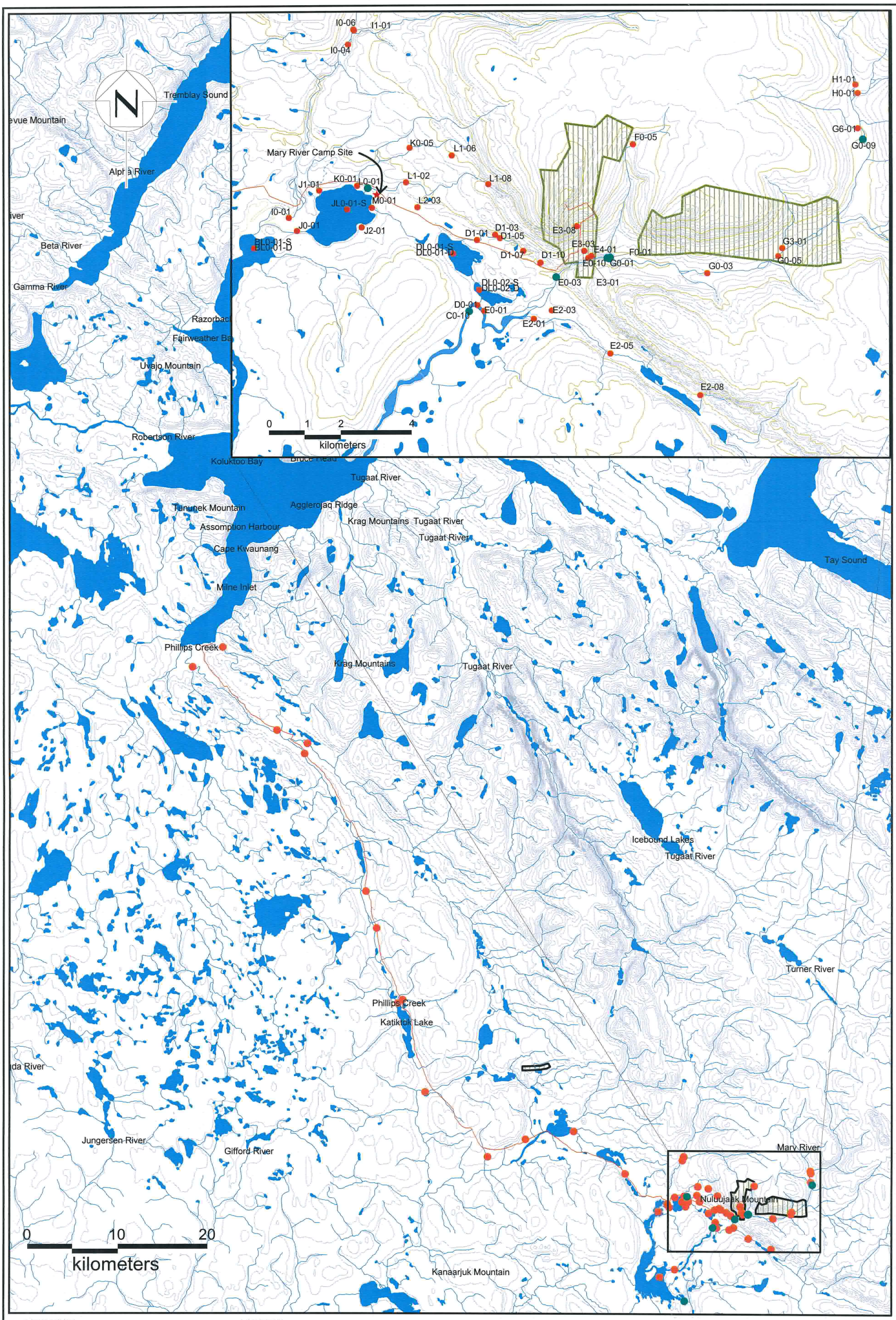
STEENSBY INLET TRANSPORTATION CORRIDOR CATCHMENT AREAS

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 5.5

NORTH BAY ON. CREATED BY: mdemers SAVED: i:\102-00181-7\Assignment\Acad\Fig\B02. 5/17/2007 1:55:38 PM, mdemers PRINTED: 5/17/2007 1:55:09 PM



LEGEND:

- Seasonal Water Quality Sample Sites
- Weekly Water Quality Sample Sites
- Existing Tote Road
- Mining Lease Boundaries

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources. All rights reserved. (Government of Canada, 2006)

Map Scale1:400,000
Inset scale: 1:100,000

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

SURFACE WATER SAMPLE LOCATIONS

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/7	3	0

FIGURE 6.1

NORTH BAY, ON MAPINFO FILE: I:\102-00181-7\ASSIGNMENT\MAPINFO\FIG\B02.wor, 10/05/06 rjohnson PRINTED: 05/17/07 10:09 AM, rjohnson

Knight Piésold
CONSULTING

APPENDIX A

NUNAVUT IMPACT REVIEW BOARD (NIRB), SCREENING DECISION FOR BAFFINLAND'S MARY RIVER GEOTECHNICAL DRILLING PROJECT PROPOSAL NIRB FILE NO. 07EN004

- Screening Decision Report 13 pages

SCREENING DECISION REPORT
NIRB FILE NO.: 07EN004

NIRB No.:07EN004
INAC No.: N2006C0036
QIA No.:Q05L2C14
DFO No.: NU-07-0002
NWB No.: NWB2MRY0406

March 26, 2007

Honourable Jim Prentice. PC., MP.
Minister of Indian Affairs and Northern Development
Gatineau, Quebec

Via email: PrenticeJ@parl.gc.ca

and

Thomas Alikatuktuk
President, Qikiqtani Inuit Association
Iqaluit, NU
Via email: pres@qia.ca

Re: Screening Decision for Baffinland's Mary River Geotechnical Drilling Project Proposal

---

Dear Honourable Jim Prentice and President Alikatuktuk:

The primary objectives of the Nunavut Land Claims Agreement are set out in section 12.2.5 of the Land Claims Agreement. This section reads:

In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.

Section 12.4.4 of the Nunavut Land Claim Agreement states:

Upon receipt of a project proposal, NIRB shall screen the proposal and indicate to the Minister in writing that:

a) the proposal may be processed without a review under Part 5 or 6; NIRB may recommend specific terms and conditions to be attached to any approval, reflecting the primary objectives set out in Section 12.2.5;

b) the proposal requires review under Part 5 or 6; NIRB shall identify particular issues or concerns which should be considered in such a review;
c) the proposal is insufficiently developed to permit proper screening, and should be returned to the proponent for clarification; or
d) the potential adverse impacts of the proposal are so unacceptable that it should be modified or abandoned.

NIRB Assessment and Decision

After a thorough assessment of all material provided to the Board (please see Appendix C), the decision of the Board as per section 12.4.4 of the NLCA is:

> **12.4.4 (a)**: the proposal may be processed without a review under Part 5 or 6; NIRB may recommend specific terms and conditions to be attached to any approval, reflecting the primary objectives set out in Section 12.2.5

NIRB Recommendations and Recommended Conditions

The Nunavut Impact Review Board is recommending the following:

1. Indian and Northern Affairs Canada (INAC) impose similar mitigation measures and/or conditions pursuant to the Federal Land Use Permit to those which were imposed upon Baffinland Iron Mines Corporation (the Proponent) on June 29, 2004, in regard to:
    a. Location and Area
    b. Time
    c. Equipment
    d. Methods and Techniques
    e. Type, Location, Capacity and Operation of Facilities
    f. Control or Prevention of Flooding, Erosion and Subsidence of Land
    g. Use, Storage, Handling and Disposal of Chemical or Toxic Material
    h. Wildlife and Fisheries Habitat
    i. Objects and Places of Recreational, Scenic and Ecological Value
    j. Petroleum Fuel Storage
    k. Matters Not Consistent with the Regulations

2. The Qikiqtani Inuit Association (QIA) impose mitigation measures and/or conditions pursuant to the Inuit Owned Lands License upon the Proponent in regard to:
    a. General Standards
    b. Fuel and Chemical Storage
    c. Drilling
    d. Campsites
    e. Fisheries
    f. Ground Disturbance
    g. Other General
    h. Any other conditions recommended by the appropriate Community Lands and Resource Committee (CLARC)

3. The QIA require the Proponent to follow the QIA Code of Conduct for Land Users.

In addition, the Board is recommending the following or similar project-specific terms and conditions be imposed upon the Proponent through all relevant legislation pursuant to 12.4.4(a) of the NLCA:

1. Baffinland Iron Mines Corporation (the Proponent) shall maintain a copy of this Screening Decision at the site of operation at all times.

2. The Proponent shall forward copies to NIRB of all permits obtained and required for this project prior to the commencement of the project.

3. The Proponent shall operate in accordance with commitments stated in Appendix A and all documentation provided to NIRB, INAC, the QIA and the Nunavut NWB. Where information in the documentation conflicts with Appendix A, Appendix A shall prevail.

4. The Proponent shall submit an annual report with copies provided to the NIRB, INAC, the QIA, and EC by January 31 each year that the project is in operation commencing January 31, 2008. The report must contain, but not be limited to, the following information:
    a. A summary of activities undertaken for the year, including the amount of drilling;
    b. A work plan for the following year;
    c. The results of environmental studies undertaken and plans for future studies;
    d. Wildlife encounters and actions/mitigation taken;
    e. A summary of local hires and initiatives;
    f. A summary of community consultations undertaken and the results;
    g. A summary of site-visits by inspectors with results and follow-up actions ;
    h. The number of take-offs & landings from an airstrip with approved flight path with date and location;
    i. The number of helicopter touch-downs on the land with date and location (provide unless confidential);
    j. Site photos;
    k. Progressive reclamation work undertaken; and
    l. A summary of how the Proponent has complied with NIRB conditions contained within this Screening Decision, and the conditions associated with all authorizations for the project proposal.

5. Immediately upon clarification regarding the commitment of the Proponent to participate in a Government of Nunavut Department of Environment (GN-DOE) caribou collaring initiative with the GN-DOE, the Proponent shall submit to NIRB relevant documentation providing evidence of the commitments of the Proponent and the GN-DOE in this regard.

6. On or before May 31, 2007, the Proponent shall submit to NIRB, the NWB, the QIA and the Department of Fisheries and Oceans Canada (DFO) a report describing all possible locations where water-taking may result in a water body being drawn down. This report must include:
    a. Effects analysis of water draw-down in these locations;
    b. Proposed mitigation/abatement measures for potential adverse effects; and
    c. Monitoring and follow-up strategies regarding water draw down effects.

7. On or before May 31, 2007, the Proponent shall submit to NIRB, Environment Canada (EC), the QIA and the NWB a comprehensive Water Quality Monitoring and Management Program. This Water Quality Monitoring and Management Program may include the elements of the *Site Water Management Plan* (dated February 20, 2007 – to be submitted to the NWB ninety (90) days

following the issuance of the water license) and any monitoring requirements included in the NWB water license and must also include:

a. Details of the weekly monitoring program, such as monitoring locations, frequency of sampling, and parameters monitored;
b. Guidelines used in the monitoring program, such as Canadian Council of Ministers for the Environment guidelines for the protection of freshwater aquatic life (CCME-FWAL), and any site-specific criteria established by the NWB;
c. Operational procedures intended to mitigate the potential adverse effects to water quality, including those from drill wastes;
d. Anticipated adaptive management strategies to deal with adverse impacts identified from the 2007 and 2008 monitoring program, including:
    i. Description of alternative methods of containment for waste deposition which may be considered by the Proponent;
    ii. Criteria the Proponent will use when considering the requirement for adaptive management.
e. The requirement to report any exceedences of CCME-FWAL to Environment Canada, the Nunavut Water Board, and the Department of Fisheries and Oceans Canada

8. The Proponent shall ensure that the Wastewater Treatment Plan Design and Operations/Maintenance (O/M) Report to be submitted to the NWB for approval, must address design criteria such as:
    a. Identification of control parameters (COD/BOD_5, TSS, heavy metals);
    b. Corresponding discharge limits;
    c. Emergency/O&M failure measures;
    d. Identification of the water bodies where effluent will be discharged; and
    e. Potential impacts to aquatic life from effluent discharge.

9. The Proponent shall consult Transport Canada's Canadian Aviation Regulations to ensure compliance where appropriate.

10. Prior to any ground disturbance activities, the Proponent shall submit an Archaeological Assessment Report to NIRB and the Government of Nunavut Department of Culture, Language, Elders and Youth (GN-CLEY). Any subsequent direction provided by the GN-CLEY the Archaeological Plan must be forwarded to NIRB.

11. The Proponent shall adhere to conditions stated in attached Appendix B *Archaeological and Palaeontological Resources – Terms and Conditions for Land Use Permit Holders*.

12. On or before May 31, 2007, the Proponent shall submit a report describing all ongoing baseline research activities to NIRB, GN-DOE and the QIA, which must include:
    a. Summary of the activities in the 2007 Environmental Baseline Program; and
    b. Protocols to be followed by researchers to reduce unnecessary impacts to the environment from research activities.

13. On or before May 31, 2007, the Proponent shall submit a Wildlife Mitigation and Monitoring Plan to NIRB, the GN-DOE, and the QIA, which must include:
    a. All relevant baseline terrestrial data collected by the Proponent from previous baseline research activities;
    b. Predicted impacts to wildlife from project activities (wildlife assessment report);

c. Proposed site-specific measures to reduce anticipated adverse impacts to wildlife, including adaptive management measures and all relevant Proponent commitments in Appendix A;
d. Proposed measures for wildlife monitoring; and
e. Incorporation, where possible, of data collected by the Pisikik Inuit Qaujimajatuqangit Working Group into the wildlife assessment report, measures to reduce adverse impacts to wildlife and proposed measures for wildlife monitoring.

Any subsequent direction provided by the Government of Nunavut regarding the Wildlife Mitigation and Monitoring Plan must be forwarded to NIRB.

14. The Proponent shall submit its updated Spill Contingency Plan and Abandonment and Restoration Plan to NIRB, INAC, QIA and the NWB immediately.

15. The Proponent shall ensure that the disposal of combustible camp wastes comply with the *Canadian Wide Standards for Dioxins and Furans*, and the *Canadian Wide Standards for Mercury*. Efforts made to achieve compliance shall be reported to the NIRB as part of the annual report.

16. The Proponent shall not conduct any activity associated with the land use operation if critical periods of wildlife cycles are observed (e.g. caribou migration, calving, fish spawning, raptor nesting, polar bear movement).

Validity of Land Claims Agreement

Section 2.12.2
Where there is any inconsistency or conflict between any federal, territorial and local government laws, and the Agreement, the Agreement shall prevail to the extent of the inconsistency or conflict.

Dated _____March 26, 2007_____ at Cambridge Bay, NU.

_____
Lucassie Arragutainaq, A/Chairperson

1. Submission of an Archaeological Assessment Report to Government of Nunavut Department of Culture, Language, Elders and Youth
2. Continue collecting and compiling wildlife baseline data, and identify critical habitat and avoid impacts based on current knowledge
3. Support a Government of Nunavut initiated caribou collaring program and a peregrine falcon research project, in addition to Baffinland's baseline studies
4. Conduct a wildlife assessment report for submission to DOE for mid-April 2007
5. Comply with caribou protection measures
6. Contact local HTO and Wildlife Officer in the event of a defense polar bear kill.
7. Initiate discussions with the Mittimatalik Hunters and Trappers Organization and Igloolik Hunters and Trappers Association regarding compensation for any future defense kills of polar bear
8. Undertake the following with respect to air traffic:
    a. Minimize the number of flights
    b. Implement a 610 m flight altitude minimum and 1,000 m flight altitude minimum near concentrations of birds with exceptions where required;
    c. Avoid caribou calving grounds between May 15 and July 15. After July 15, post-calving areas known to have aggregations of caribou will be avoided
    d. Avoid a large concentration of wildlife, (i.e., Migratory Bird Sanctuaries, breeding colonies and caribou calving grounds), and take alternate routes
    e. Plan routes that are likely to have least occurrences of wildlife
    f. Use small aircraft rather than large aircraft whenever possible
    g. Hovering or circling may greatly increase disturbances and must be avoided
    h. Use fixed-wing aircraft rather than helicopters whenever possible
    i. Inform pilots of the wildlife sensitive areas
    j. Pilots to report caribou movements and locations during calving and post-calving periods, so that these areas can be avoided
9. Seek NWB approval prior to drilling within 30m of a water body
10. Management plan of drill wastes to be submitted to the NWB for approval
11. Return drill cuttings at surface to the drill hole, at all land-based drilling locations
12. Drilling through sea ice at potential port locations will be undertaken using drums, or equivalent, to collect and re-circulate all drill water and no drill water will be released from the casing into the water
13. Drill additives will not be used during on-ice drilling, and final disposal of drill water will be within a snow berm on land more than 30m from a water body
14. Improve drilling practices through use of in-ground sumps and/or alternative methods of containment will be identified and employed
15. Installation of a new incinerator to replace current incinerator at Mary River site and completion of stack test in early season to determine compliance with the *Canada-wide Standards for Dioxins and Furans*
16. Discussions with Government of Nunavut Department of Environment regarding waste oil disposal options
17. Compliance with Nunavut requirements as outlined in the *Environmental Guideline for the General Management of Hazardous Waste*
18. Filing of updated Spill Contingency Plan with the Nunavut Water Board
19. Filing of updated Abandonment and Restoration Plan with the Nunavut Water Board
20. Review of bird survey methodologies and study findings with Canadian Wildlife Service
21. Develop and expand site orientation program

22. Establishment of an on-going bird monitoring program consistent with precautions outlined by Government of Nunavut Department of Environment
23. On-going monitoring of polar bears with appropriate plans implemented as needed
24. Continuation of weekly water quality monitoring program
25. Seek approval from NWB regarding sewage treatment plant and enlargement of sumps, if required

BACKGROUND

Archaeology

As stated in Article 33 of the Nunavut Land Claims Agreement:

The archaeological record of the Inuit of Nunavut is a record of Inuit use and occupancy of lands and resources through time. The evidence associated with their use and occupancy represents a cultural, historical and ethnographic heritage of Inuit society and, as such, Government recognizes that Inuit have a special relationship with such evidence, which shall be expressed in terms of special rights and responsibilities. [33.2.1]

The archaeological record of Nunavut is of spiritual, cultural, religious and educational importance to Inuit. Accordingly, the identification, protection and conservation of archaeological sites and specimens and the interpretation of the archaeological record is of primary importance to Inuit and their involvement is both desirable and necessary. [33.2.2]

In recognition of the cultural, spiritual and religious importance of certain areas in Nunavut to Inuit, Inuit have special rights and interests in these areas as defined by Article 33 of the Nunavut Land Claims Agreement. [33.2.5]

Palaeontology

Under the Nunavut Act[1], the federal government can make regulations for the protection, care and preservation of palaeontological sites and specimens in Nunavut. Under the *Nunavut Archaeological and Palaeontological Sites Regulations*[2], it is illegal to alter or disturb any palaeontological site in Nunavut unless permission is first granted through the permitting process.

Definitions

As defined in the *Nunavut Archaeological and Palaeontological Sites Regulations*, the following definitions apply:

"archaeological site" means a place where an archaeological artifact is found.
[1]
[1] s. 51(1)
[2] P.C. 2001-1111 14 June, 2001

"archaeological artifact" means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Nunavut Land Claims Agreement.

"palaeontological site" means a site where a fossil is found.

"fossil" includes:

(a) natural casts
(b) preserved tracks, coprolites and plant remains; and
(c) the preserved shells and exoskeletons of invertebrates and the eggs, teeth and bones of vertebrates.

Terms and Conditions

1) The permittee shall not operate any vehicle over a known or suspected archaeological or palaeontological site.

2) The permittee shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.

3) The permittee shall immediately contact the Department of Culture, Language, Elders and Youth (867) 934-2046 or (867) 975-5500 or 1 (866) 934-2035 should an archaeological site or specimen, or a palaeontological site or fossil be encountered or disturbed by any land use activity.

4) The permittee shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation, until permitted to proceed with the authorization of the Department of Culture, Language, Elders and Youth, Government of Nunavut.

5) The permittee shall follow the direction of the Department of Culture, Language, Elders and Youth and DIAND in restoring disturbed archaeological or palaeontological sites to an acceptable condition.

6) The permittee shall provide all information requested by the Department of Culture, Language, Elders and Youth concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.

7) The permittee shall make best efforts to ensure that all persons working under authority of the permit are aware of these conditions concerning archaeological sites and artifacts, and palaeontological sites and fossils.

8) The permittee shall avoid the known archaeological and/or palaeontological sites listed in Attachment 1.

9) The permittee shall have an archaeologist or palaeontologist perform the following functions, as required by the Department of Culture, Language, Elders and Youth:

a) survey
b) inventory and documentation of the archaeological or palaeontological resources of the land use area
c) assessment of potential for damage to archaeological or palaeontological sites
d) mitigation
e) marking boundaries of archaeological or palaeontological sites
f) site restoration

The Department of Culture, Language, Elders and Youth shall authorize by way of a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit, all procedures subsumed under the above operations.

Appendix C – File History

On January 24, 2007, the Nunavut Impact Review Board (NIRB or Board) received Baffinland Iron Mine Corporation's (Baffinland) Mary River Geotechnical Drilling Program (Drilling Program) project proposal from Indian and Northern Affairs Canada (INAC) and the Qikiqtani Inuit Association (QIA). This project proposal received a positive conformity determination from the Nunavut Planning Commission on January 22, 2007.

The project proposal includes a renewal and amendment of activities previously permitted by INAC, the QIA, and the NWB, which are:

- Continued mineral exploration at Deposits #1, 2, 3 and 3A (renewal of activities permitted previously)
- Initiation of mineral exploration on Deposit No. 4
- Continued operation of the existing 80-person tent camp and expansion to 100-persons
- Temporary installation of three (3) 8-12 person fly camps at Milne Inlet, Steensby Inlet and Deposit No. 4 to support drilling activities
- Land-based geotechnical investigations of mine-related infrastructure at Mary River, potential transportation routes, potential hydro and wind power sites, port-related facilities at Milne Inlet and Steensby Inlet (no construction activities)
- On-ice geotechnical drilling investigations of port-related facilities at Milne Inlet and Steensby Inlet
- Winter road use
- Airstrip use
- Fuel transportation and storage chemical transportation and storage
- Mobilization of three additional rock coring drills (for an on-site total of 7 rigs)
- Water use and deposition of waste

In addition, on January 25, 2007 NIRB received Baffinland's Bulk Sampling Program project proposal, and Baffinland requested NIRB conduct *separate* Part 4 screenings on the Drilling Program and this Bulk Sampling Program.

On January 29, 2007 NIRB notified Baffinland that it was commencing the Part 4 Screening process for the drilling program and allowed for Parties to comment on the following:

- Whether or not the Drilling Program and the Bulk Sampling Program were separate and discrete project proposals;
- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic and socio-economic effects; and if so, why;
- Whether the project is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (please provide any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

This application was distributed to the communities of Igloolik, Arctic Bay, and Pond Inlet and to interested Federal and Territorial Agencies.

On February 6, 2007 NIRB received comments from Indian and Northern Affairs Canada (INAC) and Environment Canada (EC) regarding whether or not the Drilling Program and the Bulk Sampling Program were separate and discrete project proposals. Both INAC and EC stated they agreed with NIRB's

determination that the project proposals could undergo separate Part 4 Screenings. However, EC requested clarification regarding the relationship of a proposed wind tower to the Bulk Sampling Program, and clarification regarding the permitting process of the wind tower.

On February 8, 2007 NIRB requested Baffinland respond to two questions posed regarding the request for clarification from EC, and on February 8, 2007 Baffinland provided a response to NIRB. Subsequently, Parties were directed to provide comments to NIRB by February 20, 2007.

On or before February 20, 2007 NIRB received comments on the project proposal from the following interested Parties:

- Department of Culture, Language, Elders and Youth
- The Government of Nunavut Department of Environment
- Environment Canada
- Transport Canada

Concerns regarding the project proposal were expressed by all interested Parties and NIRB directed Baffinland to respond to the concerns by February 27, 2007.

The main concerns included:

- potential cumulative effects with other projects in the area and ongoing land use activities (cumulative impacts from both projects should be assessed)
- potential for archeological site disturbance in the Mary River area
- potential impacts on caribou and other wildlife,
- lack of wildlife data (including baseline data sets), and effective impact and mitigation measures
- omissions in project proposal, such as wildlife observations map, aircraft activities, impact of noise
- potential human-wolf, wolverine and fox encounters resulting in injury or death to either animal or human(s)
- potential ecological impacts of shipping and geotechnical activities to polar bears
- potential human-polar bear encounters
- lack of information in the Spill Contingency Plan, such as training for employees, treatment of spilled material
- omissions in the Abandonment and Restoration Plan, such as clean-up and treatment at bone yard
- potential excessive run-off and erosion at drill sites
- potential runoff of calcium chloride into water bodies
- potential interference to navigation

On February 28, 2007 Baffinland responded to the concerns and comments by Parties (Response to Comments).

On March 5, 2007 NIRB provided interested Parties with an opportunity to review the Response to Comments before proceeding with the next steps of the Part 4 Screening process. Comments were due from Parties by March 9, 2007.

On March 9, 2007 NIRB received additional comments from the Government of Nunavut Department of Environment and Transport Canada. Environment Canada requested an extension to March 14, 2007 and provided comments on that date.

From these Parties, there still remained the following environmental concerns:

- Water quality impact prediction, mitigation for water quality and water quality monitoring strategies
- Site specific measures to reduce impact to wildlife
- Clarification regarding Baffinland support of GN-DOE caribou collaring initiative
- Clarification regarding aeronautical evaluation of test wind tower

Knight Piésold
CONSULTING

APPENDIX B

NUNAVUT WATER BOARD (NWB), LICENCE NO. 2BE-MRY0708, DATED FEBRUARY 20, 2007

- Correspondence regarding Licence 17 pages

P.O. BOX 119
GJOA HAVEN, NU X0B 1J0
TEL: (867) 360-6338
Fax: (867) 360-6369

ᓄᓇᕗᑦ ᐃᒪᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖏᑦ
NUNAVUT IMALIRIYIN KATIMAYINGI
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

File No: 2BE-MRY

February 20, 2007

Attention: Rod Cooper
Baffinland Iron Mines Corporation
Suite 1016, 120 Adelaide Street West
Toronto ON M5H 1T1
Email: rod.cooper@baffinland.com

RE: NWB Licence No. 2BE-MRY0708

Dear Mr. Cooper:

Please find attached Licence No. 2BE-MRY0708 issued to Baffinland Iron Mines Corporation by the Chief Administrative Officer of the Nunavut Water Board pursuant to Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*. The terms and conditions of the attached Licence related to water use and waste disposal are an integral part of this approval.

Sincerely,

Original signed by:

Philippe di Pizzo
Executive Director

PDP/rqd
Enclosure: Licence No. **2BE-MRY0708**

cc: Jim Rogers, DIAND Iqaluit
Peter Kusugak DIAND Inspector
Salamonie Shoo, Qikiqtani Inuit Association
Erin Calder, Nunavut Wildlife Management Board
Colette Spagnuolo, Environment Canada
Earle Baddaloo, GN-DOE
Tania Gordanier, Department of Fisheries and Oceans
Carson Gillis, NTI
Doug Sitland, CGS

P.O. BOX 119
GJOA HAVEN, NU X0B 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

ᓄᓇᕗᑦ ᐃᒪᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖏᑦ
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

DECISION

LICENCE NUMBER: 2BE-MRY0708

This is the decision of the Nunavut Water Board (NWB) with respect to an application for a renewal of a Water Licence dated October 26, 2006 made by:

BAFFINLAND IRON MINES CORPORATION

to allow for the use of water and disposal of waste during camp activities and exploration drilling operations at the Mary River Project located within the Qikiqtani Region, Nunavut contained within the geographical coordinates indicated in the application.

DECISION

After having been satisfied that the application was in conformity with the applicable Land Use Plan and exempt from the requirement for screening by the Nunavut Impact Review Board in accordance with Schedule 12.1, Paragraph 5 of the *Nunavut Land Claim Agreement* (NLCA), the NWB decided that the application could proceed through the regulatory process. In accordance with S.55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSRTA)* and Article 13 of the *NLCA*, public notice of the application was given and interested persons were invited to make representations to the NWB.

After reviewing the submission of the Applicant and considering the representations made by interested persons, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the *NLCA* and of the *NWNSRTA*, waived the requirement to hold a public hearing and furthermore delegated its authority to approve the application to the Chief Administrative Officer pursuant to S. 13.7.5 of the *NLCA* and S. 49(a) of the *NWNSRTA*, and determined that:

Licence Number 2BE-MRY0708 be issued subject to the terms and conditions contained therein. (Motion #: 2006-60)

SIGNED this 20th day of February 2007 at Gjoa Haven, NU.

Original signed by :

_____

Philippe di Pizzo
Chief Administrative Officer

LICENCE 2BE-MRY0708

Pursuant to the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

BAFFINLAND IRON MINES CORPORATION
(Licensee)

of

120 ADELAIDE STREET WEST
TORONTO ON M5H 1T1
(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water for a period subject to restrictions and conditions contained within this Licence:

Licence Number **2BE-MRY0708**

Water Management Area **NUNAVUT 05**

Location **MARY RIVER PROJECT, QIKIQTANI REGION, NUNAVUT**

Purpose **WATER USE AND WASTE DISPOSAL**

Classification of Undertaking **MINING AND MILLING – TYPE "B"**

Quantity of Water Not to Exceed **475 CUBIC METRES PER DAY**

Date of Licence **FEBRUARY 20, 2007**

Expiry Date of Licence **DECEMBER 31, 2008**

Dated this 20th day of February 2007 at Gjoa Haven, NU.

Original Signed By:

Philippe di Pizzo, Chief Administrative Officer

Table 1.1
Supplemental information to be submitted by Licensee

Licence Condition	Report Title	Timeline for Submission
Part B, Item 2	Annual Report	To be submitted March 31st of the year following the calendar year.
Part B, Item 3	Site Water Management Plan	To be submitted for Board approval ninety (90) days following the issuance of the licence.
Part D, Item 2	Declaration from Hamlet of Pond Inlet for Deposit of Sewage and Solid Waste in Municipal Facilities	To be submitted to the NWB and Inspector thirty (30) days following the issuance of the licence.
Part D, Item 3	Wastewater Treatment Plant Design and Operations/Maintenance Report	A Wastewater Treatment Plant shall not operate until Report has been approved by the NWB
Part F, Item 3	Geochemical Analysis of Drill Cores	To be submitted March 31st of the year following the calendar year as per Part B, Item 2 (Annual Report)
Part G, Item 1	Spill Contingency Plan	To be kept on site thirty (30) days following the issuance of licence.
Part G, Item 3	Report outlining conformity to CCME's "*Aboveground Storage Tank Systems for Petroleum and Allied Petroleum Products (2003)*"	To be submitted to the NWB for approval ninety (90) days following the issuance of the licence.

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. Scope

This Licence allows for the use of water and the disposal of waste for an undertaking classified as Mining and Milling as per the geographical coordinates indicated in the application.

i. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the Nunavut Waters and Nunavut Surface Rights Tribunal Act, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and;

ii. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

"Act" means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act;*

"Amendment" means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;

''Appurtenant Undertaking'' means an undertaking in relation to which a use of water or a deposit of waste is permitted by a licence issued by the Board;

"Board" means the Nunavut Water Board established under the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act;*

"Engineer" means a professional engineer registered to practice in Nunavut in accordance with the Engineering, Geological and Geophysical Act (Nunavut) S.N.W.T. 1998, c.38, s.5;

"Greywater" means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

"Infrastructure" means all construction necessary for mining, such as watercourse crossings, piping, sewage and water systems, reservoirs, and roads.

"Inspector" means an Inspector designated by the Minister under Section 85 (1) of the *Act*;

"Licensee" means the holder of this Licence;

"Modification" means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

"Nunavut Land Claims Agreement" (NLCA) means the *"Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada*", including its preamble and schedules, and any amendments to that agreement made pursuant to it;

"Regulations" means the *Northwest Territories Water Regulations sor/93-303 8th June, 1993,* omitting Section 5, Water Use or Waste Deposit Without a Licence;

"Sewage" means all toilet wastes and greywater;

"Spill Contingency Plan" means a Plan developed to deal with unforeseen petroleum and chemical events that may occur during the operations conducted under the Licence;

"Sump" means an excavation in impermeable soil for the purpose of catching or storing water or waste;

"Toilet Wastes" means all human excreta and associated products, but does not include greywater;

"Waste" means, as defined in S.4 of the *Act*, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means.

3. Enforcement

i. Failure to comply with this Licence will be a violation of the *Act*, subjecting the Licensee to the enforcement measures and the penalties provided for in the *Act*;

ii. All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the *Act*; and

iii. For the purpose of enforcing this Licence and with respect to the use of water and deposit or discharge of waste by the licensee, Inspectors appointed under the *Act,*

hold all powers, privileges and protections that are conferred upon them by the *Act* or by other applicable law.

PART B: GENERAL CONDITIONS

1. The fee payable on the submission of an application for a licence or for the amendment, renewal, cancellation or assignment of a licence or of an application under Section 31 of the Act is $30. The water use fees of $30, payable to the Receiver General for Canada, shall be sent to the Board annually in advance of any use in accordance with Section 9 of the *Regulations.*

2. The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported which shall contain the following information:

   i. A summary report of water use and waste disposal activities:

      a. including the GPS coordinates and photographic records of any camp, water supply and waste disposal facilities, drill sites, and all sumps used for the disposal of camp greywater and drill cuttings, and watercrossings; and
      b. summary of volumes of water used on a daily, monthly and annual basis, detailing the location of all water sources.

   ii. A summary report of construction activities, including photographic records of all Infrastructure before, during and after construction;

   iii. Detailed discussion on the performance, installation, and evaluation, including the use of photographic record, of the primary and secondary containment functions used in fuel storage to safeguard impacts to freshwaters;

   iv. The geochemical analysis of drill cores as per Part F, Item 3;

   v. A list of unauthorized discharges and a summary of follow-up actions taken;

   vi. An up-to-date copy of the Spill Contingency Plan, including contact information;

   vii. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;

   viii. Results of the Monitoring Program (Part I); and

   ix. Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

3. The Licensee shall submit to the Board a Site Water Management plan, within ninety (90) days following the issuance of the licence, for Board approval, that includes but is not limited to the following:

   i. A description of the quantity and direction of surface water flow from the road, over the surrounding landscape, and the overall site, along with topographic maps that effectively delineate the movement of waters on site;

   ii. A detailed description of the location and capacity of water retention areas that would allow for the management of surface water runoff from the road and other Infrastructure;

   iii. A detailed description of the sampling locations along the access road and the overall site where the water procured would provide the most representative analytical results, as determined by an appropriately qualified Engineer through a clear disclaimer outlining any limitations to judgment made by the Engineer, of surface water quality draining from the road surface and any other Infrastructure;

   iv. Any further information that a qualified Engineer believes to be pertinent to describe the movement and quality of surface water draining from the access road and any other Infrastructure.

4. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.

5. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of water volumes, to be operated and maintained to the satisfaction of an Inspector.

6. If the Licensee contemplates the renewal of this Licence, the Licensee is responsible to apply to the NWB for its renewal. The past performance of the Licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. Note that if the Licence expires before the NWB issues a new one, then water use and waste disposal must cease, or the Licensee will be in contravention of the Nunavut Land Claims Agreement. However, the expiry or cancellation of a licence does not relieve the holder from any obligations imposed by the licence. The NWB recommends that an application for the renewal of this Licence be filed at least three months before the Licence expiry date.

7. If the Licencee contemplates or requires an amendment to this licence, the NWB may decide, in the public interest, to hold a public hearing. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The process and timing may vary depending on the scope of the amendment requested but 30 days from time of acceptance of the request by

the NWB is the minimum time required.

8. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:

(i) Manager of Licensing:

Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
Telephone: (867) 360-6338
Fax: (867) 360-6369

(ii) Inspector Contact:

Water Resources Officer, INAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445

9. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.

10. The Licensee is responsible to ensure that any documents or correspondence submitted by the Licensee to the Board have been received and acknowledged by the Manager of Licensing.

11. This Licence is not assignable except as provided in Section 44 of the *Act*.

12. The expiry or cancellation of this Licence does not relieve the holder from any obligations imposed by the Licence as per Section 46 of the Act.

PART C: CONDITIONS APPLYING TO WATER USE

1. The volume of water for the purposes of this Licence shall not exceed 475 cubic metres per day.

2. Streams cannot be used as a water source unless authorized and approved by the Board.

3. If the Licensee requires water in sufficient volume that the source water body may be drawn down the Licensee shall, at least 30 days prior to commencement of use of water, submit to the Board for approval the following: volume required, hydrological overview of the water body, details of impacts, and proposed mitigation measures.

4. The Licensee shall equip all water intake hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.

5. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless authorized.

6. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.

7. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty (30) metres from the ordinary high water mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise authorized by the Board.

2. The Licensee shall submit to the Board and the Inspector within thirty (30) days of licence issuance a declaration of authorization from the Hamlet of Pond Inlet clearly indicating that the Hamlet of Pond Inlet will allow the deposit of sewage and solid waste in a NWB licensed sewage treatment and solid waste facility by the Licensee.

3. The Licensee shall submit, for Board approval, a wastewater treatment plant design report and operations and maintenance manual, that adequately details the quantitative and qualitative details of influent and effluent, adequately details the engineered treatment process, with consideration of actual influent and effluent values, lists any assumptions along with any limitation to each assumption, and is appropriately qualified by an Engineer licensed to practice in Nunavut. The use of a wastewater treatment plan shall not commence until the Board has approved the design and operations and maintenance manual report.

4. Unless otherwise approved by the Board, the Licensee shall not practice open burning or on-site land filling of domestic waste.

5. The Licensee may incinerate all food waste, paper waste and wood products in an incinerator capable of meeting the emission limits established under the Canada-wide Standards for Dioxins and Furans the Canada-wide Standards for Mercury Emissions. In such case, the Licensee shall insure that the waste is burned in a device that promotes efficient combustion and reduction of emissions, and shall as much as possible reduce the amount of waste to be incinerated. The use of appropriate waste incineration technology shall be combined with a comprehensive waste management strategy, especially waste

segregation, that is designed to reduce and control the volumes of wastes produced, transported, and disposed of.

6. The Licensee shall backhaul and dispose of all hazardous wastes, waste oil and non-combustible waste generated through the course of the operation in an approved waste disposal site.

7. Unless otherwise approved by the Board, the Licensee shall contain all greywater in a sump located at a distance of at least thirty (30) metres above the ordinary high water mark of any water body, at a site where direct flow into a water body is not possible and no additional impacts are created.

8. Unless otherwise approved by the Board, the Licensee shall contain all toilet wastes in latrine pits or use incineration, chemical, portable or composting toilets for any camp with a design population under 300 person days per year and less than 1,000 person days for the life of the camp. Latrine pits shall be located at a distance of at least thirty (30) metres above the ordinary high water mark of any water body, treated with lime and covered with native material to achieve the pre-existing natural contours of the land prior to abandonment.

9. Unless otherwise approved by the Board the Licensee shall dispose of all toilet wastes through incineration, chemical or composting toilets for any camp with a design population over 300 and less than 2,000 person days per year, and less than 5,000 person days per year for the life of the camp. Any remaining residue generated through the course of the operation shall be backhauled and disposed of in an approved waste disposal site.

10. The Licensee shall ensure that any hazardous materials, including waste oil, receive proper treatment and disposal at a NWB approved treatment facility.

PART E: CONDITIONS FOR CAMPS, ACCESS INFRASTRUCTURES AND OPERATIONS

1. The Licensee shall not erect camps or store material on the surface of frozen streams or lakes including immediate banks except what is for immediate use. Camps shall be located such as to minimize impacts on surface drainage.

2. All activities shall be conducted in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake any corrective measures in the event of any impacts on surface drainage.

3. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of water, ice or snow. The Licensee should minimize disturbance by locating ice bridges at an area that requires the minimum approach grading and the shortest crossing route. Stream crossings shall be removed or the ice notched prior to spring break-up.

4. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty (30) metres from the ordinary high water mark in such a fashion that they do not enter the water.

PART F: CONDITIONS APPLYING TO DRILLING OPERATIONS

1. The Licensee shall not conduct any land based drilling within thirty (30) metres of the ordinary high water mark of any water body, unless otherwise approved by the Board.

2. The Licensee shall delineate through an appropriately scaled site map, include approximate GPS coordinates, and any mitigation measures in place to protect waters if filing a request to the Board to drill within thirty (30) metres of the ordinary high water mark of any water body.

3. The Licensee shall analyze the geochemical constituents of drill cores as follows:

    a. That reflects actuality and is truly representative of the drilling program for all constituents that may impact waters as determined, and clearly qualified, by a Geochemist registered in Nunavut;

    b. All assumptions, and any limitation to each assumption, in determining a representative sampling population reflecting actuality and the geochemical testing methods employed;

    c. Includes all raw data and an accompanying summary table of the geochemical analysis;

    d. Define clear conclusions on the results of the geochemical analysis; and

    e. Present the geochemical analysis listed under Part F, Item 3 in the Annual Report listed in Part B, Item 2.

4. The Licensee shall ensure that all drill waste, including water, chips, muds and salts ($CaCl_2$) in any quantity or concentration, from land-based and on-ice drilling, shall be disposed of in a properly constructed sump or an appropriate natural depression located at a distance of at least thirty (30) metres from the ordinary high water mark of any adjacent water body, where direct flow into a water body is not possible and no additional impacts are created.

5. Drilling additives or mud shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.

6. If artesian flow is encountered, drill holes shall be immediately sealed and permanently capped to prevent induced contamination of groundwater or salinization of surface waters. All artesian flows, including location (GPS), should be reported in the annual report to the NWB.

7. If the bottom of the permanently frozen ground, or permafrost, is broken through by the drill, the depth of the bottom of permafrost and location should be reported in the annual report to the Board for data management purposes.

PART G: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. In accordance with section 6(2)(g)(i) and (ii) of the Regulations, the Licensee shall, within thirty (30) days of issuance of this Licence, keep on the site of operations a Spill Contingency Plan that will describe how petroleum products and hazardous materials will be handled, stored and disposed of, as well as how they will be contained and cleaned-up in the event of a spill. This Plan shall include, but not be limited to, the following:

   i. The name, address and contact number for the person in charge, management or control of the contaminant (in this case, fuel oil and any other chemicals associated with the program);

   ii. The name and address and telephone number of the employer;

   iii. The name, job title and 24 hour contact number for the person or persons responsible for activating the spill plan;

   iv. A detailed description of the facility, including size and storage capacity and its geographic location – in UTM coordinates (map sheet number, Eastings and Northings) and in geographic coordinates (Lat/Long) –;

   v. A description of the type and amount of contaminants stored on site;

   vi. A description of the spill prevention measures to be undertaken in the handling, storage and disposal of petroleum products and hazardous materials;

   vii. Steps taken to report, contain, clean up and dispose of a spill on applicable topographic conditions, i.e., land, water, snow, and ice;

   viii. A site map of sufficiently large scale to show the location of buildings, contaminants storage areas, sensitive areas such as water bodies, probable pathways of contaminant flow and general topography;

   ix. A description of the spill response training provided to employees who will respond to a spill, including, but not limited to, detail of the formal training and expertise of personnel responsible for supervising the spill response, and an outline of any planned training and simulation exercises;

x. An inventory and location of the response and clean up equipment available to the spill clean up team;

xi. The means by which the spill plan is activated; and

xii. The date that the spill plan was prepared.

2. The Licensee shall annually review the Plan referred to in this Part and if needed, modify it to reflect changes in operation and/or technology. The Plan and any revisions shall be submitted with the Annual Report.

3. The Licensee shall provide a report, to be approved by the Board, within ninety (90) days of issuance of the licence, appropriately qualified by an Engineer registered in Nunavut, which clearly details that the requirements of the CCME guidance document "*Aboveground Storage Tank Systems for Petroleum and Allied Petroleum Products (2003)*" have been met by the Licensee.

4. The Licensee shall ensure that any chemicals, petroleum products or wastes associated with the project do not enter water. All sumps and fuel caches shall be located at a distance of at least thirty (30) metres from the ordinary high water mark of any adjacent water body and inspected on a regular basis.

5. The Licensee shall ensure that any equipment maintenance and servicing be conducted only in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.

6. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:

i. Employ the Spill Contingency Plan;

ii. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and

iii. For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site.

PART H: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

1. The Licensee shall complete all restoration work prior to the expiry of this Licence.

2. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.

3. When possible to do so, the Licensee shall backfill and restore, to the satisfaction of an Inspector, all sumps to the pre-existing natural contours of the land.

4. The Licensee shall remove from the site Infrastructures and site material, including but not limited to, all fuel caches, drums, barrels, buildings and contents, docks, water pumps and lines, all bulky wastes, material and equipment before the expiry of this License.

5. All roads and airstrip, if any, shall be re-graded to match natural contour to reduce erosion.

6. All culverts shall be removed and the drainage opened up to match the natural channel. Measures shall be implemented to minimize erosion and sedimentation.

7. In order to promote growth of vegetation and the needed microclimate for seed deposition, all disturbed surfaces shall be prepared by ripping, grading, or scarifying the surface to conform to the natural topography.

8. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures shall be reclaimed to the satisfaction of an Inspector. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out only upon approval by an Inspector.

9. Drill holes and disturbed areas will be restored to natural conditions immediately upon completion of the drilling. The reclamation of drill holes must include the removal of any drill casing materials and the capping of holes with a permanent seal.

10. The Licensee may store drill core produced by the appurtenant undertaking in an appropriate manner and location at least thirty (30) metres above the ordinary high water mark of any adjacent water body, where any direct flow into a water body is not possible and no additional impacts are created, or as directed by an Inspector.

11. All disturbed areas shall be contoured and stabilized upon completion of work and restored to a pre-disturbed state.

PART I: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall measure and record, in cubic metres, the daily quantities of water utilized for camp, drilling and other purposes.

2. The Licensee shall monitor as per the requirements of Part B, Item 3 and Part F, Item 3.

3. An Inspector may impose additional monitoring requirements.

4. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board.

5. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.

6. The Licensee shall measure and record the following:

   i. the quantities, in cubic metres, of domestic waste, sewage, and hazardous waste hauled off-site for disposal;

   ii. the location and name of the disposal facility for each waste type noted above; and

   iii. the date that each was hauled off-site for disposal, for each occasion that these are removed from the site.

7. The Licensee shall provide the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where sources of water are utilized for all purposes. The Licensee shall report these co-ordinates to the Inspector prior to utilizing waters.

8. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations of temporary and permanent storage areas where wastes associated with camp, drilling and Infrastructure operations are deposited. The Licensee shall report these co-ordinates to the Inspector prior to depositing wastes.

9. The Licensee shall include in the Annual Report required under Part B, Item 2 all data and information required under this Part.

PART J: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such Modifications are consistent with the terms of this License and the following requirements are met:

   i. The Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;

   ii. Such Modifications do not place the Licensee in contravention of the License or the *Act*;

   iii. The Board has not, during the sixty (60) days following notification of the

proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and

iv. The Board has not rejected the proposed Modifications.

2. Modifications for which all of the conditions referred to in Part F, Item 1 have not been met can be carried out only with written approval from the Board.

3. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this License within ninety (90) days of completion of the Modification. These plans and drawings shall be signed and stamped by an Engineer.