

3. NIRB Application Acknowledgment



NIRB File No.: 06QN005

February 14, 2006

Thomas Kutluk
Lands and Development
P.O. Box 150
Arviat, Nunavut
X0C 0E0

Via email: arviatlands@qiniq.com

Nunavut Water
Board

FEB 14 2006

Public Registry

Re: Application Acknowledgement for Arviat Quarry Project Proposal

Dear Mr. Kutluk:

The Nunavut Impact Review Board (NIRB or Board) acknowledges receipt on February 14, 2006 of The Hamlet of Arviat's Quarry Project Proposal from the Government of Nunavut Community and Government Services (GN-CGS). NIRB has assigned this Project Proposal file number, 05QN005. All documents received and pertaining to this Project Proposal can be obtained from NIRB's ftp site at http://ftp.nunavut.ca/nirb/NIRB_ACTIVE_SCREENINGS/06QN005-Hamlet of Arviat/ including:

- *CGS Land Use and Quarry Permit Application for ESK 2A and ESK-2B*
- *CGS Land Use and Quarry Permit Application for Mayuarria'yuaq*
- *NIRB Part 1 Summary Application Form in English*
- *NIRB Part 1 Summary Application Form in Inuktitut*
- *NIRB Part 2 Project Specific Information Requirements(PSIR)*
- *PSIR Attachment 1: December 12, 2005 letter from GN-CGS to NIRB*
- *PSIR Attachment 2: Map of Arviat, Nunavut showing municipal boundary*
- *PSIR Attachment 3: Map showing general location of ESK 1 and ESK 2*
- *PSIR Attachment 4 : Map of ESK 2 Site Plan (ESK 2A and 2B)*
- *PSIR Attachment 5: Table Identifying Environmental Impacts*
- *PSIR Attachment 6: Conceptual Design of Mayuarria'yuaq Quarry*
- *PSIR Attachment 7: Map of Arviat, Nunavut showing location of Mayuarria'yuaq Quarry*
- *PSIR Attachment 8: Map of Arviat, Nunavut showing location of the road to be used*

Pursuant to Part 4, Article 12 of the Nunavut Land Claims Agreement (NLCA), NIRB shall proceed to screen the subject Project Proposal. This said, NIRB reserves the right to request additional information at any time during the process. NIRB will copy the Hamlet of Arviat on screening process related correspondence and upload related documents to the above ftp site for Public access.

By way of copy of this letter, and the enclosed comment form, to the distribution list including municipalities and groups most affected by the Hamlet of Arviat's Project Proposal, we invite interested persons to comment directly to the NIRB by **Friday March 3, 2006**.

If you have any questions or concerns, feel free to contact NIRB's Technical Advisor, Karlette Tunaley at 867-983-4605 or ktunaley@nirb.nunavut.ca

Sincerely,

(original signed by:)

Karlette Tunaley
Technical Advisor Nunavut Impact Review Board

Cc Honourable Jim Prentice, Minister of Indian and Northern Affairs Canada
Honourable Levinia Brown, Minister of Community and Government Services
Mr. Ronnie Suluk, Government of Nunavut Community and Government Services Lands Administration
Distribution List

Attachments:
Comment Form

COMMENT FORM FOR NIRB SCREENINGS

The Nunavut Impact Review Board (NIRB) has a mandate to protect the integrity of the ecosystem for the existing and future residents of Nunavut. To assess the environmental and socio-economic impacts of the project proposal, NIRB would like to hear your concerns, comments and suggestions about the following project proposal application:

Project Proposal Title: <u>Quarry Permit</u>	
Proponent: <u>Hamlet of Arviat</u>	
Location: <u>Arviat</u>	
Comments Due By: <u>March 3rd, 2006</u>	NIRB #: <u>06QN005</u>

Indicate your concerns about the project proposal below:

<input type="checkbox"/> no concerns	<input type="checkbox"/> traditional uses of land
<input type="checkbox"/> water quality	<input type="checkbox"/> Inuit harvesting activities
<input type="checkbox"/> terrain	<input type="checkbox"/> community involvement and consultation
<input type="checkbox"/> air quality	<input type="checkbox"/> local development in the area
<input type="checkbox"/> wildlife and their habitat	<input type="checkbox"/> tourism in the area
<input type="checkbox"/> marine mammals and their habitat	<input type="checkbox"/> human health issues
<input type="checkbox"/> birds and their habitat	<input type="checkbox"/> other: _____
<input type="checkbox"/> fish and their habitat	_____
<input type="checkbox"/> heritage resources in area	_____

Please describe the concerns indicated above:

Do you have any suggestions or recommendations for this application?

Do you support the project proposal? Yes ☐ No ☐ Any additional comments?

Name of person commenting: _____ **of** _____

Position: _____ **Organization:** _____

Signature: _____ **Date:** _____



Department of Lands and Natural Resources
Nunavut Impact Review Board
P.O. Box 2379
Cambridge Bay, Nunavut
X0B 0C0

February 2, 2006

Nunavut Impact Review Board
P.O. Box 2379
Cambridge Bay, Nunavut
X0B 0C0

RE: Land Use & Quarry Permit application
Hamlet of Arviat

Dear Sir or Madam,

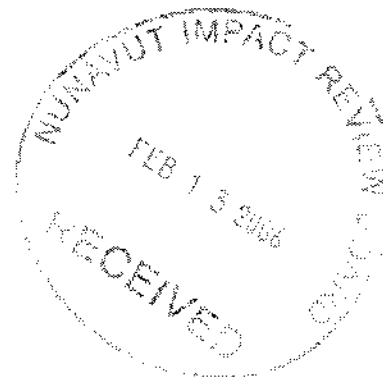
Please find the enclosed applications and documentation for the land use and quarry permit for the proposed quarry site in the Hamlet of Arviat.

Prior to the issuance of permits, the project is to be approved by your office. Once a decision is made, please forward any information to our office. If you have any questions or comments, feel free to contact myself. Thank you.

Sincerely,

Ronnie Suluk
Lands Administrative Officer
Kivalliq Region

Enc.



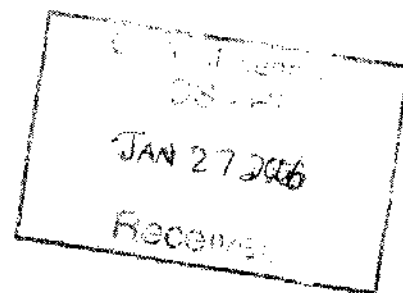


HAMLET OF ARVIAT
P.O. BOX 150
ARVIAT, NUNAVUT XOC-OEO

Phone: (867) 857-2841 Facsimile: (867) 857-2519

January 16, 2006

Mr. R. Suluk
Senior Lands Officer
Kiwalliq Region
Community Government & Services
Rankin Inlet, Nunavut
XOC OEO



Dear Sir

Re: Arviat Quarry 2005 Project

Please find enclosed the final draft presentation for the above noted project. A separate application for land use and quarry permit is enclosed for the areas Esk-2A and Esk-2B. Please let me know soonest if there are other documentations required. Thank you.

T. Kutluk
Development Officer
Hamlet of Arviat



APPLICATION FOR LAND USE PERMIT

Department of Community & Government Services

Government of Nunavut

1. APPLICANT

HAMLET OF ARVIAT

2. ADDRESS

3. ADDRESS OF HEAD OFFICE

Box 150, ARVIAT, NUNAVUT X0C 0F0

4. LOCATION AND DESCRIPTION OF OPERATION

a.) Attach a description and proposed techniques (See attachment)

b.) Attach map and sketch of area (See attachment)

5. EQUIPMENT – Type, size and purpose

LOADER, CAT, DUMP TRUCKS, FUEL TRUCK (occasionally only)

6. FUEL

a.) Type, volume, method of storage containment

HEATING OIL (DIESEL)

b.) Method of emptying and filling containers

Community Pump Supply

7. METHOD OF WASTE DISPOSAL – Arrangements planned for disposal of garbage, sanitary waste and debris.

GENERAL CLEANUP OF SMALL ITEMS

8. CONTRACTORS & FUNCTIONS

NIL

9. TIME SCHEDULE

Start: July 15, 2006

Completion: SEPT. 30, 2009

10. NAME and ADDRESS OF FIELD SUPERVISOR

JAMES TASALIK (HAMLET OF ARVIAT)

11. NO. OF EMPLOYEES

4

12. AREA USED (Hectare)

ESK-2A @ 650 metres northwest of pipeline yielding 35,557/m². ESK-2B @ 250 metres south of pipeline yielding 44,750/m²

Signature

Title

Date

[Signature]

DEVELOPMENT OFFICER

Jan. 13/06



APPLICATION FOR QUARRY PERMIT

Department of Community Government & Transportation

Government of Nunavut

Name in Full: Hamlet of Arviut

Address: Box 150, Arviut, Nunavut X0C 0E0

Occupation: DEVELOPMENT OFFICER

Does hereby apply for a quarry permit for the purpose of taking 100,000 cubic metres of COARSE SAND (type of materials) from the lands indicated on a sketch or described as follows ESK-2A AND ESK-2B INDICATED ON SKETCH ATTACHED (A)

to be used for ROAD MAINTENANCE AND LOT DEVELOPMENT

1. Is any part of the land occupied? If so, by whom and for what purpose?

NO. ROAD ACCESS CONSTRUCTED PRIOR AS PREPARATION TO EXTRACT COARSE MATERIAL SOMETIME IN 1991/2 OR 3

2. Permit fee:		\$ <u>50.00</u>
Royalties:	\$0.25 per cubic/metre	\$ <u>25,000.00</u>
Restoration fee:	\$0.50 per cubic/metre	\$ <u>50,000.00</u>
Road Maintenance fee:	\$0.50 per cubic/metre	\$ <u>50,000.00</u>
Quarry Administration fee:	\$0.50 per cubic/metre	\$ <u>50,000.00</u>

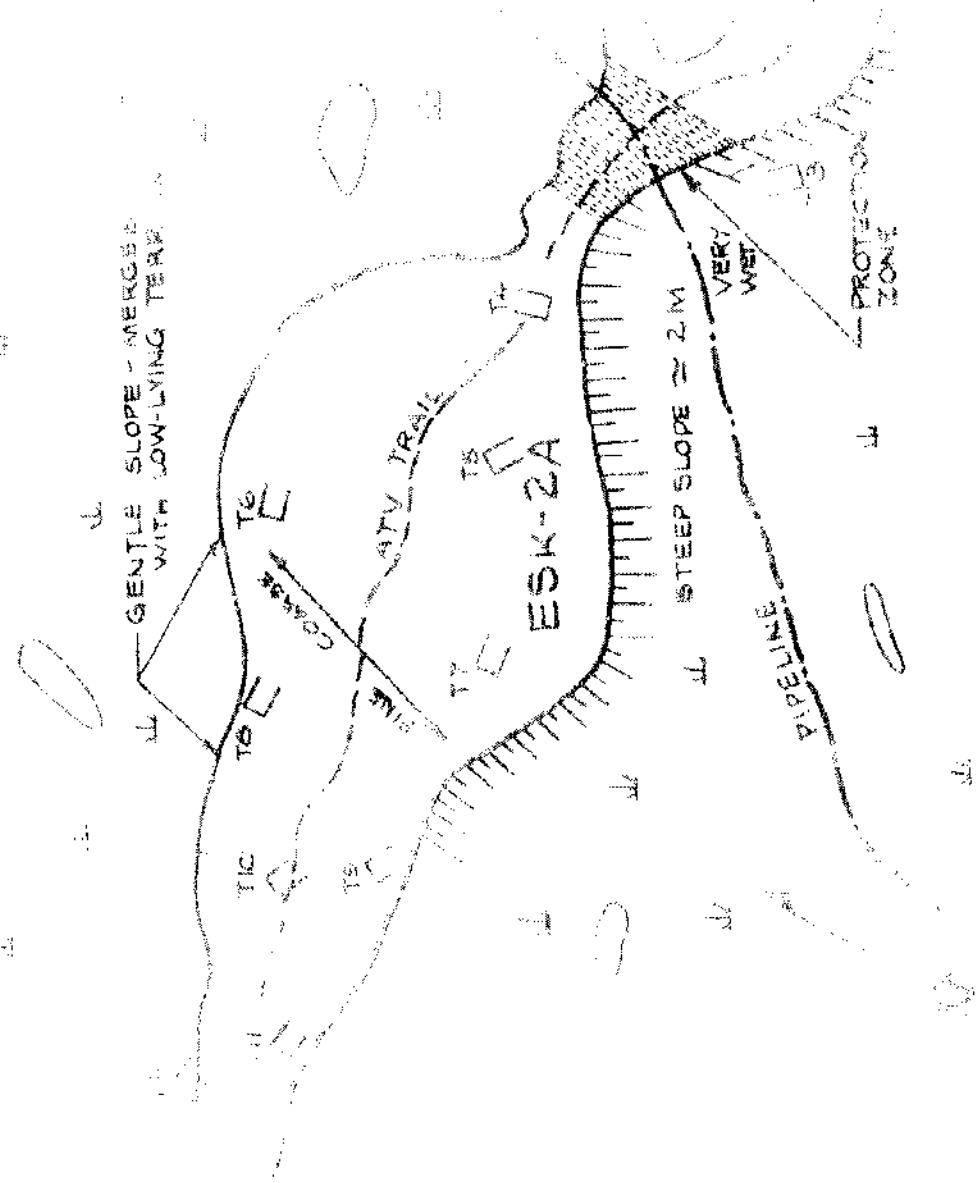
TOTAL FEES DUE \$ 175,050.00

Free permit under Section 31(2) of the Commissioner's Land Regulations

Date: Jan. 13, 2006

Signature of Applicant: [Signature]

DEVELOPMENT OFFICER



DATE	10/10/78
BY	W. J. G. / J. G. W.
SCALE	1:1000

PROPERTY RECORDS SECTION
ENGINEERING DIVISION
ESK-2 SITE PLAN
ARVIA



HAMLET OF ARVIAT
P.O. BOX 150
ARVIAT, NUNAVUT XOC-OEO

Phone: (867) 857-2841 Facsimile: (867) 857-2519

Arviat Quarry 2005 Project Proposal Narrative

Community Lands and Community Development

Presented to Hamlet of Arviat

Prepared by T. Kutluk

Community Lands Development Officer

Hamlet of Arviat

January 4, 2006



APPLICATION FOR LAND USE PERMIT

Department of Community & Government Services

Government of Nunavut

1. APPLICANT

Hamlet of Arviat

2. ADDRESS

3. ADDRESS OF HEAD OFFICE

B0X 150 ARVIAT, NUNAVUT X0C 0E0

4. LOCATION AND DESCRIPTION OF OPERATION

a.) Attach a description and proposed techniques

b.) Attach map and sketch of area

SEE NARRATIVE PROPOSAL

5. EQUIPMENT - Type, size and purpose

SEE ATTACHED ACTURES

6. FUEL

a.) Type, volume, method of storage containment

HEATING OIL (2-3000 LITRES) - DIESEL

b.) Method of emptying and filling containers

TRUCK DELIVERY

7. METHOD OF WASTE DISPOSAL - Arrangements planned for disposal of garbage, sanitary waste and debris.

GENERAL CLEAN UP OF SMALL ITEMS ON LOCATION

8. CONTRACTORS & FUNCTIONS

NONE - HAMLET PROJECT

9. TIME SCHEDULE

Start: JULY 15, 2006

Completion: SEPT 30, 2006

10. NAME and ADDRESS OF FIELD SUPERVISOR

James Tagalik - Arviat Hamlet

11. NO. OF EMPLOYEES

4

12. AREA USED (Hectare)

100,000/m² OR (247,096 Hectares)

David Banks
Signature

Development Officer
Title

Jan. 13, 2006
Date



APPLICATION FOR QUARRY PERMIT

Department of Community & Government Services

Government of Nunavut

Name in Full: HAMLET OF ARVIAT

Address: Box 150, ARVIAT, NU. X0C 0E0

Occupation: DEVELOPMENT OFFICER

Does hereby apply for a quarry permit for the purpose of taking 300,000 cubic metres of GRAVEL SUPPLY (type of materials) from the lands indicated on a sketch or described as follows FROM "MAYUARIA YUAG" LOCATED 61° 07' 00" N AND 94° 07' 00" W. NEW GRAVEL QUARRY TO BE USED AND SOLD BY ARVIAT HAMLET COUNCIL.

to be used for COMMUNITY DEVELOPMENT AS PER ARVIAT COMMUNITY PLAN SCHEDULE 2 LAND USE PLAN. AIRPORT EXTENSION AND UPGRADE, ROADS, LOTS AND GENERAL USE.

1. Is any part of the land occupied? If so, by whom and for what purpose?

PRIVATE CABINS AND SHACKS THAT ARE REMOVABLE. PRIMARILY USED AS RECREATIONAL VACATION HOMES

2. Permit fee:		\$ 50.00
Royalties:	\$0.25 per cubic/metre	\$ <u>75,000.00</u>
Restoration fee:	\$0.50 per cubic/metre	\$ <u>150,000.00</u>
Road Maintenance fee:	\$0.50 per cubic/metre	\$ <u>150,000.00</u>
Quarry Administration fee:	\$0.50 per cubic/metre	\$ <u>150,000.00</u>
TOTAL FEES DUE		\$ <u>525,050.00</u>

Free permit under Section 31(2) of the Commissioner's Land Regulations

Date: Jan. 13, 2006

Signature of Applicant: [Signature]

DEVELOPMENT OFFICER

December 9, 2005

File # 601-Quarry-2005

K. Tunaley
Technical Advisor
Nunavut Impact Review Board
Box 1360
Cambridge Bay, Nunavut
XOB OCO

Arviat Quarry 2005 Project

1 & 2 SUBMISSION AND PROPOSED PROJECT

1. The Project Name is Arviat Quarry 2005 Project located in the municipality of Arviat in Nunavut.

2. Principle Contact is: Thomas Kutluk
Lands & Development Officer
Hamlet of Arviat, Nunavut
XOC OEO
Ph. 867/857-2566
Fx. 867/857-2519
E-Mail: arviatlands@qiniq.com.

Secondary Contact: James Tagalik
Public Works Foreman
Hamlet of Arviat, Nunavut
XOC OEO
Ph. 867/857-2503
Fx. 867/857-2520
E-Mail: p_works@qiniq.com

3. List of Acts, Regulations and Guidelines that apply to the project are Commissioner's Land Act, Nunavut Land Claims Agreement, Nunavut Impact Review Board, Community Government & Services and Hamlet of Arviat.

4. Hamlet of Arviat approval motion number is 250-05. A written indication of the authorizations associated with the Project Proposal from Community Government & Services of the Government of Nunavut is attached as Attachment (1). Other relevant permits and licenses with specific dates will be provided at a later date as necessary.

5. The location of the site identified as "Mayuarria'yuaq" is located at 61 Degrees 07 Minutes and 00 Seconds North, 94 Degrees 07 Minutes and 00 Seconds West as shown on map produced by Canada Centre for Mapping, Department of Energy, Mines and Resources. Map Arviat 55 East Edition 3, Scale 1:250,000 which is provided with this

project proposal as Attachment (2). There is little historical significance other than some cabins are located along this ridge and an adjacent spring run-off water that is collected by some of the residents of Arviat every spring during the month of June. It is important to note that this area is practically one of a very few potential areas for a new community quarry site. If this area is rejected alternate sites are more eskers and ridges with far more traditional, environmental and cultural significance and serve as navigational landmarks. Photographs of "Mayuarria'yuaq" are presently not available but can be provided early next summer.

6. As already mentioned an Arviat 55 East, Edition 3 with the area identified in red lined colour is the Arviat Municipal Boundary. The project area is identified in black lines inside a rectangle.

7. There are no existing infrastructures in this area. There is a fair sized, although non-navigable water body, sometimes used as a landing lake for float planes. The quarry area will be more than 450 metres away from the landing lake. Like any other fair size lake this body of water, approximately north west of the proposed quarry area, is frequented by water fowl during the summer nesting season.

✓ 8. The Arviat Quarry 2005 Project is a second attempt to open a new gravel quarry site. It is imperative that a new quarry site be opened this summer given that the old site is depleted and the community is growing rapidly with more and more demand for good stable gravel supply. The life of the first quarry site just south of the community was used for about 30 years. The estimated life use for the proposed new quarry is 15 years based on the rate of the growth of the community and quantity to be used over the 15 years. More and more land assembly projects using gravel, including roads is being planned over the next 20 years based on our community growth and population forecasts. The population of Arviat is well past 2,000 and of these approximately 100 families still do not have housing. The community will not stop growing and without a new quarry site it will be most difficult to supply the need for gravel with 6 new subdivision phases still to fill requiring thousands of cubic metres of gravel.

✓ The need for a new gravel site is absolutely necessary, particularly, a site that is farther away from the community and within driving distance for gravel hauling. The area within the municipality of Arviat is very different from other communities in the Kiwalliq region. It consists mostly of muskeg, sand, pebbles, rocks, boulders, and slow sinking cement-like bog and the only way to construct, prepare and maintain this area is by placing enormous amount of gravel. Once placed, the gravel is allowed to settle and sink before actual building pads can be placed on top of the gravel fill. The word "gravel" is used symbolically as there is practically no such thing around Arviat that we can call "gravel". There is no gravel crushing apparatus in Arviat and to get that done a contractor has to be flown into Arviat to crush proper gravel. This becomes very expensive (anywhere from Eight Hundred Thousand Dollars to a Million Dollars). There is a screener that only separates certain grades of rocks, pebbles and sand which is used for road maintenance or cement preparation. All the house pads are built using sand, rocks

and boulders as this granular material is all that is available in Arviat and the surrounding areas.

✓ The Hamlet of Arviat is very concerned that if we do not have a new quarry site opened this summer of 2006 local private contractors will not be able to meet their quota for land assembly projects and housing will be delayed for years resulting in more families deprived of available housing and longer delays in house construction projects. Private gravel hauling contractors provide anywhere from 6 to 12 employment opportunities during the summer months. As well, private building contractors depend on gravel being readily available and provided for them to proceed and continue with building houses and other buildings necessary for the continued growth of the community. All new roads and lots require gravel in order for houses to be built and essential vehicles to be used for servicing local residents with water, sewer, and garbage pickup. If a new gravel quarry site is not approved and not ready for use next summer of 2006 houses and lands will not be built or constructed. There are no other suitable sites around Arviat as all other possible alternate sites are mostly sand and muskeg. We have already experienced enough undue delays due to engineers rejecting possible quarry sites as being too sandy that were selected by the Hamlet Council in the past. The Hamlet Council of Arviat by virtue of having being elected by the residents of the community do not want to anticipate any more delays with respect to acquiring a new gravel quarry supply due to engineers rejecting sites when all other potential alternate sites are no better.

✓ In the Community 5 Year Capital Plan a rehabilitation of airside surfaces of the existing runway is planned for 2008/09 year which will require more finely tuned gravel fill. Further, a feasibility study was prepared by Accutech Engineering Inc. of Winnipeg, Manitoba in August 01, 2003 to extend the existing runway by 1,700 feet if the Boeing 737-200 or similar aircrafts are going to be expected to service Arviat, both for passengers and cargo operations. The residents of Arviat will, no doubt, demand this type of aircraft service. In this feasibility study, Accutech Engineering estimate over 83,700/ m³ of crushed gravel will be required for the extension plus an additional 60,812/ m³ of crushed gravel for the re-grading of the existing runway. More gravel will be required to fill ponds and new roads that are diverted in the process. This reality poses a tremendous demand for real gravel that this proposal does not even address, which means denial of this application will create such an immediate need for gravel supply for long term major projects being planned now that it will not be possible to service the community of Arviat with an essential commodity if this application is rejected. Accutech Engineers have already determined that the present gravel supply was depleted in 2001 and another gravel source farther away from the airport will be necessary if the runway upgrade and extension is to be completed in 2009.

The Nunavut Planning Commission conducted an Arviat Higjaa Mapping Project headed by Luke Suluk during the summer of August 2004 under Permit No. 04-023A. In his report Mr. Suluk recognized a need to conduct this survey in order to protect archaeological sites from development. His resurvey encompasses the coastal areas of the immediate northern shoreline where "Mayuarria'yuaq" is located. He mentions a gravel road that was being constructed at the time of his survey that runs across

"Mayuarria'yuaq". Mr. Suluk, who possesses acute knowledge and information related to lands, archaeology, culturally sensitive sites, and the public use of the land did not indicate his concern that the present proposed gravel site area is or was regarded as an area that should be protected from development. Although Mr. Suluk expressed strongly the need for more mapping and that the coastal areas are connected to the oral history of Arviat and the Paalirmiut, he did not condemn the gravel road construction where much of the gravel was used in the same vicinity of the present proposed site. "Mayuarria'yuaq" is not mentioned at all in his narration.

On page 49 of the Keewatin Regional Land Use Plan prepared by Nunavut Planning Commission that received ministerial approval March 16, 1995 future community development is recognized. Specifically, the report says, 'The plan must consider future community development. Although many of the Keewatin community boundaries have been enlarged recently, some areas that may become important for expansion or development may still be within the jurisdiction of the regional plan, for example, sites needed for garbage dumps, airstrips or fuel storage. Access to a supply of gravel is a major problem in some communities. Communities are concerned that gravel sites should be identified and conserved for community use.' Arviat Council Motion Number 250-05 includes an alternate gravel supply site around the area of what is known as "Angak'taaryuaq" which is practically adjacent to the present proposed area identified as "Mayuar'riayuaq". It would be prudent to include "Angak'taaryuaq" if there is any soil testing to be done by the engineers. The engineers should be instructed to soil test this area too this summer so that future development is addressed at the same time. This would fulfill the mandate of the Keewatin Regional Land Use Plan.

- ✓ A geotechnical evaluation of a proposed community granular source for Arviat was conducted September 10 to 14th of 1993 by EBA Engineering Consultants Ltd. of Yellowknife, N.W.T. (Site Investigation for Proposed Community Granular Source – Arviat, N.W.T. prepared by Technical Services Division, Department of Public Works and Services; Government of the N.W.T. Granular Program). In 1992 the Planning & Lands Administrator of the Hamlet of Arviat contacted the Community Granular Revolving Fund Program for assistance to locate and evaluate an alternative community granular source which mobilized the CGRFP Coordinators to conduct an investigation under their mandate to aid non-taxed based communities to manage and develop their own community based granular resources. The existing source at the time was near depletion and the planned airstrip resurfacing project scheduled for the summer of 1993 would definitely exhaust existing granular reserves. These concerns were again voiced by community leaders in early June 1993 just before the resurfacing project was implemented. A full phase air photo interpretation and terrain analysis of the study area was completed in March 1993 to identify and locate possible granular sources. In late June 1993 a field reconnaissance and terrain analysis to identify and evaluate these granular sources was completed. Distance from the community, lack of suitable access, limited volumes and/or poor material quality eliminated most of the identified sources. The existing source near in depletion in 1992 located east side of the runway was identified as **Esk-1**; the proposed granular source which is part of the same esker was referred to as **Esk-2** which is on the west side of the runway. A third granular source

identified as **Esk-2A** is the first 20 metres of the north side of the water supply pipeline to Wolf Creek. A fourth granular source identified as **Esk-2B** is the first 20 metres from the pipeline on the south side of the pipeline. There is a small lake southeast end of Esk-2 where development is not to take place within 30 metres around the lake (See: attachment 3&4).

Granular borrow from **Esk-2** was approved for embankment and general fill construction and possibly sub-base for roads. Selective sites within the source area was approved as material suitable for screening for the production of select grade material. These select areas are mostly found south of the water pipeline within **Esk-2B**. Screening and washing required to obtain material suitable for concrete aggregate. **Esk-2A** extends about 650 metres northwest of the pipeline yielding 35,557/m³ of TP-1 to TP-11 while **Esk-2B** extends about 250 metres south of the pipeline to the very southeast terminus of the source. This area is the widest and the thickest on portions of the granular deposit yielding about 45,757/m³ of all grades. It is to be noticed that this is a conservative estimate as an average depth of 1.5 metres was used due to the permafrost. However, the thickness of the deposit averaged 2-3 metres above the surrounding terrain especially in the first 200 metres of the source, after which deposit thickness decreases substantially over the length and width of the source. With proper contouring, stripping and thawing techniques and an orderly and efficient extraction of material, the prospective volumes should be much higher.

The areas identified as **Esk-1** and **Esk-2** are used up since then, but **Esk-2A** and **Esk-2B** are still available as existing approved granular sources which have not been touched as yet. Also a suitable road access has been built so that **Esk-2A** and **Esk-2B** can be easily accessible. Specific instructions and recommendations were put forward by EBA Consultants where and how to extract the granular source from these areas. For purposes of this proposal only areas **Esk-2A** and **Esk-2B** are of immediate concern as these two areas are still unused and available. On page 8 - 10 of the report it says: '**North of the pipeline, material composition varies considerably east to west across the width of the deposit. Coarser material is found on the eastern slope and decreases to 90% sand at the western perimeter of Esk-2A. In terms of pit layout and general design north of the pipeline, it is recommended that development should proceed from the lower eastern slope of the deposit towards the steeper western slopes along the length of the deposit, if coarser material is required. Development of Esk-2B should begin at the very steep southwestern boundary of the deposit. Material extraction should occur in a northwestern direction towards the small lake and the water pipeline. To limit the amount of land to be disturbed in this portion of the deposit, so as to protect the pipeline and adjacent recreation area, proper staking and flagging of the development boundary to contain work activities should be a first priority before any extraction occurs...The entire source is situated within municipal boundaries and will eventually be turned over to the Hamlet under the TFN claim agreement; thus, management and site restoration work should be the responsibility of the Hamlet. Environmental Guidelines for Pit and Quarries prepared by DIAND should be used as a standard for all pit reclamation work by users**'.

Talking with Nick Arnaalugyuaq, who was the Lands Administrator at the time of the report who also is mentioned as the initiator and participant of the report disclosed the reasons why these areas (Esk-2A and Esk-2B) were not utilized. The reason being a small group of cabin owners objected to the use of the general area of the esker for gravel supply. Eventually these cabin owners consented to allow development to take place if the Hamlet would move their cabins to nearby areas far enough from the development area. Since then some of these cabin owners have passed away and the others no longer use the esker area for recreational purposes. Further, there is an area close to the approved sites that is designated as park area but is not used. A question arises at this point why the approved areas **Esk-2A and Esk-2B** have not been used at all as quarry gravel supply. Recommendation is put forward then that these two areas be used the summer of 2006 until the current proposal for "Mayuarria'yuaq" and the alternate area known as "Angaktaar'yuaq" are approved.

9. There are no alternatives to this current project proposal at the present time that are of better quality or quantity that would be considered "gravel" quarry sites during the life of this project proposal. Possible alternate sites are either too far or are no better in quality than the present proposal being submitted.

10. The initial construction of the quarry site will not involve pitting or quarrying . Once approval is granted then pitting and quarrying will be one of the normal operations. There will not be a campsite during construction as the area is close to Arviat. There will be no road construction nor will a winter road be necessary as there is already an accessible road to the area. Fuel transport will be provided by using a mobile fuel truck and there will not be any fuel tanks or fuel containers at the site. Explosives or chemicals will not be used. There will not be any blasting, crushing or washing. Stockpiling will be done once gravel site is operational using a screener to stockpile variable granular grades of sand, rocks and pebbles. Gravel crushing operators are non existent. For further details refer to attachment (5).

11. It is anticipated that Department of Fisheries and Oceans will not be involved as bridge maintenance, clear span bridges, culvert maintenance, ice bridges nor routine maintenance dredging will not be necessary.

12. Department of Fisheries and Oceans Operational Statement will not apply.

13. It is anticipated that preliminary preparations to commence removal of topsoil to be placed outside the actual quarry site so that it can be placed back into the restoration area in June of 2016. Some gravel and sand will be placed on top of the removed topsoil to prevent it from being misplaced or blown away by strong winds. This removed topsoil will be marked as RESTORATION MATERIAL – YEAR 2016. And construction of the gravel quarry site will begin July 15, 2006 beginning with creating some form of a perimeter which will be established using built up piling of boulders and stones in order to prevent excess use outside the quarry boundary and to control traffic and extraction. One entrance right of way and one exit right of way will be created to control traffic and

gravel hauling. By the end of July 2006 several compartments will be identified and designated as spots where screened graded granular material will be placed.

14. Prior field investigation and inspection was done last summer of 2005 with the Chief Archaeologist of the Government of Nunavut and the area known as "Mayuaria'yuaq" was selected by the Community Lands Administrator as approved by Hamlet Council Motion # 250-05. Soil sample testing may have been done in the past by the Municipal Engineers from Community Government and Services. This will be confirmed at a later date.

15. The conceptual design is attached as attachment (6). The map Arviat 55E Edition 3 identifies the selected area and item 13 above describes the design that is easy to understand. A site plan is enclosed using a copy of the current Zoning Map 3 of Arviat as attachment (7).

✓ 16. It is anticipated that well over 250,000 cubic metres will be extracted from this new site area.

17. The depth of overburden being 8-12 inches.

18. There is no existing nor potential for thermokarst development. Thermokarst prevention measures will not be necessary.

19. Where necessary adequate ditching will be used in areas where there may be potential for flooding.

20. There is no existing or potential for erosion.

21. There is no existing or potential for slumping.

22. The moisture content of the ground is normal for an area subject to all weather conditions.

23. There is no evidence of ice lenses.

24. Blasting will not be done.

25. There is no and will not be Acid Rock Drainage and Metal Leaching.

26. Safety measures are determined by complying with Workman's Compensation Board and there is no concern for public safety other than normal traffic in the area.

27. See: Zoning Map 3 under Item # 15.

28. At the most .02 to .05 inches and sand will be stock piled. The overburden will be put aside as indicated and described in Item # 13.

29. Each stock pile will be an estimated 20 to 40 thousand cubic metres.
30. Methods used to determine Acid Rock Drainage. Same as Item # 25.
31. The site is accessible by all types of vehicles and supplies will be brought to the site in this way. The road to be used for this purpose is shaded in red colour. See attachment (8).
32. There is no need for a camp site.
33. There is no need for a camp site.
34. 3-5 number of people is expected on the site each day during construction and at least 2 during normal operations.
35. There is no need for any source of power other than possibly a propane stove to make tea or coffee.
36. The equipment to be used is as follows;
- * Caterpillar (to place perimeter consisting of boulders and rocks; to remove topsoil, stock piling).
 - * Front End Loader (to place extra boulders and rocks around the perimeter, stock piling, loading dump trucks for transporting gravel for community use).
 - * Dump Truck (to transport gravel for community use).
 - * Mobile Fuel Truck (to refuel equipment)
 - * ¾ Ton Truck (to transport groceries and supplies)
37. Digital Photos(not)provided as attachment.
38. There is no water source.
39. Rate of water consumption is not available. No water source.
40. Water intake is not applicable. No water source.
41. If necessary, ditch diversion will be used.
42. There will be no sewage, camp grey water, combustible solid waste, non-combustible solid waste, bulky items, scrap metal, waste oil, hazardous waste, empty barrels or fuel drums.
43. There will be no fuel containers as a mobile fuel truck will be used.
44. Secondary containment measures will not be necessary. Same as Item # 43.

45. A description of a method of fuel transfer will not be necessary. Same as Item # 43.
46. There will be no chemicals or hazardous materials used.
47. Secondary containment measures will not be necessary. Same as Item # 46.
48. There will be no need for chemical transfers. Same as Item # 46
49. There will be no explosives used.
50. The public is often notified through public notices posted in public places or buildings that are frequented by the general public. Local radio is also used to notify the general public of Council decisions and impending construction activities of an unusual nature. Since the proposed area is presently used for recreational cabins and a spring run-off water supply used by some residents, the municipality will move these cabins to nearby locations so that residents of Arviat will continue to enjoy summer vacationing and drying fish or caribou. The residents are concerned for availability of housing and understand the immediate need for a new gravel quarry supply.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT

The physical environment of the location of the proposed site is a typical northern climate oriented eco-system. It is approximately three kilometers from a nearby landing lake that is sometimes used by float planes. The immediate shoreline area on the south perimeter of the lake is a community park area. However, this area is rarely used as a recreational parks area as it is far from the community and not practical for its intended use or for picnic use. The north east perimeter of the lake has been used for a traditional camping site and for cultural activities such as Canada Day in the past but, again, because of the substantial distance from the community it has never been used again.

This area is mostly sand with some small vegetation. Along the ridges there is a small amount of gravel-like stones falling off to the sloping conditions. The community road cuts across the ridge or esker but will be maintained as a public road after the preparatory removal of the topsoil and the construction of the built-up perimeter as described in Item # 13 is completed. There is no evidence of disturbance to the natural wetlands, landscapes, eskers, sand, marshes or vegetation. This condition will not be disturbed. There is no evidence of ground slope or rock instability or seismic activity. Seismic activity is very rare in the arctic. It occurs when the ground cracks as a result of the ground being unstable due to movement of the permafrost or ground drifting. Thermokarst activity is also very rare. This is caused by the permafrost melting. Thermokarst refers to a pitted land surface that forms as permafrost melts. This typically occurs following removal of vegetation, which serves as an important insulator. Once the topsoil is removed the quarry material will be shifted and stock piled which means that there will not be any time allowed for the permafrost to melt as it will be disturbed in the process. Arviat is surrounded by eskers that are the most suitable for seemingly a form of

gravel supply because normally soft peat or moss of gray silt-like followed by a clay-like material in eskers is absent. Therefore, the proposed "Mayuarria'yuaq" area is ideal for gravel supply.

Arviat is not known for bedrocks and there is no evidence of bedrock underneath the area to be disturbed. The topographic nature of the area is typically sand, pebbles and rocks with moss-like vegetation in the lower plains that can be easily removed. The top surfaces of the ridge proposed quarry area is weather beaten consisting of pebbles and sand. Permafrost conditions are normal and stable; depth, thickness, continuity, taliks, sediment and soil quality are unknown. However, referring to a Nunavut Water Board licensing process May 27, 2003; Hamlet of Arviat License # NWB4ARV0406 Type "B", the Nunavut Water Board included in its' background information of the community of Arviat that the permafrost is continuous, extending to depths from 30 metres to over 100 metres. The immediate area is away from watershed boundaries, lakes, streams, sediment geochemistry, surface water flow, groundwater flow, and flood zones. Tidal processes and bathymetry is not an issue in the project area. Water quality, quantity, air quality, climate conditions, noise level or any other valued ecosystem component are not issues of great concern. Community consultation is ongoing with respect to these issues where relevant concerns may occur. There is very little literature review other than in general terms respecting the immediate area to be used.

Vegetation consists of limited topsoil growth, berries, lichens, and moss-like vegetation. Occasionally, caribou, rabbits, ground squirrels, birds and other water fowl are seen in the area. This is not considered to be of great concern. The area is generally not considered to be overly inhabited by wildlife whether migratory, aquatic, spawning, nesting or unusual species. This area is not considered to be an archaeological site nor has it been used as a traditional camping site of a long term nature. There is no known discovery of soapstone or minerals considered to be of any significant value. Resource development in the area of tourism, subsistence harvesting, trapping or guiding operations is non-existent. Local traffic is limited to using an all weather gravel road that is maintained by the Hamlet of Arviat during the summer months. Inuit people have always been sensitive to any possibility of disturbing the land surrounding the municipality of Arviat. However, a need for gravel quarry supply in order for the community to grow is very easily accepted by the general public.

4. IDENTIFICATION OF IMPACTS

1. See: Table 1 Identification of Environmental Impacts.
2. The nature of the proposed project poses very little concern for environmental impacts.
3. The nature of the proposed project poses very little concern for socioeconomic impacts.
4. The nature of the proposed project poses no impact of a transboundary nature.

5. MITIGATION OF IMPACTS

1. To ensure any further possibility of negatively impacting the erosion of environment, socioeconomic, and transboundary effects, the activity of preparation, construction and quarrying operations will be closely supervised and specific controls will be placed to limit heavy equipment operations and restrict them to the immediate proposed quarry area activity. Traffic created by the general public will be diverted away from the quarrying area and will be restricted to public roads only. Existing cabins will be moved to surrounding areas chosen by the cabin owners at the municipality's expense within a 450 metres setback.

6. CUMULATIVE EFFECTS

1. Cumulative effects are not anticipated.

7. SUPPORTING DOCUMENTS

1. Abandonment and decommissioning will involve restoring the area to its' original state as much as possible. The topsoil previously set aside to the east end of the ridge away from traffic will be reset on the contours of the restored site. The nature of the project does not require any emergency response in place nor is there need for a spill contingency plan. The community Lands Administrator will monitor the project from start to completion and will continue to monitor all activities and operations to ensure specific phases are carried out consistent with the scope of work, taking care to fulfill all the conditions and procedures put in place and to ensure they are followed. During the general operation of the quarry a Quarry Administration Agreement with the Government of Nunavut will be utilized to its' fullest capacity.

8. ATTACHEMENTS

- (1). Authorization from Community Government and Services, Government of Nunavut.
- (2). Map Arviat 55E. Edition 3.
- (3). Esk-1 and Esk-2
- (4). Esk-2A and Esk-2B.
- (5). Table 1-Identification of Environmental Impacts. This form is attached but not filled out as per discussions with C. Inglis, Technical Advisor, NIRB. The requirements for this form are answered in the different sections relevant to each category in this proposal.
- (6). Conceptual Design.
- (7). Arviat Map 55E. Edition 3
- (8). Road to be used

9. CONCLUSION

- ✓ "Mayauria'yuaq" is approved by Arviat Hamlet Council as the current proposed quarry gravel site with "Angaktaar'yuaq" as the alternate site for future quarry development by Motion No. 250-05. Approval is solicited to use Esk-2A and Esk-2B as present supply to be used the summer of 2006 temporarily until the current proposal for "Mayauria'yuaq" is approved for use.

GLOSSARY

Acid Rock Drainage – When rock containing common iron-sulphur minerals pyrite (lustrous yellow mineral that is a sulphide of iron) is exposed to water and air and run-off water may have acid in it.

Bathymetry – Marine Geophysical and Oceanographic surveying.

Dredging – Removal of mud from the bottom of water bodies using a scooping machine.

Geochemistry – The study of the chemical composition of the earth in terms of physiochemical and geological process and principles that produce and modify minerals and rocks.

Hydrology – The science of the physical and chemical properties, distribution, and circulation of water.

Ice Lens – (Frost heave) When water below the surface freezes and expands.

Limnology – A scientific study of fresh water with emphasis on plant and animal life.

Metal Leaching – When heavy metals are released into the environment, (usually from mining process).

Pingos – Pingos are formed in the open tundra of continuous permafrost zones and grows without the addition of further water from an outside source.

Pitting – Localized erosion when surface material has been disturbed.

Taliks – Unfrozen zones that occur beneath lakes and rivers.

Transboundary Issues – When a project or activity may have effects for more than one jurisdiction or territory.

Valued Ecosystem Components – Parts of the local environment valued because of their ecological, scientific, cultural, socio-economic or aesthetic importance.



December 12 2005

Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, Nunavut
X0B 0C0
ATTN: Karlette Tunaley- Technical Advisor

RE: New quarry- Hamlet of Arviat

Dear Karlette,

The Department of Community & Government Services lands division is responsible for the administration of the untitled municipal lands. Our office is aware of this project proposal and providing guidance to the hamlet to ensure the project is reviewed and approved by Nunavut Impact Review Board and other environmental agencies that may be involved.

This letter is a confirmation from our department that this project proposal is approved and supported by our office. Once all the approvals are received from your office, the hamlet will be issued a land use permit.

If you have any questions or comments, please don't hesitate to contact myself. Thank you.

Sincerely,

Ronnie Suluk
Lands Administrative Officer
Kivalliq Region

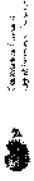
c.c. Thomas Kulluk- Community Lands Administrator
Hamlet of Arviat

PROVINCIAL JOURNAL

PC 1984-1764

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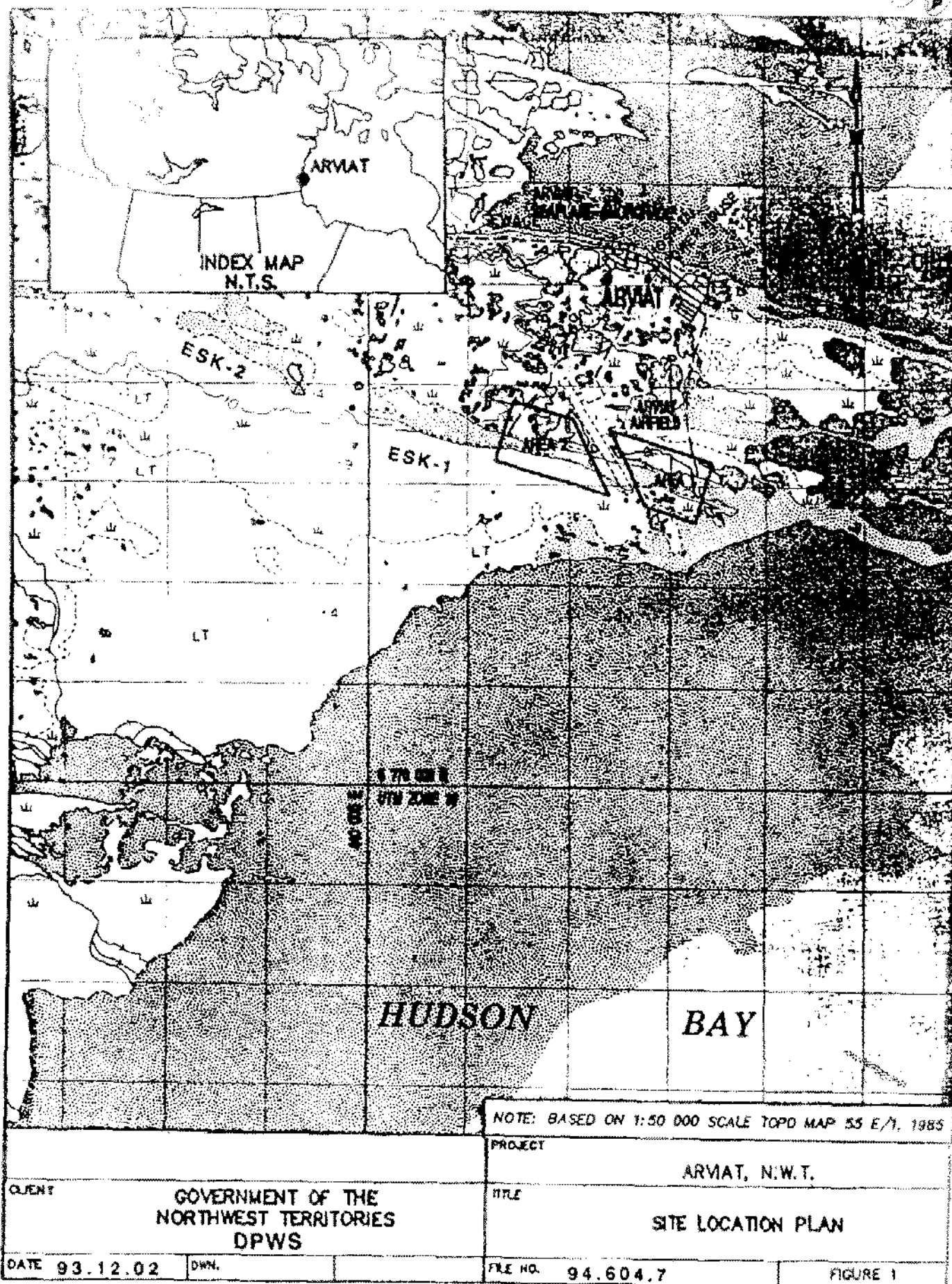
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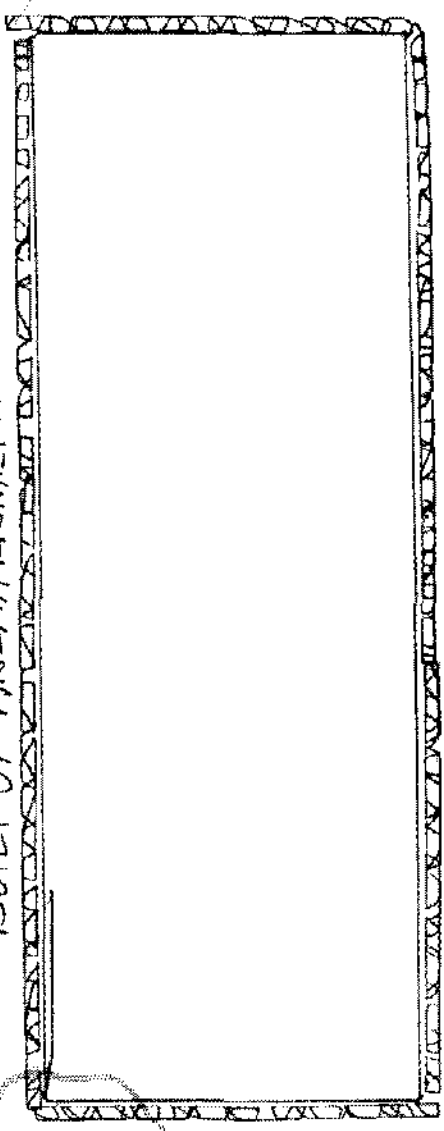
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U	Unattractive		

If no impact is expected then please leave the cell blank

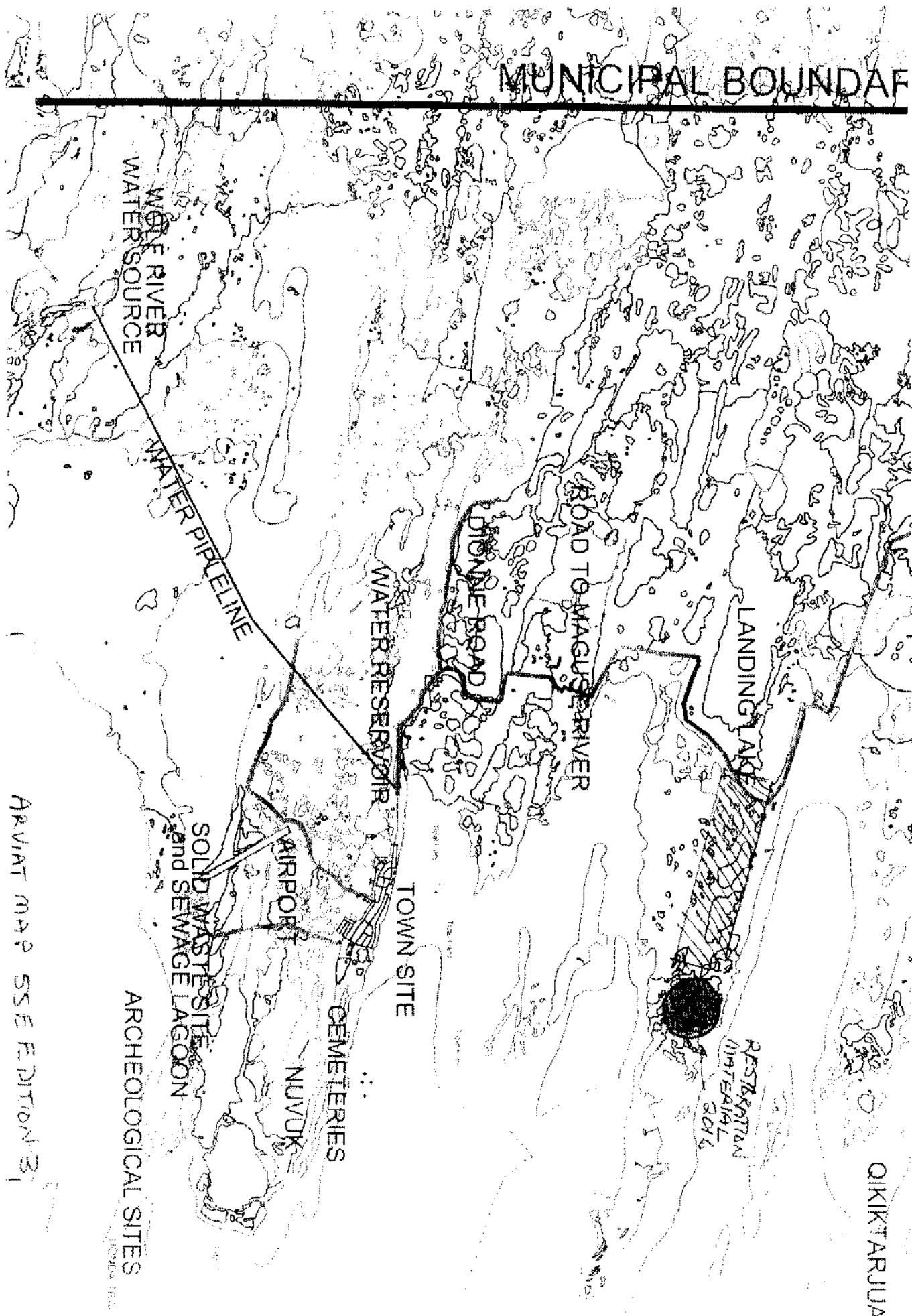
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CHINESE
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MUNICIPAL BOUNDARY



ARVIAT MAP SSE EDITION 31

MUNICIPAL BOUNDARY

WOLF RIVER
WATER SOURCE

WATER PIPELINE

WATER RESERVOIR

DONNE ROAD

ROAD TO MAGUSE RIVER

LANDING AREA

AIRPORT

SOLID WASTE SITE
and SEWAGE LAGOON

TOWN SITE

CEMETERIES

NUVUK

ARCHEOLOGICAL SITES

RESTORATION
MATERIALS

QIKIKTARJUA

PLANNING MAP 55E EDITION 3



HAMLET OF ARVIAT

P.O. BOX 150
ARVIAT, NUNAVUT XOC-OEO

Phone: (867) 857-2841 Facsimile: (867) 857-2519

December 5, 2005

Nunavut Impact Review Board
P.O. Box 2379
Cambridge Bay, Nunavut
X0B 0C0

RE: Summary of Project: Arviat Quarry 2005 Project

To Whom It May Concern:

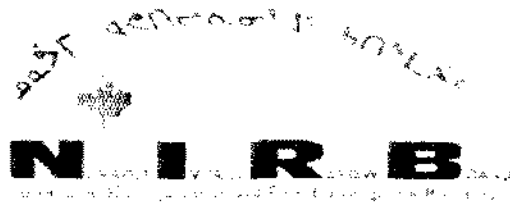
The Hamlet of Arviat is proposing to open up a new gravel quarry site. Presently, the existing quarry site has depleted. The area of the new proposed gravel quarry site is located NN/E of the community as indicated on item # 7 of the Screening Part 1 Form re: co-ordinates. There will be no need to construct new access roads as there is already an existing access road to the new gravel site proposed.

The project will be carried out according to normally accepted procedures set down by Nunavut Impact Review Board and any other organization, governments, and agencies including the stakeholders. The top-soil will be removed only after close inspection of the area taking care to look for any archaeological sites that may be there. Any historical or cultural evidence will be taken into account to ensure the local residents of Arviat have an input into the opening of the new quarry site.

It is very important that this project must be started immediately in order to have immediate access and gravel supply by the end of July, 2006. Your prompt attention and early start up of the process would be much appreciated.

If you have further questions, please contact me. Thank you.

P. Kutluk
Lands & Development



SCREENING PART 1 FORM PROJECT PROPOSAL SUMMARY

For more information about the Nunavut Impact Review Board (NIRB) please visit our web site <http://nirb.nunavut.ca/> or to access NIRB documents, project screenings, and project reviews please visit the Nunavut Impact Review Board flip site <http://flip.nunavut.ca/nirb/>.

IMPORTANT

Please be advised that your application will not be processed until the following sections 1 - 6 are completed in full in English and Inuktitut (+ Inuinnaqtun, if in the Kitikmeot). Translated versions of this form in Inuktitut and Inuinnaqtun are available from NIRB's flip site at <http://flip.nunavut.ca/nirb/>.

SECTION 1: APPLICANT INFORMATION

1. a) Project Number

Please indicate if applicant has submitted any previous application(s) to NIRB related to this project proposal? Yes ☐ No ☒

If yes, please indicate the previous NIRB project number(s): _____

1. b) Project Name ARVIAT QUARRY 2005 PROJECT

Applicant's full name and mailing address:

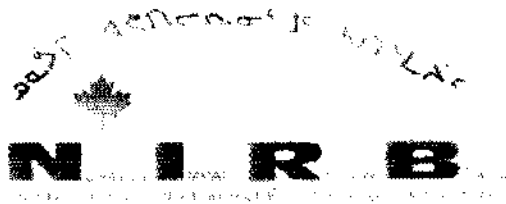
HAMLET OF ARVIAT
Box 150
ARVIAT, NUNAVUT
X0C 0E0

Fax: 867/857-2519
Phone: 867/857-2841
Email: arviatlands@ginig.com

3. Primary contact's full name and mailing address:

THOMAS KUTLUK
LANDS & DEVELOPMENT
Box 150
ARVIAT, NUNAVUT
X0C 0E0

Fax: 867/857-2519
Phone: 867/857-2841 OR 2566
Email: arviatlands@ginig.com



1. Secondary contact's full name and mailing address:

James Tagalik
Community Works Foreman
Box 150
Hamlet of Arviat
XCC 0K0

Fax: 867/857-2520
Phone: 867/857-2503
Email: p-works@qinig.com

SECTION 2: AUTHORIZATION NEEDED

1. Indicate all authorizations associated with the project proposal:

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> | Regional Inuit Association (RIA) |
| <input type="checkbox"/> | Nunavut Water Board (NWB) |
| <input checked="" type="checkbox"/> | Nunavut Planning Commission (NPC) |
| <input type="checkbox"/> | Department of Indian And Northern Development (DIAND) |
| <input type="checkbox"/> | Department of Fisheries and Oceans (DFO) |
| <input checked="" type="checkbox"/> | Community Government & Services (CG&S) |
| <input type="checkbox"/> | Nunavut Research Institute (NRI) |
| <input checked="" type="checkbox"/> | Hamlet |
| <input type="checkbox"/> | Canadian Launch Safety (CLS) |
| <input type="checkbox"/> | Environment Canada (EC) |
| <input type="checkbox"/> | Government of Nunavut (GN) |
| <input type="checkbox"/> | Department of National Defense (DND) |
| <input type="checkbox"/> | Department of Culture, Language, Elders, and Youths (CLEY) |
| <input type="checkbox"/> | Parks Canada (PC) |
| <input checked="" type="checkbox"/> | Other (please specify): NIRB |

2. List the active permits, licences, or other rights related to the project and their expiry date:

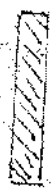
NIL

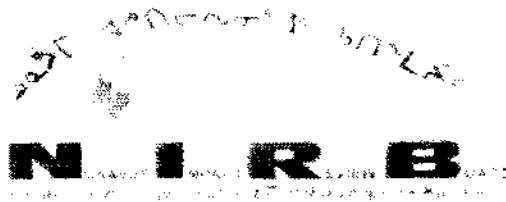
Transmittal

EX-1111

BASE D

DO NOT WRITE IN THESE SPACES





4. Timing

Period of operation:

Proposed term of permit:

June 30, 2005

to

June 30, 2015

June 30, 2005

to

June 30, 2015

Please outline the phases of the proposed project (construction/ operation/ decommissioning) including the timing and scheduling of each phase. 1ST YEAR CONSTRUCTION THE NEXT 9 YEARS WILL BE OPERATION. DECOMMISSIONING JUNE 30, 2016

5. Region (check all that apply):

☐ Baffin

☒ Kivalliq

☐ Kitikmeot

☐ Transboundary:

6. Land Status (check all that apply):

☐ Crown

☐ Commissioners'

☒

MUNICIPALITY
Inuit Owned Surface lands

☐

Inuit Owned Sub-Surface Lands

7. Co-ordinates:

Min Lat (degree/minute)

61° 07'

Min Long (degree/minute)

94° 06'

Max Lat (degree/minute)

61° 07'

Max Long (degree/minute)

94° 06'

NTS Map Sheet No:

Please ensure that maps of the project are attached (1:50,000 if available, 1:250,000 Mandatory) available from Natural Resources Canada

If the project proposal includes a camp, please provide the coordinates of the camp location

Min Lat (degree/minute)

Min Long (degree/minute)

Max Lat (degree/minute)

Max Long (degree/minute)

If different from above for the camp:

NTS Map Sheet No:

Please ensure that maps of the camp are attached (1:50,000 if available, 1:250,000 Mandatory) available from Natural Resources Canada

8. Non-Technical Project Proposal Summary

Please include a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

- The project activities, their necessity and duration;
- Method of transportation;
- Any structures that will be erected (permanent/ temporary);
- Alternatives considered; and
- Long-term developments, the projected outcome of the development for the area and its timeline.



SECTION 4: MATERIAL USE

1. List equipment (including drills, pumps, aircrafts, etc.):

Equipment type and number	Size - dimensions	Proposed use
BULLDOZER		REMOVAL OF TOP SOIL
FRONT END LOADER		QUARRY (REMOVAL OF EXTRACT)
DUMP TRUCK		GRAVEL HALL

2. Detail fuel and hazardous material use:

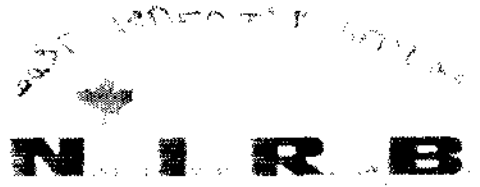
Fuels	Number of Containers	Capacity of containers (gal & litre)
• Diesel		
• Gasoline		
• Aviation fuel		
• Propane		
• Other		
Hazardous material (please specify)		REFUEL IN TOWN OR DELIVER BY FUEL TRUCK
•		
•		
•		

SECTION 5: WASTE DISPOSAL AND TREATMENT FACILITIES

1. List the types of waste:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage			
Greywater			
Garbage			
Overburden (organic soil, waste material, tailings)			
Hazardous waste			
Other:			

* REMOVED VEGETATION, TOP SOIL, SAND



SECTION 6: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

1. List the community representatives that have been contacted and provide the minutes of the meetings if available:

Community	Name	Organization	Date Contacted	Telephone No.	Fax No.
Cambridge Bay	J. Koonak	NIRB	Nov. 30/05	867/983-4612	983-2594
Rankin Inlet	R. Suluk	CG+S	Nov. 25/05	867/495-8113	645-8143
Arviat	L. Suluk	NPC	Nov. 25/05	867/851-2244	851-2243

Applicant:

Signature

Land + DEVELOPMENT
Title

Dec 05/05
Date

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0800-0-2606 05:00pm From:Kunavut Impact Ray Bard