FINAL ENVIRONMENTAL IMPACT STATEMENT (EIS) GUIDELINES FOR THE REVIEW 0F THE PROPOSED BATHURST INLET PORT AND ROAD PROJECT DECEMBER 2004

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Glossary

Alternative Means	Methods of a similar technical character or methods that are functionally the same; "alternative means" with respect to a power plant, for example, includes selecting a different location, building several smaller plants, or expanding an existing plant.
Alternatives To a Project	Functionally different ways of achieving the same end; for example, "alternatives to" a nuclear power plant include importing power, building a hydroelectric dam, conserving energy, and obtaining the energy through renewable sources.
Archaeological	Reference to the scientific study of the material remains of the cultures of historical or pre-historical peoples.
Baseline	Initial studies of existing bio-physical and socio-economic characteristics, components, and processes, prior to any changes or disturbances directly or indirectly attributable to the Project.
Bathymetry	Measurement of water depth: the measurement of the depth of large bodies of water, for example, lakes, oceans, and seas.
Bioaccumulation	The process in which certain pollutants gather in living tissue.
Biomagnification	The process on which certain substances such as pesticides or heavy metals move up the food chain.
Bio-physical Environmental Effect	Any change that the Project may cause in the biological or physical environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act.*
Board	The Nunavut Impact Review Board.
Community Knowledge	Knowledge acquired as a result of a sustained relationship between a population and an environment (including, but not limited to, Traditional Knowledge).
Contingency Plan	Program intended to address malfunctions, accidents or unplanned events that may occur in connection with the Project.
Cumulative Environmental Effects	The impact on the bio-physical and socio-economic environment that results from the incremental impact of a development when added to other past, present, and Reasonably Foreseeable Future Developments, regardless of what agency or person undertakes such other developments. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Decommissioning	Final closure or deactivation of Project, including removal of equipment and infrastructure and restoration of disturbed areas.
Ecosystem	The organisms of a natural community together with their environment.
EIS Guidelines	The direction provided to the Proponent by the Board on matters that must be addressed in the Proponent's Environmental Impact Statement.
Environment	Components of the Earth including: (a) land, water and air, including all layers of the atmosphere, (b) all organic and inorganic matter and living organisms, and (c) the interacting natural systems that include components referred to above.
Environmental Assessment	Assessment of the Environment and Socio-economic effects of the Project, conducted in accordance with the EIS Guidelines and the Nunavut Land Claim Agreement.
Environmental Impact Statement (EIS)	Report that presents the results of the Environmental Assessment conducted by the Proponent.
Fish	Parts of fish, shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans of marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals.
Fish Habitat	Spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.
Geology	Study of rocks and minerals: the study of the structure of the Earth, in particular its rocks, soil, and minerals, and its history and origins.

Hydrocarbons	A substance containing a combination of carbon and hydrogen (e.g. gasoline, diesel, oil and grease).
Indicator	In biological terms, an organism, species or community whose characteristics show the presence of specific environmental conditions, good or bad, and that can be used to measure changes in the Environment. In socio-economic terms, regularly collected economic or social statistics that describe or predict changes and trends in the general state of society. These can address historical trends, present conditions or future projections.

Interested Party	With respect to an Environmental Assessment, any person or body (e.g. members of the general public, representatives of organizations, government agencies) having an interest in the outcome of the Environmental Assessment.
Inuit Qaujimajatuqangit (IQ)	Knowledge system which encompasses all aspects of traditional Inuit culture including values, world view, language, social organization, knowledge, life skills, perceptions and expectations.
Local Study Area	Local Study Area will include: 1. the marine area from the water surface to the seabed, and adjoining land surface that will be developed for port operations 2. for shipping, route(s) from Lancaster Sound (North of Arctic Bay) to the proposed Port location, which have not previously been used for the regular shipping of fuel 3. the footprint of the proposed road and any Quarry and borrow pit locations 4. the maintenance camp at Contwoyto Lake

Long Shore Processes	Processes along the sea coast.
Mitigation	The elimination, reduction or control of the adverse Bio-physical and Socio-economic effects of the Project, and includes restitution for any damage to the Environment caused by such effects through replacement, restoration, compensation or any other means.
Nunavut Impact Review Board (NIRB)	The institution referred to in Section 12.2.1 of the Nunavut Land Claims Agreement, responsible for gauging and defining environmental effects of proposed Project.

Nunavut Water Board (NWB)	The institution referred to in Section 13.2.1 of the Nunavut Land Claims Agreement and subsequent Nunavut Waters and Nunavut Surface Rights Tribunal Act responsible for the regulation and management of inland water in Nunavut.

Precautionary Principle	If there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental and/or socio-economic degradation.
Project	The construction, operation and Decommissioning of the Bathurst Inlet Port and Road and ancillary works proposed by the Bathurst Inlet Port and Road Joint Venture Ltd.
Proponent	In the case of the Bathurst Inlet proposed Port and Road Project, the Bathurst Inlet Port and Road Joint Venture Ltd.
Public Registry	A system for providing convenient public access to documents relating to Environmental Assessments, established by NIRB.
Quarry	Area from which rock or granular material is removed for construction purposes.
Reasonably Foreseeable Future Development	Those future projects or activities which are currently under regulatory review or will be submitted for regulatory review in the near future, as determined by the existence of a proposed project description, letter of intent, or any regulatory application filed with a government department or agency.
Regional Study Area	Geographical boundaries determined on the basis of the physical extent of the potential impacts on the particular environmental or social phenomenon being addressed. For example, when considering the Bathurst caribou the Regional Study Area would be the known range of the herd.
Residual	Those impacts which remain in the bio-physical and socio-economic environments following Mitigation measures.
Riparian	Land-water interface (i.e. the banks of a river, stream or lake).
Scope of the Project	Those components of the proposed development that should be considered part of the Project for the purposes of the Environmental Assessment.
Scoping	The first step within the NIRB Review process whereby initial issues relating to the Project are determined through public consultation.

Shipping Route	The proposed shipping route as described in the Local Study Area definition, from Lancaster Sound, north of Arctic Bay, to the proposed Port location.
Socio-Economic Effects	Any effect of any change on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes by aboriginal persons, or any structure, site or thing that is of historical, Archaeological, palaeontological, or architectural significance.
Sustainable Development	Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.
Traditional Knowledge	The knowledge and perspectives held by Aboriginal and Inuit peoples, relating to the natural environment and to social, cultural and spiritual matters.

Transboundary Effects	Linear effects of the Project that are felt outside the boundary of the Nunavut Settlement Area.
Valued Ecosystem Component	The environmental attributes or components identified as a result of a social Scoping exercise as having scientific, social, cultural, economic or esthetic value.
Valued Socio-economic Component	The socio-economic attributes or components identified as a result of a social Scoping exercise as having scientific, social, cultural or economic value.

List of Acronyms

ARD	- Acid Rock Drainage
BIPAR	- Bathurst Inlet Port and Road
CEA	- Cumulative Effects Assessment
DEIS	- Draft Environmental Impact Statement
EIS	- Environmental Impact Statement
EMP	- Environmental Management Plan
FEIS	- Final Environmental Impact Statement
IOL	- Inuit Owned Land
IQ	- Inuit Qaujimajatuqangit
KIA	- Kitikmeot Inuit Association
INAC	- Indian and Northern Affairs Canada
MVEIRB	- Mackenzie Valley Environmental Impact Review Board
NIRB	- Nunavut Impact Review Board
NLCA	- Nunavut Land Claim Agreement
NWB	- Nunavut Water Board
NSA	- Nunavut Settlement Area
PHC	- Pre-Hearing Conference
VEC	- Valued Ecosystem Components
VSEC	- Valued Socio-economic Components

1.0 INTRODUCTION

This document contains the Guidelines for the preparation of an Environmental Impact Statement by the Bathurst Inlet Port and Road Joint Venture Limited (the Proponent) for the proposed Bathurst Inlet Port and Road Project (the Project). The Joint Venture is comprised of Kitikmeot Corporation and Nuna Logistics Limited. The purpose of these Final Environmental Impact Statement (EIS) Guidelines is to provide specific guidance to the Proponent on the content of the EIS. The Draft Environmental Impact Statement (DEIS) developed in accordance with these Guidelines will serve as the basis for the Nunavut Impact Review Board (NIRB)'s Review of the Project and will enable the Board and any Interested Party to understand and assess the potential adverse and beneficial Bio-Physical Environmental and Socio-Economic Effects that are related to the Project.

NIRB prepared these Final EIS Guidelines on the basis of Public Scoping. The Scoping period began in June 2004 and has been on-going up to the release of these Final Guidelines. During the Scoping period, NIRB reviewed with the public the May 2003 "Bathurst Inlet Port and Road Project" Project Description prepared by the Proponent and submitted simultaneously on April 2, 2002 to the Kitikmeot Inuit Association (KIA), the Nunavut Water Board (NWB) and Indian and Northern Affairs Canada (INAC). During this period, the NIRB sought and received oral and written comments from individual members of the public, government, and representatives of various groups regarding the issues to be included in the environmental review. These Final EIS Guidelines have also incorporated to the greatest extent possible, comments received on the Draft version, which was sent out to the distribution list on October 1, 2004.

In its various applications the Proponent stated that it expected that the Project would be publicly examined by the NIRB pursuant to the Nunavut Land Claims Agreement (NLCA). NIRB recommended to the Minister of INAC that the Project undergo a Part 5 review under Article 12, of the NLCA on the basis that it potentially has significant adverse environmental effects in Nunavut. In his letter of May 4, 2004 the Minister concurred that the Project requires a review under Part 5.

In preparing its DEIS, the Proponent is expected to observe the intent of the Guidelines and to identify potential Bio-physical and Socio-economic Effects of the Project. Keep in mind that the EIS is a stand alone document that by itself must contain sufficient information to inform the NIRB and the public about the BIPAR Project and its route selection. It should be written in such a way that cross-referencing several other documents is not necessary, with the exception

of directly related technical appendices.

2.0 FOCUS OF NIRB REVIEW

2.1 NIRB PRINCIPLES

According to the NIRB's NLCA mandate as found in Article 12.2.5, the following principles should be followed in the preparation of the DEIS:

- An Ecosystem based approach must be adopted for the review. - In order to gain an adequate understanding of the effects of the Project, an Ecosystem-based approach must be adopted to ensure that the review addresses both the direct impacts that the Project will have on the various Ecosystem components, as well as the interactions that will occur between components.
- Socio-economic issues, such as the Project's potential to affect economic development within the Region, must be included in the review. - Members of the community constitute a critical part of the Environment, and their concerns relating to the Project need to be to be assessed by the NIRB. As such, adverse and beneficial effects of the Project on members of the community with respect to health, recreation and other aspects of social well-being need to be addressed in the EIS, in order to ensure a culturally holistic understanding of the Project's effects.
- An understanding of past and potential future environmental, economic and social trends in the West Kitikmeot Region of Nunavut, and how the Project will influence these trends is required. - The inclusion of a time perspective, from the early planning of the Project through to its operation over the next few decades (20 years), is important in order to provide the NIRB with a full understanding of the Cumulative Environmental Effects of the Project in combination with other past, present and Reasonably Foreseeable projects.
- The well-being of residents of Canada outside the Nunavut Settlement Area must be taken into account – significant Transboundary Bio-physical and Socio-economic Effects directly related to this Project must be included in the EIS in order to ensure the NIRB's assessment of the well-being of Canadians outside of the Nunavut Settlement Area. Further to this, the Minister of Indian Affairs and Northern Development identified transboundary effects as an issue for NIRB to consider in the review of the Project in his letter to NIRB, dated May 4, 2004.

As documented in NIRB's '10 Minimum EIS' Guidelines (See Appendix A), NIRB will consider the need for, Alternatives To, and Alternative Means of carrying out the Project, in assessing the justifiability of any significant Environmental and Socio-economic Effects identified, and in formulating its recommendations to the responsible Ministers.

2.1.1 RESPECT FOR THE PRINCIPLE OF SUSTAINABLE DEVELOPMENT

Promotion of the principle of Sustainable Development, which is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs, is a fundamental purpose of Environmental Assessment, particularly where the NIRB's original mandate is Ecosystem-based. These EIS Guidelines are based upon three factors that NIRB considers directly associated with Sustainable Development. These factors are:

1) The extent to which biological diversity is affected by the Project;
2) The capacity of renewable and non-renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future; and
3) The Precautionary Principle, which is that if there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent Environmental degradation.

The NIRB interprets progress towards Sustainable Development as meeting the following goals:

a) The preservation of Ecosystem integrity, including the capability of natural systems, local and regional, to maintain their structure and functions and to support biological diversity;
b) Respect for intergenerational equity, i.e., the right of future generations to the sustainable use of renewable and non-renewable resources depends on our commitment to those resources today; and
c) The attainment of durable social and economic benefits, particularly in Nunavut.

The NIRB requires the Proponent to demonstrate how the Project meets the three goals directly noted above.

2.1.2 EMPHASIS ON COMMUNITY AND TRADITIONAL KNOWLEDGE

Community Knowledge, including Traditional Knowledge, is acquired as a result of a sustained relationship between a population and an Environment. Community and Traditional Knowledge have an important contribution to make to a full assessment of the effects of the Project. This knowledge is based on personal observation, collective experience and oral transmission over generations. The Proponent should identify any specific concerns based on local Community Knowledge and expertise when preparing the DEIS. The NIRB recommends that the Proponent take advantage of existing literature devoted to the understanding of Community and Traditional Knowledge and its place within the Environmental Assessment (EA) process. An effective assessment of Traditional Knowledge can greatly assist with the required identification and validation of Valued Ecosystem Components (VECs) and Valued Socio-

economic Components (VSECs)[1]. The Proponent should use every available means to ensure that a Baseline level of Community and Traditional Knowledge is gathered.

2.2 SCOPE OF REVIEW

2.2.1 PROJECT COMPONENTS

Based on the May 2003 Project Description provided to NIRB by the Proponent, the following Project components will be included in the scope of the Environmental Assessment.

1) a Port in Bathurst Inlet, including a wharf designed to serve up to 50,000 tonne, ice-class vessels delivering bulk fuel and bulk cargo, and all related facilities and services;
2) a 211-km all-weather Road from the Port to Contwoyto Lake Camp and related Quarry or borrow pits;
3) a 20-person camp and services at Contwoyto Lake;
4) the Shipping Route from Lancaster Sound (north of Arctic Bay), west through the Barrow Strait, south through Peel sound, Franklin Strait, Victoria Strait, across Queen Maud Gulf, through Dease Strait and south through the Bathurst Inlet to the proposed Port site, not previously having been used for regular shipping of fuel [2];
5) Cumulative Effects of new developments expected to use Road and/or Port (e.g. Izok, George Lake, Goose Lake, Ulu, Hope Bay and Jericho).

It is expected that a more detailed Project Description will be included with the DEIS, as discussed in Section 4.5 of the Guidelines.

The Project Review includes the construction and operation and potential Decommissioning of the entire road and port and any required ancillary works.

2.2.2 SPATIAL BOUNDARIES

For the purposes of this Environmental Assessment the Local Study Area will include:

1. The marine area from the water surface to the seabed, and adjoining land surface that will be developed for port operations,

[1] The Mackenzie Valley Environmental Impact Review Board (MVEIRB) has recently released a draft version of Guidelines pertaining to the use of Traditional Knowledge in the EA process, which may assist the Proponent in the collection, use, and protection of such knowledge. With respect to existing Traditional Knowledge studies in the West Kitikmeot, The NIRB is aware of a number of organisations, such as the West Kitikmeot/Slave Study Society, which have conducted Traditional Knowledge studies which may assist the Proponent in the collection of relevant information.

[2] The shipping component of the Project has been included in the Scope of the Project review due to significant public concern expressed before and after the Draft Guidelines were issued.

2. for shipping, route(s) from Lancaster Sound (North of Arctic Bay) to the proposed Port location, which have not previously been used for the regular shipping of fuel,
3. the footprint of the proposed road and any Quarry and borrow pit locations, and
4. the maintenance camp at Contwoyto Lake.

For the purposes of this Environmental Assessment the Regional Study Area (Region) boundaries must be determined on the basis of the potential impacts on the particular Bio-physical or social phenomenon being addressed.

The Proponent shall define the spatial boundaries of the maximum area potentially affected by the Project, based on the boundaries for each individual type of impact. Spatial boundaries will vary according to seasons and impact pathways. The boundaries for socio-economic assessment shall be based on an analysis of the extent of Socio-economic Effects directly and indirectly associated with the Project. The NLCA requires that potential impacts of a proposed project outside Nunavut shall also be considered wherever there is reason to anticipate that they might occur. The NIRB has been directed by the Minister of Indian Affairs and Northern Development to review transboundary effects of the Project, as stated in his letter to NIRB, dated May 4, 2004.

The spatial boundaries for assessing the Cumulative Environmental Effects on a VECs and VSECs should be set at the maximum range or distribution of the potential Cumulative Effects.

The Proponent shall give a rationale and justification for the boundaries chosen, including a description of any consultation with members of the public and/or technical experts.

2.2.3 TEMPORAL BOUNDARIES

Like spatial boundaries, temporal boundaries may vary with, among other things, the type of impact and with season. The time-horizon used for predicting change must be a function of the anticipated duration of the Project, including the final closure and post-closure phases, and its predicted impacts and of the predictive capability of the various disciplines at play.

The Proponent shall determine the temporal boundaries separately for the construction, operations, closure, and post-closure periods. The closure time period covers Decommissioning, abandonment, and reclamation. At a minimum, the temporal boundaries that the NIRB will consider for this Project, including the early planning stages will be 20 years.

The Proponent shall give a rationale and justification for the boundaries chosen, including a description of any consultation with members of the public and/or technical experts.

2.3 PROJECT REVIEW TIMELINES

In terms of Project review timelines, NIRB anticipates that the following deadlines will apply. Please note that these deadlines might change if information requirements are not met, or deadline dates skipped. Also note that during the 90 day DEIS review period the NIRB reserves the right to conduct, among other things, conformity checks, pre-hearing conferences to resolve matters of evidence and process and/or technical conferences. The NIRB will only proceed to public hearings when it has determined that the FEIS contains adequate information to allow effective public review of the Project and proper reporting to the Minister(s).

1)	Distribution of draft Guidelines for the EIS preparation	Oct.1, 2004
2)	Deadline for Guideline Comments	Nov.12, 2004
3)	Finalization of EIS Guidelines	Dec. 6, 2004
4)	Filing of DEIS	Proponent
5)	Parties' DEIS Review Period	plus 90 days
6)	Pre-Hearing	plus 30 days
7)	Board Direction on FEIS	plus 15 days
8)	Filing of FEIS	Proponent
9)	Setting of final hearing	Board Direction

3.0 DRAFT ENVIRONMENTAL IMPACT STATEMENT OVERVIEW

3.1 SUMMARIES

The Proponent shall include both an executive summary and a popular summary in the DEIS.

3.1.1 EXECUTIVE SUMMARY

The Executive Summary should:

- Briefly state the purpose and need for the Project proposal
- Provide a summary of the pre-construction, construction, and operational activities upon implementation of the Project. Briefly discuss alternatives, including no-go, and the reasons for selecting the preferred alternative
- Provide an overview of the existing regional and local Environment, summarising the Bio-physical and Socio-economic impacts as they relate to the Project components
- Discuss Environmental protection measures and monitoring plans
- Be translated into English, Inuinnaqtun and Inuktitut
- Be distributed to the entire BIPAR distribution list

3.1.2 POPULAR SUMMARY

It is essential to the public hearings stage of the Environmental Assessment that residents of those communities likely to be affected by the Project have an adequate understanding of the proposed Project and its potential Environmental effects. The Proponent should therefore prepare a Popular Summary, which has the same general structure and objectives as the Executive Summary, but is written in non-technical language and includes additional explanatory text to assist non-specialists in appreciating the content of the DEIS.

The Popular Summary should:

- Be written in non-technical language
- Be as concise as possible
- Include a glossary
- Be referenced in the EIS, and depending on length, shall also be made available as a separate stand-alone document
- Be translated into English, Inuinnaqtun, Inuktitut
- Be distributed to the entire BIPAR distribution list

3.2 UNDERTAKINGS AND COMMITMENTS

Upon the identification of a significant impact, the Proponent should describe its commitment to managing that impact as follows:

a) What the nature of the work is that will be done;
b) Who is responsible for the commitment;
c) Who will do the work;
d) The stage of the Project life when the work will be done;
e) Where the work will be done;
f) Who will monitor the work;
g) Who reports the completion of the work; and,
h) Which agency will ensure the commitment is met.

These undertakings and commitments can be tracked in the DEIS Appendix and need not form part of the DEIS

3.3 FORMAT

Information should be clear, succinct and objective and written in plain language as much as possible. The DEIS should not exceed 150 pages in length (excluding appendices, maps and other supporting information). It should be written such that conclusions reached can be easily referenced and independently assessed. Supporting documentation should be referenced. A glossary defining technical words and acronyms should be included.

The Proponent shall provide charts, diagrams, aerial and other photographs and maps wherever useful to clarify the text. Where feasible, maps shall be of a common scale and projection to facilitate comparisons. Maps should indicate common and accepted place-names usually referred to by the local populations in their own language. Detailed maps should include:

- Proposed road route, distinguishing between Crown land and IOL
- Port facilities
- Camp facilities at Contwoyto Lake
- Quarry locations
- Hydrographic maps of the Shipping Route

As is done for other major infrastructure proposals, the Proponent should also prepare an updated physical model of the Port site and a representative section(s) of the 211 km all-weather road for use by the NIRB to reference at the public hearings and meetings.

3.4 DISTRIBUTION OF THE COPIES OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Upon completion of the DEIS, the NIRB is requesting that copies of the Draft be made available as follows:

- 20 copies delivered to the Nunavut Impact Review Board office in Cambridge

Bay for distribution amongst NIRB Board members, NIRB staff, NIRB legal counsel, external consultants, and for placement on NIRB's public registry in Cambridge Bay, Gjoa Haven, and Yellowknife

- 5 copies delivered to the following communities (one each to addresses provided as Appendix B)
    - Cambridge Bay Hamlet Office
    - Kugluktuk Hamlet Office
    - Gjoa Haven Hamlet Office
    - Taloyoak Hamlet Office
    - Bathurst Inlet Committee Representative (Yellowknife) – on behalf of the communities of Kingauk (Bathurst Inlet) and Umingmaktok (Bay Chimo)

Further information regarding distribution to other parties will be provided by the NIRB closer to the submission date of the DEIS.

3.5 **CONSULTATION**

Public involvement is a central objective of the NLCA review process and a means to ensure that the Proponent addresses public concerns. The BIPAR Project has generated interest in both Nunavut and the Northwest Territories. Sections 12.2.5 and 12.5.5(a) of the NLCA *direct the NIRB to take into account the existing and future well-being of the residents and communities of the Nunavut Settlement Area, taking into account the interests and well-being of residents of Canada outside the Nunavut Settlement Area.* The NIRB is requesting that the Proponent consult with affected regions outside the Nunavut Settlement Area in order that the review process enables the best consideration of relevant issues and encourages a broad participation of the public.

The NIRB suggests that the following communities should be consulted for information deemed to be relevant by the Proponent. These communities are either directly affected by the Project, (e.g. they may rely on caribou herds that use the Project area, or may be on the proposed community re-supply route), or have come forward with concerns about the Project:

1) Bathurst Inlet, NU
2) Umingmaktok, NU
3) Cambridge Bay, NU
4) Kugluktuk, NU
5) Gjoa Haven, NU
6) Taloyoak, NU
7) Yellowknife, NT
8) Rae Lakes, NT
9) Wha Ti, NT
10) Rae-Edzo, NT
11) Wekweti, NT

12) Lutsel'Ke, NT
13) Reliance, NT
14) Holman, NT
15) Deline, NT

Thorough public consultation should be part of, among other things, the identification of current and historical patterns of land and resource-use, and Valued Ecosystem Components (VECs) and Valued Socio-Economic Components (VSECs), including the determination of criteria for evaluating the significance of potential impacts to the VECs and VSECs. It is recommended the Proponent conduct workshops with community members and organisations of affected communities, ecologists and species specialists, and various stakeholders to determine the Project-specific VECs and VSECs.

The NIRB recognises that the Proponent has carried out substantial consultations in relation to this Project in the past. However, in preparing the DEIS, the Proponent should evaluate the need for additional consultations with residents and organisations that are likely to be affected by the Project. The Proponent should discuss how it has consulted with these residents and organisations, and feedback generated by the consultations. The Proponent should describe the objectives of these consultations, the methodology used, the results, and the ways in which the Proponent intends to address the concerns identified.

3.6 CONFORMITY

The Proponent is expected to observe the intent of the Guidelines, which will then lead to the preparation of a DEIS. Specific issues or directions described in the Guidelines must be easily identifiable in the DEIS and incorporated into the FEIS. For identification purposes, the Proponent shall provide a detailed table of concordance between the EIS Guidelines and the EIS as an appendix to the EIS.

4.0 DRAFT ENVIRONMENTAL IMPACT STATEMENT CONTENT GUIDELINES

4.1 PROPONENT INFORMATION

Excepting confidential information, the Proponent shall identify itself and shall explain current and proposed ownership of rights and interests in the Project, operational arrangements, and corporate and management structures. It may be helpful to present its environmental policy and that of any parent company and shall specify whether and how it applies to all employees, contractors, suppliers and any businesses for which it has an operating responsibility.

The Proponent shall describe its past experience in similar infrastructure development. If the Proponent does not have prior experience in this area, it shall explain the safeguards that it intends to put in place to compensate for that lack.

The Proponent should be prepared to identify and describe any obligations or requirements that it intends to meet to post a bond or other form of financial security to ensure payment of compensation in the event of accidents that directly or indirectly result in major damage by the Project to the Environment, as well as to cover the cost of planned or premature closure, whether temporary or permanent.

4.2 REGULATORY CONTEXT

The Proponent shall identify all federal and territorial environmental and other related laws, regulations and associated standards that require compliance in respect to the Project and explain how such requirements will be met. Each regulatory approval required should be listed with the following details:

a) activity requiring approval and when it is required;
b) regulatory agency;
c) name of approval or permit; and
d) associated legislation.

Not including IOL matters, regulatory requirements thus far identified include:

- Authorisations or approvals from INAC, Transport Canada, DFO and EC for any activities/works necessary to make port accessible and navigate ships. i.e. Installation of ground- or sea-based navigational aids in areas of Bathurst Inlet, and seismic surveys to improve quality of available mapping;
- Permitting under *Canadian Environmental Protection Act* for dredging and related ocean disposal;
- Land or sea floor leases required to construct in Shipping Route in

Bathurst Inlet

- Authorisation for vessels in Northern Waters from Transport Canada. Additionally there is the potential for issuance of a permit under the *Navigable Waters Protection Act* with regards to any activity in Bathurst Inlet.

A list of currently-held permits and licences, including dates of issue and expiry, should be appended.

4.3 METHODOLOGY

In describing methodology, the Proponent should explain how it used scientific, engineering, Traditional, Community, and other knowledge to reach its conclusions. Any assumptions should be clearly identified and justified. All data, models and studies must be documented so that the analyses are transparent and reproducible. All data collection methods should be specified., and the uncertainty, reliability and sensitivity of methods and models used to reach conclusions should be indicated. All conclusions should be substantiated.

The DEIS should identify all significant gaps of knowledge and understanding where they are relevant to key conclusions presented in the DEIS. The steps taken by the Proponent to address these gaps should also be identified. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions drawn from Community and/or Traditional Knowledge, the DEIS should contain a balanced presentation of the issues and a statement of the Proponent's conclusions.

4.4 ANALYSIS OF NEED AND PURPOSE

The following points should be addressed in discussing the need for and purpose of the Project:

a) Mine and/or community re-supply implications of the Project;
b) Longer term strategic implications of the proposal in terms of the transportation networks in Nunavut and in the Northwest Territories;
c) Identification of potential customer groups in both territories including commercial, government, or private;
d) General feasibility from an economic perspective, including how this Project will benefit the West Kitikmeot communities of Cambridge Bay, Kugluktuk, Bathurst Inlet, Umingmaktok, Gjoa Haven and Taloyoak;
e) Analysis of community support for and opposition to the Project, including what groups stand to benefit and which stand to lose from the Project, including a description of how the Proponent has sought input from a broad range of socio-economic groups; and
f) How the Project will provide a net economic benefit to Nunavut and Canada as a whole. This should include economic effects on existing

industries and communities.

4.4.1 PROJECT ALTERNATIVES

Alternatives To the Project shall be addressed, including the no-go option. The Proponent shall also consider alternative ways of carrying out the Project (i.e., Alternatives To Project components or activities, including different locations or timings for such activities or components that might have differing environmental or Socio-economic Effects). Some alternatives identified through the Scoping process include the route from the Izok area to east of Kugluktuk, and the potential for a winter road in place of an all-weather road.

In each case, the Proponent shall give the reasons for selecting the preferred alternative and for rejecting the others, including economic and technical analyses of each. Potential adverse and beneficial Bio-physical and Socio-economic Effects should be identified for each feasible Alternative Means to a level of detail which is sufficient to allow the NIRB and the public to compare the Project with the alternatives.

4.4.2 POTENTIAL PROJECT IMPEDIMENTS

The Proponent shall identify those conditions that might impair the fulfillment of the Proponent's plans and commitments regarding the Project.

4.5 DETAILED PROJECT PROPOSAL DESCRIPTION

The description should address all phases of the Project in sufficient detail to allow the Proponent and NIRB to assess related potential adverse and beneficial Bio-physical and Socio-economic Effects and address public concerns about the Project. The Proponent should describe all Project phases, including pre-construction, construction, operation, and Decommissioning.

The Proponent should summarize the Project in terms of:

a) history of the Project development;
b) purpose;
c) location;
d) scale;
e) components;
f) activities; and
g) approximate scheduling and costs.

4.5.1 PROJECT COMPONENTS AND ACTIVITIES

The Proponent shall describe in detail the following Project components and

activities:

4.5.1.1 All-Weather Road

a) how the selected route(s) correspond to the needs of other developers and of residents of the West Kitikmeot region;
b) proposed construction of the Road, with particular reference to stream crossings;
c) road design pertaining to ‘caribou friendly’ features;
d) the quantities and types of materials required for construction and maintenance;
e) the types and numbers of vehicles to be used to transport materials along the Road, including the total number of trips expected daily and seasonally;
f) private and/or public access of the Road;
g) traffic operating speed;
h) safety features;
i) spill response plans and training; and
j) accident/incident management and reporting.

4.5.1.2 Port Facilities, Services and Operations

a) how the selected port site corresponds to the needs of other developers and residents of the West Kitikmeot region;
b) proposed construction and operation;
c) cargo and container handling and storage;
d) maintenance of appropriate water depths and related dredging activities;
e) ship to ship transfers;
f) the quantities and types of materials required for construction and maintenance;
g) the types and numbers of vessels using the Port, including the total number of trips expected daily and seasonally;
h) description of any proposed material storage facilities
i) potable water supply; including water treatment technology (e.g. desalinisation), the location of the facility and point of supply, the volume needed and the chemical composition and discharge of any by-products of the treatment process;
j) construction and operation of the airstrip, including the duration, frequency, extent of use of airstrip, volumes of goods and passengers, and private and/or public access of the airstrip
k) workforce accommodation arrangements;
l) fire prevention plans and training;
m) spill response plans and training; and
n) accident/incident management and reporting.

4.5.1.3 Contwoyto Lake Camp Facilities and Services

a) proposed construction and operation;
b) the quantities and types of materials required for construction and maintenance;
c) workforce accommodation arrangements;
d) plans for potable water supply, including any technology to treat water; point of supply, volume needed and chemical composition;
e) fire prevention plans and training;
f) spill response plans; and
g) accident/incident management and reporting.

4.5.1.4 Shipping

a) detailed description of proposed Shipping Route, focusing on the area from Lancaster Sound, (north of Arctic Bay) to the Port site;
b) proposed timeframe for shipping season;
c) potential use of icebreakers during the shipping season;
d) all activities/works that would have to be undertaken to make port accessible for ships (i.e. Installation of ground- or sea-based navigational aids in areas of Bathurst Inlet, and seismic surveys to improve quality of available mapping);
e) potential ship waste disposal while docked in Port
f) potential third parties responsible for ensuring safe shipping beyond the immediate port site;
g) the sources of fuel that will be shipped to the Port, and if they are International sources, what measures the Proponent will take to ensure the fuel conforms with Canadian regulations (i.e. Sulphur in Diesel Fuel Regulations, Fuels Information Regulations, CEPA 1999); and
h) accident/incident management and reporting.

4.5.1.5 Fuel and Explosives Storage Sites

a) location and characteristics of fuel and explosives storage infrastructure and systems;
b) handling and containment methods for dealing with fuel and explosive materials;
c) the quantities of fuel, explosives**,** and other similar materials required**;**
d) accident/incident management and reporting; and
e) spill response plans and training.

4.5.1.6 Borrow Pits and Quarry Sites

a) mapping at a scale of 1:5,000 for all sites that are to be used for borrow pits or quarries, noting which are located on or near eskers;

b) estimation of the quantities that will be extracted from Quarry sites**;**
c) access routes to those sites;
d) acid rock drainage (ARD) potential of quarried materials;
e) Quarry management plans describing proposed operations; and
f) methods of handling massive ice, and plans to manage water released by the thawing of permafrost and ground ice.

4.5.1.7 Waste (Domestic and Hazardous) Management

a) sewage treatment and disposal, including the technology to be employed, the location of the facilities and any point of discharge, and the volumes and chemical composition of the effluent;
b) plans for the handling, storage, treatment, and disposal of solid wastes and sewage sludge;
c) contaminated soil treatment and deposition;
d) hazardous waste management plan, including a description of the types and volumes of hazardous wastes to be used or produced by all Project activities. Storage and disposal methods and destinations for each type of hazardous waste, including disposal of containers used to transport or store hazardous materials, shall be described**;**
e) accident/incident management and reporting; and
f) spill response plans and training.

4.5.1.8 Power

a) sources of power other than diesel generators that were investigated;
b) location of the power house in relation to prevailing winds and other infrastructure;
c) all diesel power generation facilities, including sources, volumes and transportation of fuel, transfer points, and equipment and facilities for emergency clean-up;
d) the energy balance for the proposed Project, including strategies for optimisation and conservation;
e) the anticipated types and quantities of emissions to the atmosphere; and
f) accident/incident management and reporting.

4.5.2 PROJECT DESIGN

General Project design issues discussed in the DEIS shall include:

a) an explanation of how the Environment has influenced the design of the Project. This should include, but is not limited to, geographical, geological, meteorological and oceanographic conditions;
b) global climate change. The discussion must describe and assess, on the basis of current knowledge, how the potential for climate change (global

warming) could affect permafrost and soils with high ice content, as well as marine ice flow regimes, and the long-term impacts of such changes on the Project;

c) an explanation of how public consultation has influenced the design of the Project;
d) a discussion of how design, engineering and management plans are consistent with the maintenance of Eco-systemic integrity focusing on such things as stream crossings, marine habitat and wildlife habitat;
e) a demonstration of how the Proponent has applied the Precautionary Principle in its Project design and management; and
f) how socio-economic conditions have influenced the Project design (how have work rotations, pace of construction, employment policy, etc. been designed to meet local preferences and capacity).

All assumptions underlying design features should be explicitly stated.

4.5.3 PROJECT SCHEDULE

The Proponent shall provide current information on the Project's status.

4.5.4 FUTURE DEVELOPMENT

The Proponent shall specify any foreseeable expansions of the Project infrastructure whether at the Port, extensions of the all-weather Road, or expansion of the planned Shipping Route.

The Proponent shall also consider how the Project, including the associated access infrastructure, might stimulate other development projects in the region.

4.5.5 CLOSURE AND RECLAMATION PLAN

While there is no planned end to the Project, closure and reclamation plans should be provided and discussed as much as possible for the:

- Road and Port;
- Quarry pits;
- Construction infrastructure;
- Fuel tank farm;
- Camp at Contwoyto lake; and
- Contaminated soil treatment.

Reasonable goals for reclamation normally include the re-establishment of stable physical landforms and land-use productivity, and the long-term physical and chemical stability of water resources. The Closure and Reclamation Plan shall discuss reclamation methods, the feasibility of those methods in the north, schedule and time frame. Moreover, the Proponent shall describe the extent to

which it believes that the Local Study Area and Regional Study Area can be restored to its previous ecological diversity and ecological productivity.

It is important that the Proponent indicate its willingness to post security for costs of remediation on termination of the Project.

4.6 BASELINE INFORMATION – BIO-PHYSICAL AND SOCIO-ECONOMIC ENVIRONMENTS

This section of the DEIS should provide a Baseline description of the existing physical, biological, and socio-economic environments including processes, their interrelations and interactions, and the variability in these components, processes, and interactions over time scales appropriate to this DEIS. The Proponent's description of the existing Environments should be in sufficient detail to permit the identification, assessment and determination of the significance of potentially adverse and beneficial effects that may be caused by the Project. It should also be at a level and scale of detail that enables readers to understand the material presented.

Fortunately, there is a substantial amount of useful and relevant information pertaining to Baseline data collection. For example, the West Kitikmeot/Slave Study Group has accumulated a substantial amount of information on the environmental, cultural and socio-economic conditions of the region. In order to save time and costs and avoid duplication, the NIRB encourages the Proponent to make maximum use of existing documents in preparing the DEIS. When relying on this information, the Proponent should comment on the relevance and accuracy of the existing information with respect to current conditions. Finally, the Proponent should report on the quality of the data they have gathered and/or used and outline any limitations related to the conclusions that can be drawn from this data.

4.6.1 VALUED ECOSYSTEM COMPONENTS AND VALUED SOCIO-ECONOMIC COMPONENTS

This description should include, but not necessarily be limited to, those Valued Ecosystem Components (VECs) and Valued Socio-economic Components (VSECs), processes, and interactions that are likely to be affected by the Project. If relevant, the location of these VECs/VSECs should be indicated on maps or charts. The Proponent should indicate to whom these concerns are important and the reasons why, including social, economic, recreational, and aesthetic considerations. The Proponent should also indicate the specific geographical areas or Ecosystems that are of particular concern, and their relation to the broader regional Environment and economy.

The Proponent should explain and justify the methods used to predict potential adverse and beneficial effects of the Project on the VECs and VSECs, on the interactions among these components and on the relations of these components with the Environment. In particular, the Proponent must validate the selected VECs/VSECs, particularly those VECs/VSECs that will be used to assess the significance of Project component interactions, through consultation with a representative sample of the affected communities [3]. Any uncertainties in the validation must be documented. In this regard, the NIRB suggests that the Proponent seeks Community and, in particular, Traditional input respecting the identification of the VECs/VSECs to be discussed in the DEIS.

The Proponent is expected to identify the components of the Project that may be expected to interact in adverse or beneficial ways with the VECs/VSECs.
Components could be grouped into the following categories:

- Components related to construction and operation of the Project
- Components related to the Eco-systemic effects of the Project
- Components related to developments induced in the Reasonably Foreseeable Future by the Project

4.6.2 BIO-PHYSICAL ENVIRONMENT

The Proponent shall describe the components of the physical and biological Environments and the processes affecting them as they exist presently, to serve as a Baseline against which the potential impacts of the Project can be measured. In describing the physical and biological Environment, the Proponent should take an Ecosystem approach that takes into account both scientific and Community Knowledge and perspectives regarding Ecosystem health and integrity. The Proponent should identify and justify the Indicators and measures of Ecosystem integrity it uses, and these should be related to Project monitoring and follow-up measures.

Baseline description shall include, but not be limited by, the following Bio-physical components and processes within the Regional Study Area:

4.6.2.1 Terrestrial Environment:

a) special, sensitive, or unique geological or landform features (including inventory of wetlands and their function in the Local Study Area);
b) bedrock Geology;
c) surface Geology and soils (including eskers);

[3] Appendix C provides a list of VECs and VSECs which have been identified throughout the Public Scoping phase of this Project, as well as through past projects in the West Kitikmeot. This list may serve as a useful starting point for the identification of relevant VECs and VSECs for this Project.

[5] The Nunavut Planning Commission can be contacted for this information

d) coastal and marine Geology, processes and stability;
e) sediment mobility;
f) granular sources and characterization;
g) permafrost and ground ice conditions;
h) sensitive habitat areas;
i) fluvial geomorphology and stability of stream and river crossings;
j) coastal and seabottom stability;
k) areas of ground instability and flood zones, if any;
l) seismicity; and
m) existing or proposed protected areas, special management areas or conservation areas, such as those proposed by caribou co-management boards and land use plans.

4.6.2.2 Freshwater and Marine Environment

a) hydrology (e.g., streams, watershed boundaries, surface water flow, subsurface water movement, flood zones, ice formation and melt patterns);
b) physical and chemical parameters of surface and sub-surface waters;
c) physical and chemical properties of sediment in freshwater and marine waterbodies, including vicinity of port;
d) substrate characteristics for areas of Fish Habitat;
e) streams which support overwintering Fish or are used by Fish as migration routes. All Fish species using affected streams should be identified;
f) Bathymetry, particularly in Bathurst Inlet;
g) ice conditions along Shipping Route (using Traditional Knowledge as well as scientific studies);
h) predicted climate change and its possible effect on the timing of ice formation in the future;
i) sensitive habitat areas; and
j) marine currents, waves, storm surges, Long Shore Processes, at Port and along Shipping Route.

4.6.2.3 Meteorology

a) meteorology and climate data relevant to the Local Study Area. The data should reflect daily and seasonal fluctuations;
b) wind speed and direction; and
c) consideration of predicted climate change and related changes in mean and extreme environmental parameters such as air temperature, precipitation, storms, etc.

4.6.2.4 Air Quality and Noise

a) air quality and noise data relevant to the Local Study Area - levels should reflect daily and seasonal fluctuations.

4.6.2.5 Vegetation

a) sensitive, uncommon or unique plants or plant communities;
b) ecological zones;
c) species that perform particularly significant ecological functions; and
d) species that are valuable for cultural reasons known to the Inuit.

4.6.2.6 Wildlife, Birds and Fish

a) Local and Regional distribution of species/populations;
b) health of species/populations and their contaminant loadings;
c) migratory patterns and routes of these species and the corresponding sensitive periods when the routes cross habitats affected by the Project, based on long-term data and Traditional Knowledge;
d) significant habitats for selected regionally important species (e.g. barren ground caribou, grizzly bear), such as eskers, calving and rearing areas, denning sites, and staging areas, and such special locations as salt licks, water crossings, and insect relief habitats;
e) description and evaluation of biodiversity in Local Study Area;
f) critical terrestrial and marine migratory bird sites along the Shipping Route (Environment Canada: 2004), including those which may be affected by marine spills as a results of current and/or wind patterns;
g) timing and extent of the following caribou herds in the Local Study Area (including areas of potential mine development or exploration related to the Project):
    - Ahiak (Queen Maud) herd
    - Bathurst herd
    - Dolphin & Union herd
    - Peary herd
h) effects of climate change on migratory species such as caribou;
i) winter distributions of wildlife found in region during Road use period and summer distribution of wildlife during road maintenance period;
j) polar bear, caribou (e.g. Dolphin & Union, Peary) and marine mammal distribution during shipping season and habitat along Shipping Route.

4.6.2.7 Existing Contaminants in the Environment

a) location and brief description (if possible) of existing contaminated sites in the West Kitikmeot located within 20 km of the Road and Port.[5]

The Baseline studies should also include conditions and trends of VECs identified through public consultation.

4.6.3 SOCIO-ECONOMIC ENVIRONMENT

The Proponent shall provide information on the functioning and stability of the socio-economic environment in the Regional Study Area. The Proponent shall

describe the components of the socio-economic environment and the processes affecting them as they exist without the Project. This will serve as a Baseline against which the potential impacts of the Project can be measured and also to justify its selection of VSECs. Baseline data shall be presented on a community-by-community basis on such components as:

a) human health, defined broadly to include mental health and well-being;
b) population demographics;
c) Traditional Knowledge (TK) studies and information
d) Archaeological, cultural, heritage, and burial sites, as well as sites identified by Elders as being sacred or spiritual places. Each site shall be described and delineated on a map;
e) up-to-date socio-economic studies, particularly in the West Kitikmeot, on those communities identified by the Proponent as benefiting from fuel re-supply from the Port;
f) up-to-date socio-economic studies of those communities in the Northwest Territories which presently benefit from the existing supply route to Nunavut;
g) Local and Regional land and resource use, including national parks and similar areas;
h) Local and Regional economy; distinguishing between traditional and wage economies;
i) existing employment, education, and training infrastructure;
j) community services and infrastructure, including the demands on existing infrastructure and demands for new infrastructure; and
k) any other components identified through public consultation.

The Proponent shall provide a rationale for the selection of communities and relevant studies for which Baseline data are provided. The Proponent shall describe the interactions between the socio-economic and bio-physical environments.

4.7 ASSESSMENT AND MITIGATION OF IMPACTS

The analysis of the Bio-physical and Socio-Economic Effects should describe the effect considered, the significance of the effect, how the effect fits into a Cumulative Effect Analysis, and proposed Mitigation measures for significant effects. The DEIS should to the extent possible avoid repetition by identifying the potential adverse environmental effects and the proposed Mitigation measures in the same discussion.

4.7.1 SIGNIFICANCE OF IMPACTS

The DEIS should contain a detailed analysis of the significance of the potential environmental and Socio-Economic Effects it predicts. It should contain sufficient information to enable the NIRB and other reviewers to understand and review the

Proponent's judgment of the significance of effects. The Proponent should define the terms used to describe the level of significance. The Proponent should identify the significance of predicted effects according to the following parameters:

a) nature of the impact (i.e. positive/negative, direct/indirect, cumulative, synergistic)
b) magnitude of the impact;
c) geographic extent of the impact;
d) timing, duration and frequency of the impact;
e) degree to which effects are reversible or mitigable;
f) ecological (such as species at risk) and social/cultural context;
g) probability of occurrence;
h) the capacity of renewable and non-renewable resources to meet the needs of the present and those of the future, especially in Nunavut; and
i) standards, guidelines or objectives.

The DEIS should provide a comprehensive analysis of the effects of the Project on the bio-physical and socio-economic environments with respect to the elements and functions which may be lost or enhanced, where, how much, for how long, and with what overall effect. The DEIS should also provide analysis of the short and long-term effects, indicating the sensitivity of the function, integrity, and health of the environments to these predicted effects.

The DEIS should pay particular attention to the geographical scale of anticipated impacts, by characterising them as appropriate in or at the:

1) Local Study Area, Regional Study Area and territorial levels;
2) Traditional and/or local land use areas; and,
3) Ecosystem level (e.g., watershed, and wetlands)

The specific geographical area for the assessment of each impact should be tailored to match the characteristics of the impact and the VEC/VSEC indicators. For example, impacts on caribou could include the herd range, while impacts on Fish may include analysis of river courses or watersheds.

Particular emphasis should also be placed on each of the above in relation to one another. For example, an analysis of the proportion of habitat or population in specified area should be analysed in relation to the larger areas, with particular attention to what is critical to Ecosystem health.

The prediction of potential adverse and beneficial Bio-physical and Socio-economic Effects should be based on clearly stated hypotheses of causal relations. The Proponent should specify the Indicators used and how these Indicators would measure and verify these effects in subsequent monitoring, especially to distinguish the effects of the Project from those of other activities or processes.

4.7.2 CUMULATIVE EFFECTS ASSESSMENT

The Proponent shall provide a brief overview of the theory and practice of Cumulative Effects Assessment (CEA) especially as it applies to the Ecosystem model of evaluating environmental impacts, and shall justify the methodology adopted [6].

The Proponent shall assess the potential Cumulative Effects of the Project to determine its impacts on the bio-physical and socio-economic environments in combination with past, current, or Reasonably Foreseeable Future Developments. In considering Reasonably Foreseeable Future Developments the Proponent shall evaluate the potential of the Project to induce economic developments. The Proponent shall consider the combined impacts of the Project in combination with those of other predicted developments.

Those developments that are expected to substantially affect the same VECs, VSECs and Ecosystems as the Project need to be included in the Cumulative Effects Assessment. The further into the future the proposed development is projected to occur, the less detailed the associated effects assessment needs to be. The Proponent shall include a Cumulative Effects Assessment of increased marine traffic along the Shipping Route.

The Proponent shall describe and justify all assumptions, models, and information limitations and associated levels of uncertainty. It shall explain its approach to handling the uncertainty associated with Cumulative Effects Analysis.

4.7.3 PHYSICAL AND BIOLOGICAL IMPACTS

The Proponent shall assess the potential impacts on physical and biological components and processes of the Environment.

Analysis of the potential Project impacts shall include the following:

4.7.3.1 Terrestrial Impacts

a) blasting at port site and Quarry sites during construction;
b) functional changes in special, unique or sensitive landform features (such as wetlands or stream Riparian zones) as a result of the Road;
c) impacts on terrain stability, fluvial geomorphology and stability of river/stream crossings;
d) permafrost and ground ice (including ground ice in eskers, kames, or

[6] As an example, the March 2004 *Environmental Impact Assessment Guidelines* developed by the Mackenzie Valley Environmental Impact Review Board (MVEIRB) establish a framework by which a Cumulative Effects Analysis should be conducted.

deltas used as quarries or borrow pits) and ice lenses;
e) geochemistry;
f) permanent changes in the local use of the landscape by wildlife and sensitive habitat;
g) permanent aesthetic and physical changes to the landscape; and
h) effects on existing or proposed protected areas, special management areas or conservation areas.

4.7.3.2 Freshwater and Marine Impacts

a) impact on drainage patterns, erosion, and stream flows;
b) water quality and quantity, including subsurface water (if any), runoff, and surface water in relation to Project facilities, services and infrastructure;
c) impacts of blasting at port site and Quarry sites during construction;
d) impacts of dredging and related ocean disposal;
e) impact modelling of ship movements, including direct impacts on migratory birds, species at risk and marine mammals along Shipping Route;
f) impact of Port on marine currents, waves, storm surges, and Long Shore Processes;
g) modeling of potential marine accidents; and
h) bilge washing, fuel leaks and accidental blow-off of materials from decks with respect to shipping.

4.7.3.3 Air Quality / Meteorological / Noise Impacts

a) microclimates and climate within the Region as affected by the Project during peak traffic and long term;
b) gaseous emissions from fuel consumption, air-borne dust from construction and operation of Port and Road, and discuss the possible effects of such activities (e.g., effects on lichen, effects on workers' safety);
c) the atmospheric dispersion of emissions on a Local and Regional scale[7]; and
d) noise levels, including construction and peak traffic periods.

4.7.3.4 Vegetation Impacts

a) loss of plants and plant communities, including rare, endangered, or highly valued species due to Project construction and operation;
b) dust from Road and Quarry operations;
c) contaminant uptake by vegetation; and
d) specific habitats or species of vegetation upon which wildlife are dependent.

[7] Relevant Indicators may include the Canadian National Ambient Air Quality Objectives (CCME 1999

4.7.3.5 Wildlife, Bird and Fish Impacts

a) habitat loss or alteration (e.g. fragmentation, connectivity);
b) mortality (including from sport hunting and shooting problem animals);
c) displacement;
d) disruption of movement (e.g. migration, home ranges);
e) altered inter-species relationships, including those with humans;
f) noise or other forms of disturbance on the ground or by aircraft;
g) Bioaccumulation and Biomagnification of toxins;
h) Cumulative Environmental Effects on wildlife, birds and Fish;
i) potential physical barriers to Fish movement (freshwater) and the size of areas that could be lost to Fish if the Road impedes their migration;
j) impact of early and late season shipping on ice formation, in areas where caribou cross;
k) impacts to all areas important to Bathurst Caribou herd migration and calving from Project construction and operation, as identified through all knowledge systems, including Traditional Knowledge, and Inuit Qaujimajatuqangit;
l) impacts to critical terrestrial and marine migratory bird sites along the Shipping Route (Environment Canada: 2004);
m) effects of increased human access to region on wildlife, including fur-bearers (i.e. wolverine, grizzly), caribou, and Fish;
n) analysis of potential road-kill mortality increases;
o) anticipated loss of biodiversity;
p) special consideration shall be given to species that residents of the Region record as being vulnerable or endangered locally or regionally, including species of particular social, cultural, and economic importance; and
q) special consideration shall be given to regionally, territorially and nationally listed rare/endangered species.

For the purposes of this Section, “species at risk” should include wildlife at risk as defined in the February 2004 Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada (Canadian Wildlife Service).

4.7.3.6 Human Health Impacts

a) associated with changes in water quality, air quality, noise and foods, including effects on workers.

Impact studies should include potential effects to all VECs identified through public consultation.

For every adverse effect that is reasonably anticipated, the significance of the effect should be discussed. For those effects defined by the Proponent to be ‘significant’, discussion of component re-design, Mitigation measures, and/or compensation measures should be presented. The Proponent should indicate

the willingness of the responsible third party or parties for Mitigation or compensation measures needed for adverse effects.

4.7.4 SOCIO-ECONOMIC IMPACTS

The Proponent shall identify and assess significant interactions between key components of the Project and the socio-economic environment, and in particular, the VSECs. In considering the local social-economic effects of the Project, the Proponent should pay special attention to the attitudes and perceptions of local residents, including the KIA and the community governments of Cambridge Bay and Kugluktuk. Analysis of the potential impacts shall include the following:

a) location of the Project both in the Local Study Area and the Region Study Area;
b) possible increased visitation to the Local Study Area, in particular, its effects on carnivore and other furbearer populations, caribou and Fish;
c) population demographics, such as Project-induced changes in population numbers, migration, and distribution, and the effects of those changes, including interactions between local residents and non-residents. This should include an analysis of predicted population shifts towards the Port site location;
d) changes in (i) hunting, trapping, or guiding areas; (ii) commercial, Nunavummiut, and sport fishing areas; (iii) conservation areas, territorial and federal parks, or other ecological reserves or preserves; (iv) recreation and tourism areas and recognized scenic areas; (v) the “wilderness experience” (including the potential for compromising the development of protected areas in the region); (vi) navigable and heritage waters; and (vii) industrial and commercial areas;
e) changes in quality of life caused by the construction, and operation of the Project including, but not limited to, human health and well-being;
f) future land and water use, including changes in aesthetics and/or economic, and recreational opportunities caused by the construction, and operation of the Project;
g) changes to economic and recreational opportunities at both the Local Study Area and Regional Study Area caused by the construction and operation of the Project in terms of changed noise levels, and/or alteration of the visual topographic characteristics of the area;
h) Archaeological, historical, cultural, and scenic sites;
i) the traditional way of life of the residents of the Region, particularly the use of the land for economic, cultural, and other purposes;
j) local and regional transportation pattern shifts, including an analysis of potential changes to use of the Tibbitt-Contwoyto winter road, resulting from the Project;
k) potential changes to the existing West Kitikmeot community barge delivery

network, including community schedule changes, potential changes to the purchasing location of goods, and current employment of the barge delivery network employees, resulting from the Project;

l) temporary and permanent restrictions on land use during construction, operation and modification;
m) human health effects associated with changes in contaminants, water quality, air quality, noise and foods, including effects on construction crew workers;
n) the social life of the concerned communities, family and community stability, problems of substance abuse, and crime and violence, including the effects of an employment base away from the communities;
o) Socio-Economic Effects on people residing in the NWT who are directly affected by the Project, including Transboundary economic impacts resulting from changes to current supply methods to the region;
p) the likely evolution of the local and regional economies over the life of the Project, giving regard to direct, indirect, and induced effects on income and employment
q) employment opportunities for workers from the West Kitikmeot Region and Nunavut;
r) increased pressure on existing social, institutional, and community services, transportation facilities and services, existing infrastructure and emergency measures capacity;
s) the potential implications of the Project on the trafficking of drugs and alcohol into West Kitikmeot communities; and
t) demand for policing, enforcement and inspection.

For every adverse Socio-economic Effect that is reasonably anticipated, the significance of the effect should be discussed. For those effects defined by the Proponent to be 'significant', discussion of component re-design, Mitigation measures, or compensation measures should be presented. The Proponent should indicate the willingness of the responsible third party or parties for Mitigation or compensation measures needed for adverse effects. The Proponent should address the potential need – or lack of need – for a Socio-economic management plan and Socio-economic agreement to address Mitigation, compensation and monitoring.

4.7.5 MITIGATION

The Proponent shall describe general and specific measures intended to mitigate the potentially significant adverse environmental effects of the Project. Mitigation is defined as the elimination, reduction or control of the adverse environmental effects of the Project, and includes restitution for any damage to the Environment caused by such effects through replacement, restoration, compensation or any other means.

The DEIS should, to the extent possible, avoid repetition by identifying the

potential adverse effects *and* proposed Mitigation measures for those adverse effects in the same discussion.

The Proponent should discuss and evaluate the effectiveness of the proposed measures and assess the likelihood of Mitigation failure and the potential severity of the consequences. Information should be provided on similar Mitigation methods used with similar projects and the degree of success achieved. All uncertainties related to the Mitigation measure should be clearly described and, if possible, quantified. The discussion of these effects and their proposed Mitigation should give full consideration to Community Knowledge of the Environment and of appropriate and effective Mitigation measures. The Proponent should identify who is responsible for the implementation of these measures, the system of accountability and the phase and component of the Project to which the measure would be applied.

Specific Mitigation measures should include the following:

a) following the CCME Guidance Document 'Environmental Code of Practice for Above Ground and Underground Storage Tanks Systems containing petroleum product…' for the installation and operation of storage tanks;
b) Contingency Plans to cover spills of all deleterious substances;
c) a caribou management and monitoring plan that includes the use of Traditional Knowledge to minimise the effects of the Project on caribou and to establish a monitoring programme; and
d) compensation measures for the loss of aquatic habitat, including habitat replacement. The principle of No Net Loss (Policy for the Management of Fish Habitat, Department of Fisheries & Oceans, 1986) for Fish Habitat shall be applied.

4.8 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) is required in the DEIS, at least at the strategic level, for all Project phases.

The EMP should address:

1. Environmental Management objectives
2. Specific strategies to meet EMP objectives including rehabilitation plans, protection plans for wildlife and cultural areas and artefacts, pollution control and waste control plans
3. Identification of company personnel, including contractor staff, who are responsible for EMP work and reporting obligations

4.9 RISK ASSESSMENT AND EMERGENCY RESPONSE PLAN

The Proponent shall carry out a Preliminary Risk Assessment and prepare an

Emergency Response Plan for the Project, discussing potential risks associated with its construction and operation. Potential ecological and human health risks should be assessed. Any possible abnormal events should be discussed, along with the safeguards that may be used to reduce these risks. Potential hazards both in the marine environment, and those related to land-based activities should be discussed and Contingency Plans to deal with spills of Hydrocarbons, or other deleterious substances, on land or sea should be included. The Proponent should outline the steps it will take with respect to risk management, including loss prevention practices and insurance.

4.10 MONITORING, EVALUATION AND MANAGEMENT

Consistent with Part 7 of Article 12 of the NLCA, the Proponent should describe the environmental and socio-economic monitoring programs to be incorporated into all phases of the Project. A follow-up monitoring program is necessary to verify the accuracy of the Environmental Assessment of the Project and determine the effectiveness of Mitigation measures.

The description of the monitoring program should include:

a) the objectives and a schedule for collection of the monitoring data required to meet these objectives;
b) the frequency, duration and geographic extent of monitoring, and the justification for these decisions;
c) the relationship of the various components of the monitoring program, and specific regulatory requirements;
d) the selection of the subjects and Indicators to be monitored, and the criteria used in their selection including the role played by ecological risk monitoring;
e) approaches and methods used to analyse monitoring data;
f) reporting and response mechanisms, including criteria for initiating a response, and the procedures to be followed. The reasons for selecting these criteria should be explained;
g) the approaches and methods for monitoring the potential Cumulative Bio-physical and Socio-economic Effects of the Project in combination with other activities;
h) integration of monitoring results with other aspects of the Project including adjustments to operating procedures and refinement of Mitigation measures;
i) procedures to assess the effectiveness of monitoring programs, Mitigation measures, and recovery programs for areas disturbed by the Project
j) methodology of evaluation of monitoring results, including thresholds levels to trigger management responses;
k) details regarding management responses; and
l) the relationship between monitoring and Environmental Management Plans (Section 4.8).

The Proponent should provide a table showing all environmental components of

the Project indicating where monitoring is proposed.

4.11 CONCLUSION AND RECOMMENDATIONS

The DEIS should end with a conclusion presenting an overall analysis of the projected Bio-physical and Socio-economic impacts, anticipated Cumulative Effects, proposed Mitigation measures, and any Residual impacts. While highlighting the impacts in Nunavut, this conclusion should clearly present the importance of the DEIS findings to the entire Regional Study Area.

4.12 LIST OF CONSULTANTS AND ORGANISATIONS

A list of all the consultants who contributed to the preparation of the DEIS, including their role and contact information shall be presented.

The Proponent shall prepare a list of the organizations consulted, including: the time, place, and purpose of the consultation; and contact information for the organisation. An appendix shall contain copies of the materials presented at such meetings and other relevant materials.

5.0 LITERATURE REVIEW

Canadian Environmental Quality Guidelines and *Guidelines Respecting Ambient Air Standards for Sulphur and Total Suspended Particulate Matter in the Northwest Territories*, under the *Environmental Protection Act*

CCME 1999. Canadian Environmental Quality Guidelines - Canadian National Ambient Air Quality Objectives, Canadian Council of Ministers of the Environment, 1999

CEPA 1999. *Canadian Environmental Protection Act*, Fuels Information Regulations, No. 1, Sulphur in Diesel Fuel Regulations

Department of Fisheries and Oceans. 1986. *Policy for the Management of Fish Habitat.* Available at http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/fhm-policy/index_e.asp.

Department of Indian and Northern Affairs CanadaDIAND. , 2003. The Canadian Arctic Contaminants Assessment Report II.

Environment Canada 2004. *Submission to the Nunavut Impact Review Board September 10, 2004 – Public Registry Document 139.* Available at: http://ftp.nunavut.ca/nirb/Reviews/03UN114.

Interorganisational Committee on Guidelines and Principles. 1994. "Guidelines and Principles for Social Impact Assessment". *Impact Assessment,* Vol 12, No. 2, pp. 107-152.

Government of Nunavut: Department of the Environment. 2004. *Submission to the Nunavut Impact Review Board November 12, 2004 – Public Registry Document 198 (b).* Available at: http://ftp.nunavut.ca/nirb/Reviews/03UN114.

Mackenzie Valley Environmental Impact Review Board. (2004). *Environmental Impact Assessment Guidelines.*

Mackenzie Valley Environmental Impact Review Board. (2004). *Guidelines for Traditional Knowledge*.

Nunavut Land Claim Agreement (NLCA). INAC and TFN (Indian and Northern Affairs Canada and Tungavik Federation of Nunavut). 1993. *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*. Ottawa, Ontario: INAC and TFN.

APPENDICES

APPENDIX A: NUNAVUT IMPACT REVIEW BOARD'S 10 MINIMUM EIS REQUIREMENTS

Proponents must comply with the following 10 minimum requirements for an Environmental Impact Statement:

1. Statement of Consultation Principles and Practices
The Proponent must conduct pre-Project consultations with locally affected persons. Where at all possible, information about the Project must be distributed, and comments collected with a view to resolving any differences. Discussions should include, but not be limited to, land uses, policies, resource uses, Archaeological areas, infrastructure, and terrain sensitivities. Inuit cultural concerns must be highlighted throughout. The Proponent shall explain where, how, why, and with whom it conducted public consultation, and shall demonstrate an understanding of the rights, interests, values, aspirations, and concerns of the potentially affected communities All comments from the public must be summarized, documented, and presented in the EIS.

2. Definition of Project

A definition of the Project must include a discussion of any connected or subsequently related projects in order to reveal the primary purpose and better understand complex or multi-staged related proposals.

3. Statement of Project's Purpose

Based on the concepts of the Precautionary Principle and Sustainable Development , an EIS must contain a statement explaining the need for, and the purpose of the Project. Where further economic development is needed for a given area, the Board expects the deficiencies in the economic status quo to be stated.

4. Anticipated Impacts Analysis

A comprehensive impact assessment must be carried out which includes, but is not limited to, environmental effects that are likely to result from the Project in combination with other projects or activities that have been, or will be, carried out. Anticipated impacts include short and long-term, direct and indirect, positive and negative, cumulative, socio-economic, Archaeological and cultural impacts. This element of the EIS must include a Mitigation analysis that explains how the impacts could be avoided, minimized, cured, eliminated, or compensated.

5. Cumulative Effects Analysis (CEA)

Cumulative Effects must be analyzed for all Part 5 Reviews. A project proposal causes a Cumulative Effect if, when added to other projects in the region, or projects Reasonably Foreseeable in the region, will cause an additive effect. A comprehensive examination of all Cumulative Effects must be included in an EIS.

6. Significant Effects Analysis

The Board must be advised of the significant impacts of the Project. This should be based upon:

- the Project setting, taking into account the location's unique Ecosystemic characteristics, and
- the severity of the impacts, taking into account, but not limited to public health, land use plans, protected areas, habitat, or species, public concern, etc.

Ultimately, the Board will decide which effects are significant and report to the Minister accordingly.

7. Project Alternatives

This requirement includes, but goes well beyond, Alternative Means of carrying out the Project that might be economically and technically feasible and the environmental effects of those Alternative Means. This assessment must include the "no-go" or "no-build" alternative, as well as the "preferred" alternative. The "no-go" alternative is not only a potentially stand-alone option; it also serves as a Baseline for comparison with other development alternatives that might reasonably be proposed in the circumstances.

8. Sustainability Analysis

The EIS must contain an analysis of the ability of renewable resources affected by the Project to sustain current and future generations in Nunavut and Canada.

9. Monitoring or Post-Project Analysis (PPA)

The purposes of a PPA are to:

- measure the relevant effects of projects on the Ecosystemic and socio-economic environments of the Nunavut Settlement Area;
- determine whether and to what extent the land or resource use in question is carried out within the predetermined terms and conditions;
- provide the information base necessary for agencies to enforce terms and conditions of land or resource use approvals; and
- assess the accuracy of the predictions contained in the project impact statements.

10. Trans-Boundary Effects Analysis

Where relevant, an EIS must include an assessment of all significant adverse Ecosystemic or socio-economic trans-boundary effects.

**It is important to note that Section 12.5.2(j) of the NLCA gives NIRB the authority to add other requirement as deemed necessary. NIRB will always review each project proposal on a case-by-case basis including instructions from the Minister, and may add other requirements as per s. 12.5.2 and 12.5.5 of the NLCA.

APPENDIX B: DRAFT EIS DELIVERY ADDRESSES

Nunavut Impact Review Board (Cambridge Bay)
PO Box 2379
Cambridge Bay, NU
X0B 0C0

Nunavut Impact Review Board (Yellowknife)
3526 McDonald Drive
Yellowknife, NT
XIA 2H1

Nunavut Water Board (Gjoa Haven)
PO Box 119
Gjoa Haven, NU
X0B 1J0

Cambridge Bay Hamlet Office
PO Box 16
Cambridge Bay, NU
X0B 0C0

Kugluktuk Hamlet Office
PO Box 309
Kugluktuk, NU
X0B 0E0

Taloyoak Hamlet Office
PO Box 8
Taloyoak, NU
X0B 1B0

Gjoa Haven Hamlet Office
General Delivery
Gjoa Haven, NU
X0B 1J0

Bathurst Inlet Port and Road Committee
c/o Bathurst Inlet Lodge
PO Box 820
Yellowknife, NT
X1A 2N6

APPENDIX C: VALUED ECOSYSTEM COMPONENTS AND VALUED SOCIO-ECONOMIC COMPONENTS

Valued Ecosystem Components

The following list serves as an example of some VECs so far identified through Public Scoping, which may be an appropriate beginning point for the identification of relevant VECs:

- Species at risk, as defined by *Species at Risk Act (SARA):*
    - Dolphin-Union caribou herd *(of special concern)*
    - Grizzly bear *(of special concern)*
    - Wolverine *(of special concern)*
    - Polar bear *(of special concern)*
    - Peregrine falcon *(of special concern)*
    - Short-eared owl *(of special concern)*
    - Ivory gull *(of special concern)*
    - Beluga whale, Eastern High Arctic/Baffin and Cumberland Sound populations *(of special concern)*
    - Ross's gull *(threatened)*
    - Peary caribou, Somerset and Devon Islands/low arctic portion of population *(endangered)*
    - Eastern arctic bowhead *(endangered)*
    - Bering Wolffish *(endangered)*
    - Eskimo Curlew *(endangered)*

- Caribou: Ahiak herd, Bathurst herd, Dolphin & Union herd, Peary herd and Bluenose (East and West) herds
- Wolf
- Four horn Sculpin (Myoxocephalus quadricornis)

Valued Socio-economic Components

The following list serves as an example of some of the VSECs that have emerged throughout different processes in the Kitikmeot region[8]. This list is not meant to be exhaustive, but rather to give the Proponent a foundation from which to begin the identification of relevant VSECs:

- aesthetics of development projects
- Archaeological sites and other heritage resources, including those underground, in and around the Proposed Project location

[8] Government of Nunavut: Department of the Environment. 2004. *Submission to the Nunavut Impact Review Board November 12, 2004 – Public Registry Document 198 (b)*

- objects and places of recreational, scenic, spiritual and ecological value
- recreational uses in and around the Proposed Project location
- human health and safety, with “health” defined as “a state of complete physical, mental and social well-being”
- cultural and economic health of communities in the NWT and Nunavut
- use of land and resources for traditional purposes by Aboriginal and Inuit persons
- tourism
- Inuit lifestyle and living off the land
- environmental protection in support of subsistence economy and culture
- employment and job opportunities
- economic development at community level
- Inuit ownership of businesses
- training
- youth opportunities
- families and parenting
- learning from experience to predict and prevent negative social impacts
- strong local organisations (Hamlets, Social Services, Hunter and Trapper Organisations)
- healthy diets
- participation in the community
- labour supply available in communities
- traditional land use
- stress on individuals/families
- personal and household income
- regional economy
- potential for language loss