Aboriginal Affairs and Northern Development Canada | Affaires autochtones et Développement du Nord Canada

September 09, 2016

Nunavut Water Board
P.O. BOX 119
GJOA HAVEN, NUNAVUT
XOB 1J0

RE: NUNAVUT WATER LICENCE APPLICATION- JERICHO MINE SITE STABILIZATION PROJECT

Please find enclosed a water licence application from Indigenous Affairs and Northern Development Canada (INAC) for the Jericho Mine Site Stabilization Project.

In addition to this application, INAC is also applying for a Land Use Permit from INAC, as well as associated approvals from both the Nunavut Impact Review Board, as well as the Kitikmeot Inuit Association. This application package includes:

APPENDIX	TITLE
1	Nunavut Impact Review Board Application Part 1 and 2
2	Jericho Site Stabilization Project Terms of Reference
3	Jericho Mine Site Phase III Environmental Site Assessment
4	Jericho Waste Water Treatment Plant Operations Plan
5	Jericho Site Stabilization Project – Environmental Screening Report
6	AMEC Winter Road Water Withdrawal Estimate
7	INAC Land Use Permit Application
8	Kitikmeot Inuit Association Access to Inuit Owned Land Permit Application
9	Jericho Site Stabilization Project Fuel Contingency Plan

If you have any further questions or require additional information please contact myself at 819-934-1188 or via e-mail at mark.yetman@aandc.gc.ca.

Sincerely,

Mark Yetman
Senior Project Advisor

General Water Licence Application
(Application for a new Water Licence)

Document Date: April 2013

Application Submission Date: _____
Month/Day/Year

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DOCUMENT MANAGEMENT

Original Document Date: April 2010

DOCUMENT AMENDMENTS

	Description	Date
(1)	Updated for public distribution as separate document from NWB Guide 4	June 2010
(2)	Updated NWB logos and reformatted table to allow rows to break across page	May 2011
(3)	Update NWB logo	April 2013
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		

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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYIT
OFFICE DES EAUX DU NUNAVUT

GENERAL WATER LICENCE APPLICATION
(APPLICATION FOR NEW WATER LICENCE)

The applicant is referred to the NWB's Guide 4: *Guide to Completing and Submitting a Water Licence Application for a New Licence* for more information about this application form.

LICENCE NO:
(for NWB use only)

1. APPLICANT (PROPOSED LICENSEE) CONTACT INFORMATION (name, address)

Mark Yetman
Senior Project Advisor
Indigenous and Northern Affairs Canada
10th Floor, 25 Eddy Street
Gatineau, QC
K1A 0H4

Phone: 819-934-1188
Fax: 819-934-9229
e-mail: mark.yetman@aandc.gc.ca

2. APPLICANT REPRESENTATIVE CONTACT INFORMATION if different from Block 1 (name, address)

Phone: _____
Fax: _____
e-mail: _____
(Attach authorization letter.)

3. NAME OF PROJECT (including the name of the project location)

Jericho Mine Site Stabilization, Nunavut

4. LOCATION OF UNDERTAKING

Project Extents

NW:	Latitude: (66 ° 02 ' 00.81 " N)	Longitude: (111 ° 32 ' 01.93 " W)
NE:	Latitude: (66 ° 02 ' 00.40 " N)	Longitude: (111 ° 25 ' 57.53 " W)
SE:	Latitude: (65 ° 58 ' 59.92 " N)	Longitude: (111 ° 26 ' 00.04 " W)
SW:	Latitude: (65 ° 59 ' 00.11 " N)	Longitude: (111 ° 31 ' 59.86 " W)

Camp Location(s)

Latitude: (65 ° 59 '26.25" N) Longitude: (111 ° 30 '08.99 " W)

5. **MAP** - Attach a topographical map, indicating the main components of the undertaking.

NTS Map Sheet No.: 076L04; 076E13, 076L03; 076E14 Map Name: ____ Map Scale: _____

6. **NATURE OF INTEREST IN THE LAND** - Check any of the following that are applicable to the proposed undertaking (at least one box under the 'Surface' header must be checked).

Sub-surface

☐ Mineral Lease from Nunavut Tunngavik Incorporated (NTI)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Mineral Lease from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: _____ Date of expiry: _____

Surface

✔ Crown Land Use Authorization from Indian and Northern Affairs Canada (INAC)
Date (expected date) of issuance: December 2016 Date of expiry: _____

✔ Inuit Owned Land (IOL) Authorization from Kitikmeot Inuit Association (KIA)
Date (expected date) of issuance: December 2016 Date of expiry: _____

☐ IOL Authorization from Kivalliq Inuit Association (KivIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Qikiqtani Inuit Association (QIA)
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Commissioner's Land Use Authorization
Date (expected date) of issuance: _____ Date of expiry: _____

☐ Other: _____
Date (expected date) of issuance: _____ Date of expiry: _____

Name of entity(s) holding authorizations:
_____

7. **NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION**

Indicate the land use planning area in which the project is located.

☐ North Baffin
☐ South Baffin
☐ Akunniq
☐ Keewatin
☐ Sanikiluaq
✔ West Kitikmeot

Is a land use plan conformity determination required?

✔ Yes ☐ No

If Yes, indicate date issued and attach copy (expected September 2016)
If No, provide written confirmation from NPC confirming that a land use plan conformity review

is not required.

8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

Is an Article 12 Part 4 screening determination required?

✔ Yes ☐ No

If Yes, indicate date issued and attach copy _____
If No, provide written confirmation from NIRB confirming that a screening determination is not required.

The Nunavut Impact Review Board (NIRB) Part 1 and 2 Forms are being submitted concurrently with this application. Copies of the forms can be found in Appendix 1.

9. DESCRIPTION OF UNDERTAKING – List and attach plans and drawings or project proposal.

Please see the "Jericho Mine Site Stabilization, Nunavut Terms of Reference" in Appendix 2 for a description of site stabilization activities that are proposed to occur at the site. Site diagrams, maps as well as details on assessment related work can be found in the 2014 Phase III Environmental Site Assessment completed by Tetra Tech EBA in Appendix 3.

10. OPTIONS – Provide a brief explanation of the alternative methods or locations that were considered to carry out the project.

Alternative methods and locations for this work were not considered.

11. CLASSIFICATION OF PRIMARY UNDERTAKING - Indicate the primary classification of undertaking by checking one of the following boxes.

☐ Industrial ☐ Agricultural
☐ Mining and Milling (includes exploration/drilling/exploration camps)
☐ Conservation
☐ Municipal (includes camps/lodges) ☐ Recreational
☐ Power ✔ Miscellaneous (describe below):
_____Site Stabilization of an abandoned mine site in Nunavut._____

See Schedule II of *Northwest Territories Waters Regulations* for Description of Undertakings.

Information in accordance with applicable Supplemental Information Guidelines (SIG) must be submitted with a New Water Licence Application. Indicate which SIG(s) are applicable to your application.

☐ Hydrostatic Testing
☐ Tannery
✔ Tourist / Remote Camp
✔ Landfarm & On-Site Storage of Hydrocarbon Contaminated Soil
☐ Onshore Oil and Gas Exploration Drilling
☐ Mineral Exploration / Remote Camp
☐ Advanced Exploration

☐ Mine Development
☐ Municipal
☐ General Water Works
☐ Power

12. **WATER USE -** Check the appropriate box(s) to indicate the type(s) of water use(s) being applied for.

✔ To obtain water for camp/ municipal purposes
☐ To obtain water for industrial purposes
✔ To cross a watercourse
☐ To alter the flow of, or store water
☐ To divert a watercourse
☐ To modify the bed or bank of a watercourse
☐ Flood control
✔ Other: To return a watercourse back to its natural flow

13. **QUANTITY AND QUALITY OF WATER INVOLVED -** For each type of water use indicated in Block 12, provide the source of water, the quality of the water source and available capacity, the estimated quantity to be used in cubic meters per day, method of extraction, as well as the quantities and qualities of water to be returned to source.

Name of water source(s) (show location(s) on map):

A) To Obtain Water for Camp/municipal Purposes
- Please see diagram below for location.

Describe the quality of the water source(s) and the available capacity:

Carat Lake was the water source which was approved for usage (quality and quantity) when the mine was operating at full capacity. The volumes of water being proposed for usage in this application are for a small camp and remedial activities, which is a significantly smaller amount than was approved for when the mine was in operations. Before the water from Carat Lake would be used for camp operations, extensive water testing would be conducted to ensure its safety and suitability for this camp of no more than 50 workers.

Provide the overall estimated quantity of water to be used:
10 m^3/day to support camp and remedial activities.

Provide the estimated quantity(s) of water to be used from each source:
10 m^3/day from Carat Lake

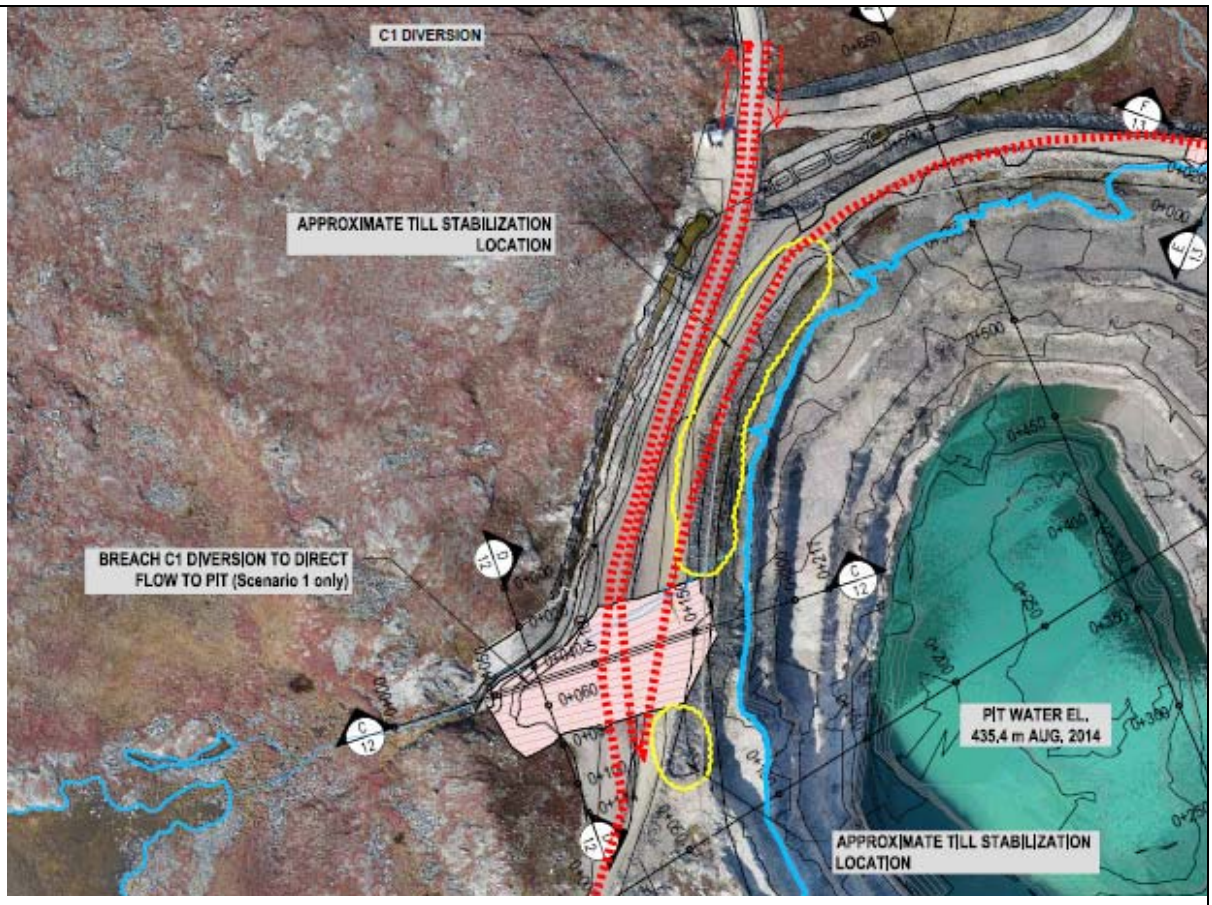
Indicate the estimated quantities to be used for each purpose (camp, drilling, etc.)
6 m^3/day for camp; 4 m^3/day for remedial activities

Describe the method of extraction(s):
Water will be extracted using an intake hose with a screen to ensure that no fish become trapped. Water will either be pumped directly from the lake to the camp using existing infrastructure put in place when the mine was in operation, or will be transported via truck to the camp.

Estimated quantity(s) of water returned to source(s)
- 0 m^3/day
- Water will not be returned to the source, Carat Lake

Describe the quality of water(s) returned to source(s):
Water will be treated using the existing water treatment facility (please see Appendix 4), and tested that it meets applicable discharge criteria before being released to environment.

B) Other: To Return a Watercourse Back to its Natural Flow
- C1 Diversion (breach and construct pit overflow returning back to natural flow)
- Please see diagrams below for location
- There is no water being used in this site stabilization activity. The watercourse is simply being diverted back to its natural flow.
- Please see Environmental Screening Report in Appendix 5 for details on environmental impacts of this activity.

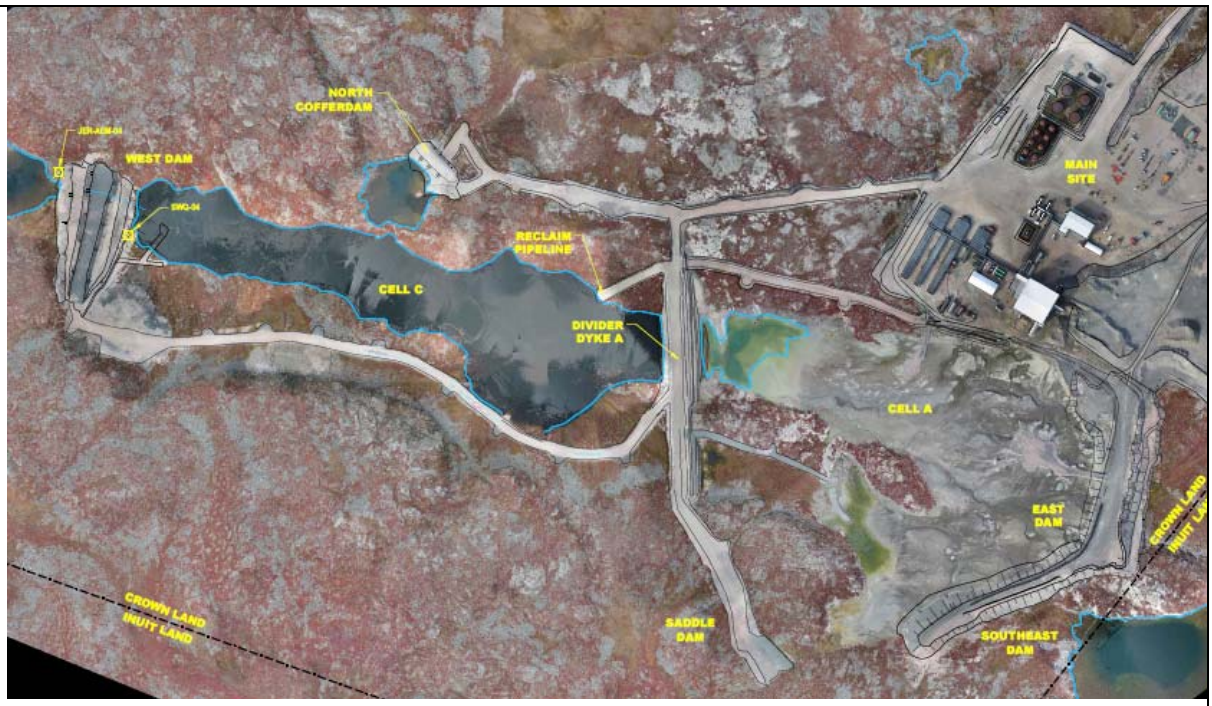


C) Other: To Return a Watercourse Back to its Natural Flow

- Breach West Dam and Notch Divider Dyke A
- Please see diagram below for locations.
- There's no water being used or additional water being deposited back to the environment in this site stabilization activity. We are simply breaching dams that were constructed for mining operations.
- All water will be adequately tested to ensure it meets applicable guidelines before dams are breached. Regular water testing of these areas has occurred as part of past care and maintenance activities, and during mine operations.
- Before dam breach, water in the containment area will be effectively drawndown, and sediment controls will be put in place.
-- Please see Environmental Screening Report in Appendix 5 for details on environmental impacts of this activity.

D) To Cross a Watercourse

- Water will be used to construct the winter road necessary for the mobilization and demobilization of equipment to and from the Jericho Site.
- It's estimated that 5700 m3 of water will be required to construct the land portions of the road, all of which will be returned to the natural environment. Please see Appendix 6 for details on this.



_____
_____

14. **WASTE** – Check the appropriate box(s) to indicate the types of waste(s) generated and deposited.

- ✔ Sewage
- ✔ Solid Waste
- ✔ Hazardous
- ✔ Bulky Items/Scrap Metal
- ☐ Animal Waste
- ☐ Other (describe): _____
- ✔ Waste oil
- ✔ Greywater
- ☐ Sludges
- ✔ Contaminated soil and/or water

15. **QUANTITY AND QUALITY OF WASTE INVOLVED** – For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method
sewage	Black water	30 litres/day x 50 people (max) = 1500 litres/day	Waste Water Treatment Plant	As per previously approved Tahera Waste Water Treatment Plant Operations Plan (see appendix ____)
greywater	greywater	80 litres/day x 50 people (max) = 4000 L/day	Waste Water Treatment Plant	As per previously approved Tahera Waste Water Treatment Plant Operations Plan

				(see appendix ____)
Waste Oil	Oil	0.002 Litres/day	Collected in drums	Shipped south for recycling and/or disposal
Solid waste	Camp waste (paper, packaging, food, etc.)	2 m3	Incineration	Incineration in onsite incinerator
Contaminated soil	Soils contaminated with PHC.	3,315 m3	Excavate, load-haul and consolidated the PHC soils to on-site landfarm	Excavate, load-haul and consolidated the PHC soils to on-site landfarm
Contaminated Soils	Metal Impacted Soil	64 m3	Metal-impacted soils will be handled as per the *Abandoned Military Site Remediation Protocol* (AMSRP); Tier 1 soils to be land treated and Tier 2 soils to be removed offsite to a designated licensed disposal facility	Metal-impacted soils will be handled as per the *Abandoned Military Site Remediation Protocol* (AMSRP); Tier 1 soils to be land treated and Tier 2 soils to be removed offsite to a designated licensed disposal facility
Hazardous Materials	Organic content and materials in drums, ASTs, tanks, pails, etc.	1,286 m3	Incinerate using on-site incinerator that meets applicable emission controls.	Incinerate using on-site incinerator that meets applicable emission controls.
Hazardous materials	Batteries, light bulbs, drums, compressed gas cylinders, fire extinguishers, batteries, etc.	2,467 items	Depressurize gas cylinders and fire extinguishers. Sort and ship offsite to a designated licensed disposal facility if contents are unknown or cannot be discharged to environment. If known, dispose of in landfill if	Depressurize gas cylinders and fire extinguishers. Sort and ship offsite to a designated licensed disposal facility if contents are unknown or cannot be discharged to environment. If known, dispose of in landfill if appropriate.

			appropriate.	
Non-hazardous Materials	waste material such as wood debris, metal debris, aboveground storage tanks (AST), drums, rubber, concrete, plastic and other inert items.	42,919 m3	Onsite Non-hazardous landfill	Onsite Non-hazardous landfill
Non-hazardous materials	waste material such as wood debris, metal debris, aboveground storage tanks (AST), drums, rubber, concrete, plastic and other inert items.	2,614 items	Onsite Non-hazardous landfill	Onsite Non-hazardous landfill

16. OTHER AUTHORIZATIONS – In addition to the sub-surface and surface land use authorizations provided in Block 6, indicate any other authorizations required in relation to the proposed undertaking. For each provide the following:

Authorization: _____None_____

Administering Agency: _____N/A_____

Project Activity: _____N/A_____

Date (expected date) of issuance: _____ Date of expiry: _____

17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES - Describe direct, indirect, and cumulative impacts related to water and waste.

A final Environmental Screening Report was completed for the project in August 2016 and is provide in Appendix 5.

18. WATER RIGHTS OF EXISTING AND OTHER USERS OF WATER

Provide the names, addresses and nature of use for any known persons or properties that may be adversely affected by the proposed undertaking, including those that hold licences for water use in precedent to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature.

Advise the Board if compensation has been paid and/or agreement(s) for compensation have been

reached with any existing or other users.

None

19. INUIT WATER RIGHTS

Advise the Board of any substantial affect of the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL), and advise the Board if negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more Designated Inuit Organization (DIO).

None

20. CONSULTATION – Provide a summary of any consultation meetings including when the meetings were held, where and with whom. Include a list of concerns expressed and measures to address concerns.

- Monthly conference calls with Kitikmeot Inuit Association
- Biweekly conference calls with Jericho Site Stabilization Working Group
- August 2016 community consultation in Kugluktuk on the Jericho Site Stabilization Plan
- August 2016 meeting with the Kitikmeot Inuit Association on the proposed site stabilization plan.

21. SECURITY INFORMATION

Provide an estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking. Estimates of reclamation costs must be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimate must also include contingency factors appropriate to the particular work to be undertaken.

Where applicable, the financial security assessment should be prepared in a manner consistent with the principals respecting mine site reclamation and implementation found in the *Mine Site Reclamation Policy for Nunavut,* Indian and Northern Affairs Canada, 2002.

22. FINANCIAL INFORMATION

Provide a statement of financial responsibility. N/A

If the applicant is a business entity, provide a list of the officers of the company. N/A

If the applicant is a business entity attach a copy of the Certificate of Incorporation or evidence of registration of the company name. N/A

23. STUDIES UNDERTAKEN TO DATE - List and attach copies of studies, reports, research, etc.

1) Jericho Mine Site Stabilization Terms of Reference, 2016. (Appendix 2)
2) Environmental Site Assessment, Materials Survey and Geotechnical Assessment Jericho Diamond Mine. 2014 (Appendix 3)
3) Jericho Mine Wastewater Treatment Plant Design Plan- Addendum Tahera Diamond Corporation. 2006. (Appendix 4)
4) Environmental Screening Report, 2016. (Appendix 5)

24. PROPOSED TIME SCHEDULE – Indicate the proposed start and completion dates for each applicable phase of development (construction, operation, closure, and post closure).

Construction
Proposed Start Date: _____ (month/year) Proposed Completion Date: _____ (month/year)

Operation
Proposed Start Date: _____ (month/year) Proposed Completion Date: _____ (month/year)

Closure (Site Stabilization)
Proposed Start Date: _____01/01/17_____ (month/year) Proposed Completion Date: ____03/31/18___ (month/year)

Post – Closure (Long- Term Monitoring)
Proposed Start Date: _____07/19___ (month/year) Proposed Completion Date: _____07/44_____ (month/year)

For each applicable phase of development indicate which season(s) activities occur.

Construction
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

Operation
☐ Winter ☐ Spring ☐ Summer ☐ Fall ☐ All season

Closure (Site Stabilization)
☐ Winter ☐ Spring ☐ Summer ☐ Fall ✔ All season

Post – Closure (Long- Term Monitoring)
☐ Winter ☐ Spring ✔ Summer ☐ Fall ☐ All season

25. PROPOSED TERM OF LICENCE

Number of years (maximum of 25 years): 3 years

Requested Date of Issuance: _____01/17_____ (month/year) Requested Expiry Date: ____01/20____ (month/year)

(The requested date of issuance must be at least three (3) months from the date of application for a type B water licence and at least one (1) year from the date of application for a type A water licence, to allow for processing of the water licence application. These timeframes are approximate and do not account for the time to complete any pre-licensing land use planning or development impact requirements, time for the applicant to prepare and submit a water licence application in accordance with any project specific guidelines issued by the NWB, or the time for the applicant to respond to requests for additional information. See the NWB's *Guide 5: Processing Water Licence Applications* for

more information)

26. **ANNUAL REPORTING –** If not using the NWB's *Standardized Form for Annual Reporting*, provide details regarding the content of annual reports and a proposed outline or template of the annual report.

Will use NWB's Standard form.

27. **CHECKLIST –** The following must be included with the application for the water licensing process to begin.

Written confirmation from the NPC confirming that NPC's requirements regarding land use plan conformity have been addressed.

☐ Yes ✔ No If no, date expected _____Submitted_____

Written confirmation from the NIRB confirming that NIRB's requirements regarding development impact assessment have been addressed.

☐ Yes ✔ No If no, date expected _____Submitted_____

Completed General Water Licence Application form.

☐ Yes ✔ No If no, date expected Submitted

Information addressing Supplemental Information Guideline (SIG) , where applicable (see Block 11)

☐ Yes ☐ No If no, date expected N/A

English Summary of Application.

✔ Yes ☐ No If no, date expected

Inuktitut and/or Inuinnaqtun Summary of Application.

✔ Yes ☐ No If no, date expected

Application Fee of $30.00 CDN (Payee Receiver General for Canada).

☐ Yes ✔ No If no, date expected N/A

Water Use Fee Deposit of $30.00 CDN (Payee Receiver General for Canada). The actual water use fee will be calculated by the NWB based upon the amount of water authorized for use in accordance with the Regulations at the time of issuance of the licence.

☐ Yes ✔ No If no, date expected N/A

28. SIGNATURE

Mark Yetman	Senior Project Advisor		2016-09-09
Name (Print)	**Title (Print)**	**Signature**	**Date**

APPENDIX 1

NUNAVUT IMPACT REVIEW BOARD APPLICATION PART 1 AND 2

PART 1 FORM
PROJECT PROPOSAL INFORMATION REQUIREMENTS

To access NIRB documents, project screenings, and project reviews please visit the Nunavut Impact Review Board's ftp site http://ftp.nirb.ca/. The NIRB's website (www.nirb.ca) is currently under construction. Please contact info@nirb.ca should you have any questions or require further information.

IMPORTANT!
Please be advised that your application will not be processed until the Sections 1 - 9 are completed in their entirety, in both English and Inuktitut (+ Inuinnaqtun, if in the Kitikmeot).

SECTION 1: APPLICANT INFORMATION

1. Project Name Jericho Mine Site Stabilization, Nunavut

2. Applicant's full name and mailing address:
Indigenous and Northern Affairs Canada
10th Floor, 25 Eddy Street
Gatineau, QC
K1A 0H4

Phone:
Fax:
Email:

3. Primary contact's full name and mailing address:
Mark Yetman, Senior Project Advisor
Indigenous and Northern Affairs Canada
10th Floor, 25 Eddy Street
Gatineau, QC K1A 0H4

Phone: 819-934-1188
Fax: 819-934-9229
Email: mark.yetman@aandc.gc.ca

SECTION 2: AUTHORIZATION NEEDED

1. Indicate all authorizations associated with the project proposal:

X	Regional Inuit Association (RIA)		Canadian Launch Safety (CLS)
X	Nunavut Water Board (NWB)		Canadian Wildlife Service (CWS)
X	Nunavut Planning Commission (NPC)		Department of National Defense (DND)
	Government of Nunavut (GN)		Environment Canada (EC)
	Community Government & Services (CG&S)		Fisheries and Oceans Canada (DFO)
	Culture and Heritage (CH)		Parks Canada (PC)
	Nunavut Research Institute (NRI)		Hamlet
X	Aboriginal Affairs and Northern Development Canada (AANDC)		Other (please specify):

2. List the active permits, licenses, or other authorizations related to the project proposal, and their expiry date(s):
- Tibbit to Contwoyto Joint Venture Winter Road Group - Right to Use and Occupy Crown Land
Land Permit 75 M/11-1 (Appendix 1). Expiry 2033.

3. **List the pending* permits, licenses, or other authorizations related to the project proposal:**

- Indigenous and Northern Affairs Canada (INAC) Land Use Permit (Appendix 2)
- Nunavut Water Board Water Licence (Appendix 3)
- Kitikmeot Inuit Association (KitIA) Access to Inuit Owned Lands Permit (Appendix 4)
- Nunavut Planning Commission Conformity Review

*Please provide a copy of all applications to the NIRB.

4. **Has this project or any components of this project been previously screened or reviewed by NIRB?**

☐ **YES** ■ **NO**

If YES, indicate the previous project name and NIRB File No.

SECTION 3: PROJECT PROPOSAL DESCRIPTION

1. **Indicate the type of project proposal (check all that apply)[1,2]:**
(See Appendix A for Project Type Definitions)

1	All-Weather Road/Access Trail	☐	**9**	Site Cleanup/Remediation	■
2	Winter Road/ Winter Trail	■	**10**	Oil and Natural Gas Exploration/Activities	☐
3	Mineral Exploration	☐	**11**	Marine Based Activities	☐
4	Advanced Mineral Exploration	☐	**12**	Scientific/International Polar Year Research*	☐
5	Mine Development /Bulk Sampling	☐	**13**	Harvesting Activities*	☐
6	Pits and quarries	☐	**14**	Tourism Activities*	☐
7	Offshore Infrastructure (port, break water, dock)	☐	**15**	Other[2]:	☐
8	Seismic Survey	☐			☐

Please note:

1. All project types listed above, except those marked with an asterisk (*), will also require the Proponent to submit a **Part 2 Project Specific Information Requirement (PSIR) Form**. The NIRB application process will not be considered complete without the Part 2 PSIR Form.
2. Please be advised that in order to complete the NIRB process, the NIRB may request additional information at any time during the process.
3. If "Other" is selected, contact NIRB for direction on whether a Part 2 PSIR Form is required.

2. If Project Type 3, 4 or 5 was selected in previous question, please indicate the mineral of interest that is being extracted. Include a brief description.

- [ ] Base Metals (zinc, copper, gold, silver, etc)_____
- [ ] Diamonds
- [ ] Uranium
- [ ] Other: _____

3a. If Project Type 12, 13 or 14 was selected above, complete the table and questions below.

Transportation Type	Quantity	Proposed Use	Length of Use
E.g. Helicopter	*1*	*Site to site pick ups and drop offs*	*6 days*

3b. Describe any docks, piers, air strips or related structures that are to be used in conjunction with the proposed project activities. **Please note**: *the building of new structures may require a Part 2 Form.*

There is an existing airstrip onsite that will be used during the proposed site stabilization activities. This airstrip is in good condition and was constructed when the Jericho Mine was in operation.

3c. If a temporary camp site is to be established, describe the proposed structures in detail and indicate the type and source of power for the camp site if applicable.

Existing Jericho Mine camp infrastructure will be used for the site stabilization activities. Once the site stabilization activities are completed the camp will be demolished and landfilled. Camp power will be provided by generators that have been in place since Jericho Mine operations.

4. Personnel

Total No. of personnel on site = (A) 50

Total No. of days on-site = (B) 180

Total No. of Person days (A) × (B) = 9000 (max)

5. Timing

Period of operation: from January 2017 to March 2018

Proposed term of authorization: from January 2017 to March 2018

6a. Region (check all that apply):

- [ ] North Baffin
- [ ] South Baffin
- [ ] Kivalliq
- [ ] National Park
- [x] Kitikmeot
- [ ] Transboundary: _____

6b. Describe the location of the proposed project activities in a regional context, noting the proximity to the nearest communities and any protected areas.

This site stabilization project will take place on the abandoned Jericho Mine site which is located 260 km

southeast of Kugluktuk, NU and 30 km north of the Lupin Mine in the Contwoyto-Itchen Region.

6c. Discuss the history of the site if it has been used for any project activities in the past.

The Jericho Mine was opened in 2006 by Tahera Diamond Corporation (Tahera) who went through bankruptcy proceedings in 2008. Shear Diamonds Corp. (Shear) took over the Jericho Mine in 2010 and operated the mine under care and maintenance until September 2012 when Shear suspended operations. INAC has been undertaking basic environmental protection of the Jericho Mine since spring 2013, and assumed control of the Jericho Mine in January 2014.
The original mine plan was to construct a project with an eight-year life and extract the Kimberlite ore by using an open pit and underground mining methods. The mine work did not advance beyond the open pit extraction.

6d. Indicate if there are any known archaeological/palaeontological historical sites in the area.
Tahera in their initial permitting application indicated that they completed an Archaeological Impact Assessment. Their findings are summarized as such: “None of the 25 heritage sites identified sites during the Project EIS were determined to be of sufficient potential of significance to require avoidance by development.”

The same circumstances apply to the site stabilization work as it will not go beyond the boundaries set out by the previous mining operations and will be using the same winter road route.

7. Land Status (check all that applies):

x	Crown		Commissioners’		Municipal
x	Inuit Owned Surface Lands		Inuit Owned Sub-Surface Lands		

8a. Co-ordinates:

Min Lat (degree/minute)	65 ° 58 ’ 59.92 ” N	Min Long (degree/minute)	111 ° 25 ’ 57.53 ” W
Max Lat (degree/minute)	66 ° 02 ’ 00.81 ” N	Max Long (degree/minute)	111 ° 32 ’ 01.93 ” W

NTS Map Sheet No: 076L04; 076E13, 076L03; 076E14
(Please ensure that maps of the project are attached (1:50,000 **if available**, 1:250, 000 **Mandatory**) available from Natural Resources Canada)

8b. If the project proposal includes a **camp**, please provide the coordinates of the camp location

Min Lat (degree/minute)	65 ° 59 ’26.25” N	Min Long (degree/minute)	111 ° 30 ’08.99 ” W
Max Lat (degree/minute)	65 ° 59 ’26.25” N	Max Long (degree/minute)	111 ° 30 ’08.99 ” W

If different from above for the camp:
NTS Map Sheet No: 076L03
Please ensure that maps of the project are attached (1:50,000 **if available**, 1:250, 000 **Mandatory**) available from Natural Resources Canada

Please note that additional location information may be required in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

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.

IMPORTANT: IF THE PROPOSED ACTIVITIES REQUIRE SUBMISSION OF A NIRB PART 2 PSIR FORM, PLEASE COMPLETE SECTION 8 ONLY, OTHERWISE CONTINUE ON WITH SECTION 5.

SECTION 5: MATERIAL USE

1. List equipment to be used (including drills, pumps, aircraft, vehicles, etc.):

Equipment type and number	Size – dimensions	Proposed use

2a. Detail fuel and hazardous material use:

Fuel	Number of Containers and Capacity of Containers	Total Amount of Fuel (in Litres)	Proposed Storage Methods
Diesel			
Gasoline			
Aviation fuel			
Propane			
Other			
Hazardous Materials and Chemicals		**Total Amount of Hazardous Materials and Chemicals (in Litres)**	

2b. Describe the proposed Spill Prevention Plan.

3a. Detail the anticipated daily water consumption rates

Daily amount (m^3)	Proposed water retrieval methods	Proposed water retrieval location

3b. Have you applied for a water License* with the Nunavut Water Board?

X YES ☐ **NO**

If yes, what class of licence?

☐ **Class A Water Licence** ☐ **Class B Water Licence**

SECTION 6: WASTE DISPOSAL AND TREATMENT METHODS

1. List the types of waste associated with the proposed project activities:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage (human waste)			
Greywater			
Combustible wastes			
Non-Combustible wastes			
Overburden (organic soil, waste material, tailings)			
Hazardous waste			
Hazardous Materials			

2. Describe the proposed Waste Management Plan.

SECTION 7: 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

SECTION 8: GENERAL QUESTIONS

1. **Will you be disturbing any known archaeological sites?**

☐ **YES** **X NO**

SECTION 9: APPLICANT SIGNATURE

Please sign and date your application:

Signature	Title	Date
	Senior Project Advisor	2016-09-09

APPENDIX A
Project Type Definitions

Access Trail: A project proposal with the objective of providing vehicular access to an area of interest involving minimal alteration to the terrain.

Advanced Exploration: A project proposal with the objective of identifying size, grade, and physical characteristics of a mineral occurrence and to assess the economic and technical feasibility of developing the mineral deposit into a producing mine

All-Weather Road: A project proposal with the objective of road construction for use in all seasons.

Bulk Sampling: A project proposal with the objective of extracting of large samples of mineralized material involving hundreds to thousands of tonnes. Samples are selected as representative of the potential mineral deposit being sampled. May involve crushing/milling (on small-scale)

Harvesting activities: A project proposal with the objective of harvesting animals, marine mammals and/or fish from their natural habitats by means of hunting or trapping for traditional and commercial use.

Marine Based Activities: Any activity occurring in the marine environment, such as vessel use associated with land-based activities or disposal at sea.

*Please note that normal community re-supply or individual ship movements not associated with land-based project proposals shall not be screened by NIRB (Section 12.12.2 of NLCA).

Mine Development: A project proposal with the objective of extracting broken rock with mineralization of sufficient grade and tonnage to sustain commercial mining operations (ore). Mining a body of ore can be achieved by either open pit and/or underground development. Mine development may involve milling. Milling involves treatment of the extracted ore through a combination of mechanical and chemical processes to selectively recover the valuable mineral.

Mineral Exploration: A project proposal with the objective of exploring an area to find geological anomalies. It involves site reconnaissance (ground and/or air) to locate broad and fiscal mineral deposits.

Offshore Infrastructure: A project proposal with the objective of building off loading facilities constructed off the shoreline and connected to the mainland of the marine or freshwater environment. Examples include a jetty, dock, or port facility.

Oil and Gas Exploration/Activities: A project proposal that includes 1) exploration, such as seismic or geological mapping, 2) drilling of oil and gas wells, 3) construction and operation of a pipeline, a gas processing plant or any oil and gas facility within Nunavut.

Pits and Quarries: A project proposal with the objective of pitting, which involves the extraction of granular material (i.e. sands and gravels) and quarrying, which involves the removal of consolidated rock (i.e. bedrock, frozen soil).

Scientific Research: A project proposal with the objective of implementing a series of site activities comprised of observation of phenomena, measurement and collection of data necessary for scientific investigation in designated areas within a limited time period.

Seismic Survey: A project proposal with the objective of conducting a survey to map the depths and contours of rock strata by timing the reflections of sound waves released from the surface. Survey site locations may be offshore (not within 12 nautical miles of any coast), near shore, and extended onshore.

Site Cleanups: A project proposal with the objective of site cleanups (includes DEW line site cleanups), which focuses on the remediation of chemically contaminated soils, stabilization of landfills and dumps, demolition/disposal of infrastructure and debris and monitoring after cleanup is completed.

Tourism Activity: A project proposal with the objective of conducting travel predominantly for recreational, sport or leisure purposes within a designated area and limited time period.

Winter Road: A project proposal with the objective of building a road for winter use by leveling and compacting surface snow and ice. Winter road is removed at end of season.

Winter Trail: A project proposal with the objective of building a trail for winter use by a single pass of a tracked vehicle using a blade, if necessary.

ᐃᓚᖓᓃᑦᑐᖅ PART 1-ᒥ
ᑐᕋᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᓄᑦ ᑐᓴᒃᓴᐅᑏᑦ ᐱᔭᐅᔪᒪᔪᑦ

ᑐᓴᒃᑲᓂᕋᒃᓴᑦ ᐱᔭᐅᔾᓇᖅᑐᑦ ᐱᔾᔪᑎᓖᑦ ᓄᓇᕗᑦ ᐊᕙᑎᓕᕆᔾᑦ ᑲᑎᒪᔨᖏᓐᓂᒃ ᑕᑯᓗᒋᑦ ᐅᖄᓇ ᖃᕆᑕᐅᔭᒃᑯᑦ http://ftp.nirb.ca/ ᐅᕙᓗᕿᐊᖅ ᐊᖁᑎᒋᓗᒋᑦ ᓄᓇᕗᑦ ᐊᕙᑎᓕᕆᔾᑦ ᑲᑎᒪᔨᖏᑦᑕ ᐊᓪᓚᒃᓯᒪᔪᑦ, ᐱᓕᕆᐊᒃᓴᓘᖓᔪᓂᒃ ᕿᒥᕐᕈᕙᒃᑕᖏᑦ, ᐊᒻᒪᓗ ᐱᓕᕆᐊᒃᓴᐅᑉ ᑐᕿᐊ ᕿᒥᕐᕈᔭᐅᖃᑦᑕᕐᓂᖓ ᑕᑯᓗᒋᑦ ᓄᓇᕗᑦ ᐊᕙᑎᓕᕆᔾᑦ ᑲᑎᒪᔨᖏᑦᑕ ᖃᕆᑕᐅᔭᒃᑯᑦ ᓴᕿᑕᒪᔪᑦ ᐅᕙᓂ http://ftp.nirb.ca/.

ᐅᔾᔨᖅᑕᐅᕙᔪᖅᓯᒪᒋᐊᓖᑦ

ᖃᐅᔨᒪᓂᐊᕐᑯᑎᑦ ᑐᕋᖅᑑᑎᑎᑦ ᐱᕙᓪᓕᐊᔭᐅᔾᔮᓚᖓᖕᒋᒻᒪᑕ ᐅᑯᑎᒎᓇ ᐊᑑᑎᓕᖅᑲᑎᓐᓇᒋᑦ ᐃᓚᖓᒎᖓᔪᑎᒍᑦ sections 1 - 9 ᐱᔭᕇᖅᑕᐅᖄᓇᐊᖄᒪᑕ ᖄᓪᓗᓈᑎᑐᑦ ᐊᒻᒪᓗ ᐃᓄᒃᑎᑐᑦ (ᐃᓄᐃᓐᓇᖅᑐᑦ ᕿᑎᕐᒥᐅᓃᑉᐸᑕ).

ᐃᓚᖓ 1: ᑐᕋᖅᑑᑦ ᑐᓴᒃᓴᖅ

1. ᐱᓕᕆᐊᒃᓴᐅᑉ ᑕᐃᔾᔪᓯᖓ: CHAᕐHᐅᐊᖅ ᑕᓯᖅᔪᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐃᓂᖓ ᓇᓚᖃᓈᓚᖅᓱᖅᑕᐅᓂᖓ, ᓄᓇᕗᒻᒥ

2. ᑐᕋᕋᖅᑑᑉ ᐊᑎᖓ ᐊᒻᒪᓗ ᑐᕌᕈᑖ:

ᐃᓄᓕᕆᔨᑐᖃᒃᑯᑦ ᑲᓇᑕ
10th Floor, 25 Eddy Street
Gatineau, QC
K1A 0H4

ᐅᖃᓗᐅᑏᑦ:
ᓱᑲᔪᒃᑯᑦ:
ᖃᕆᑕᐅᔭᒃᑯᑦ

3. ᖃᐅᔨᒋᐊᕐᕕᐅᕆᐊᒃᑲᓂᕈᓐᓇᖅᑐᖅ ᓯᕗᓪᓕᐅᑎᓂ ᐊᑎᖓ ᑐᕌᕈᑎᖓᓗ:

ᒪᒃ ᔨᑦᒪᓐ, ᐊᖓᔪᖅᑳ ᐱᓕᕆᐊᖑᔪᓄᑦ ᐅᐊᐅᔾᔪᐃᔨ
ᐃᓄᓕᕆᔨᑐᖃᒃᑯᑦ ᑲᓇᑕ
10th Floor, 25 Eddy Street
Gatineau, QC K1A 0H4

ᐅᖃᓗᐅᑏᑦ: 819-934-1188
ᓱᑲᔪᒃᑯᑦ: 819-934-9229
ᖃᕆᑕᐅᔭᒃᑯᑦ mark.yetman@aandc.gc.ca

ᐃᓚᖓ 2: ᑲᔪᓯᒃᑲᐃᔨᓄᑦ ᑲᔪᓯᒃᑲᖅᑕᐅᔭᓇᐊᖏᑦ

1. ᑕᒪᕐᒥᒃ ᓇᓗᓇᐃᖅᑕᐅᓇᓱᒋᑦ ᑲᔪᓯᑎᑦᓯᔩᑦ ᐊᒃᑐᐊᓂᓕᖕᓅᖓᔪᓂᒃ ᐱᓕᕆᐊᒃᓴᔫᖓᔪᒥᒃ ᑐᕋᕌᒎᑦ:

X	ᐊᕕᒃᑐᖅᓯᒪᔪᑦ ᐃᓄᐃᑦ ᑲᑐᔾᔨᖃᑎᒌᑦ (RIA)		ᑲᓇᑕᒥ ᖁᖓᓗᐊᒃᑎᑕᐅᓂᐊᖅᑐᓄᑦ ᐋᓂᖅᑕᐃᓕᒪᔩᑦ (CLS)
X	ᓄᓇᕗᑦ ᐃᒪᓕᕆᔩᑦ ᑲᑎᒪᔨᖏᑦ (NWB)		ᑲᓇᑕᒥ ᐊᕙᑎᓕᕆᔨᒃᑯᑦ (EC)
X	ᓄᓇᕗᑦ ᐸᕐᓇᐃᔩᑦ ᑲᑎᒪᔨᖏᑦ (NPC)		ᓄᓇᕗᒥ ᒐᕙᒪᒃᑯᑦ (GN)
X	ᐃᓄᓕᕆᔨᑐᖃᒃᑯᑦ (AANDC)		ᑲᓇᑕᒥ ᐅᓇᑕᖅᑐᔨᓕᕆᔨᒃᑯᑦ (DND)
	ᐃᖃᓗᓕᕆᔨᒃᑯᑦ ᐊᒻᒪᓗ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ (DFO)		Hᐊᒻᒪᓚᒃᑯᑦ
	ᓄᓇᓕᖕᓂ ᒐᕙᒪᓕᕆᔨᒃᑯᑦ ᐱᔨᑦᓯᕋᖅᑎᖏᑦᑐ (CG&S)		ᑲᓇᑕᒥ ᒥᕐᖑᐃᓯᖅᕕᓕᕆᔨᒃᑯᑦ (PC)
	ᓄᓇᕗᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ (NRI)		ᑲᓇᑕᒥ ᓂᕐᔪᑎᓕᕆᔩᑦ(CWS)
	ᐃᓕᖅᑯᓯᓕᕆᔨᒃᑯᑦ ᐱᖅᑯᓯᓕᕆᔨᒃᑯᑦᑐ ᒐᕙᒪᒃᑯᓐᓂ (C&H)		ᐊᓯᖏᑦ (ᓇᓗᓇᐃᕐᓗᒋᑦ ᑭᒃᑰᖕᒪᖔᑕ):

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2. ᑎᑎᕐᓗᒋᑦ ᐋᑐᑎᔪᑦ ᐱᔪᓐᓇᐅᑏᑦ, ᓚᐃᓴᑦ, ᐊᓱᖏᑦᑑᓐᓃᑦ ᐋᑐᑕᐅᔪᓐᓇᖅᑐᓅᖓᔪᑦ ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᑦ, ᐃᓱᓕᕝᕕᒃᓴᖏᑦᑐ ᐅᑦᑐᖓ:

- ᑎᐱᑦ-ᒥᑦ [Tibbit] ᑕᐃᑯᖓ ᑕᓯᕐᔪᐊᖅ [Contwoyto] ᑲᑐᔾᔨᖃᑎᒌᑦ ᐅᑭᐅᒃᑯᑦ ᐊᖁᑎᓄᑦ - ᐱᔪᓐᓇᕐᓂᖃᖅᑐᑦ ᓄᓇᒥᒃ ᐊᑐᕈᓐᓇᐅᑎ 75 M/11-1 (ᐅᐃᒍᖅ 1.). ᐋᑎᖃᕈᓐᓃᕐᓗᓂ ᐊᕐᕌᒍᒥ 2033.

3. ᐊᖓᒍᑦ ᑎᑎᕋᕐᓗᒋᑦ ᐱᔪᓐᓇᐅᑎᑖᕈᑎᒋᔭᕆᐊᖃᖅᑕᑎᑦ, ᓚᐃᓴᓐᓵᑖᕈᑎᒋᔭᕆᐊᖃᖅᑕᑎᑦᑐ, ᐅᕙᓂᙵᑦ ᐊᓱᖏᑦᑑᓐᓃᑦ ᐋᑐᑕᐅᔪᓐᓇᖅᑐᓅᖓᔪᑦ ᐱᔾᔪᑎᖃᖅᑐᑦ ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒍᑦ:

- ᐃᓄᓕᕆᔾᔪᖃᒃᑯᑦ ᑲᓇᑕᒥ ᓄᓇᖓᓂᒃ ᐊᑐᕈᓐᓇᐅᑎᑦ (ᐅᐱᒍᖅ 2)
- ᓄᓇᕗᒻᒥ ᐃᒪᓕᕆᔾᔪᑦ ᑲᓇᑕᒥ ᐃᒪᕐᒍᑦ ᓚᐃᓴᓯ (ᐅᐃᒍᖅ 3)
- ᕿᑎᕐᒥᐅᑦ ᐃᓄᐃᑦ ᑲᑐᔾᔨᖃᑎᒌᖏᑦ ᐊᑐᕈᓐᓇᕐᓂᐊᕐᒪᑕ ᐃᓄᐃᑦ ᓄᓇᖁᑎᖏᓐᓂᒃ ᐱᔪᓐᓇᐅᑎ (ᐅᐃᒍᖅ 4)
- ᓄᓇᕗᒻᒥᒃ ᐸᕐᓇᐃᔾᔪᑦ ᒪᓚᕐᓂᒃ ᒪᓕᑦᑎᐊᕐᒪᖔᑕ ᕿᒥᕐᕈᐊᖅᑐᑦ

3. **4.** ᐅᓇ ᐱᓕᕆᐊᕆᔪᒪᔭᐃᑦ ᐅᕙᓂᙵᑦ <u>ᓇᐅᒃᑯᑐᐃᓐᓇᖅ ᓇᓕᐊᑐᐃᓐᓇᖏᑦ ᐱᓕᕆᐊᕆᔪᒪᔭᕕᑦ ᐃᓗᐊᓂᑦᑐᑦ</u> ᕿᒥᕐᕈᔭᐅᓯᒪᙳᖅᓯᒪᙵᑦ ᐅᕙᓂᙵᑦ ᖃᐅᔨᒋᐊᕈᑕᐅᒋᐊᒃᑲᓐᓂᕈᑕᐅᓯᒪᙵᓂᙵᑦ ᓄᓇᕘᒥ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᑲᑎᒪᔩᓄᑦ **?**

☐ ᐃ᐀ X ᐋᒃᑲ

ᐃᖑᒃᐸᑦ, ᑎᑎᕋᕈᒃ ᐱᓕᕆᐊᕆᔭᕖᑦ ᑕᐃᔫᓯᕖᓂᖓ ᐊᒻᒪᓗ NIRB-ᑯᑦ ᑎᑎᕋᕐᑯᑎᖏᑦᑎᒍᑦ ᓈᓴᐅᑎᖓ

ᐃᓚᖓ 3: ᐱᓕᕆᐊᒃᓴᐅᔪᒪᔫᑉ ᑐᑭᖅᑉ ᖃᓄᐃᑦᑑᓂᖓᓂᒃ ᐅᓂᒃᑳᖅ

1. **1.** ᓇᓗᓇᐃᕐᓗᒍ ᑐᒃᓯᖅᑐᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ (ᐃᒪᐃᑦᑐᒥᒃ✓ ᓴᓂᕋᒍᑦ ᑎᑎᕐᓗᒋᑦ ᐊᑐᕐᓂᖅᖅᑐᓕᒫᑦ) (1,2): (ᑕᑯᒋᐊᕐᓗᒍ ᐊᑕᔪᖅ A ᐱᓕᕆᐊᕆᔭᐅᔪᑦ ᖃᓄᐃᑦᑑᔪᑦ ᑐᑭᓕᖅᑐᖅᑕᐅᓯᒪᓂᖏᑦ)

1	ᓯᓚ ᖃᓄᐃᑦᑐᑐᐃᓐᓇᒃᑯᑦ ᐊᕐᑯᑎᒃᓴᓕᐅᕐᓂᖅ ᐅᔭᕋᒃᓯᐅᕐᕕᓕᐅᕐᓂᖅ	☐	**9**	ᐃᓂᑐᕐᑲᖓᓐᓂᒃ ᐊᖅᑭᒃᓱᐃᓂᖅ/ ᓄᓇᒥᒃ ᐋᖅᑭᒃᓱᐃᓂᖅ	☒
2	ᐅᑭᐅᒃᑯᑦ ᐊᑐᓇᐊᒃᓴᖅ /ᐅᔭᕋᖕᓂᒃ ᖃᐅᔨᓴᒃᓴᓂᒃ	☒	**10**	ᐅᖅᓱᕐᔪᐊᖅᓯᐅᕐᓂᖅ ᓄᓇᒦᑦᑐᑐᕐᑲᓂᓪᓗ ᒐᓴᓕᖅᓯᐅᕐᓂᖅ	☐
3	ᓴᕕᕋᔭᒃᓴᖅᓯᐅᕐᓂᖅ (ᓄᓇᐅᑉ ᖄᖓᓂᒃ ᑎᖕᒥᔾᔭᒃᑯᑦ)	☐	**11**	ᑕᕆᐅᑐᐃᓐᓇᕐᒥ ᐱᓕᕆᐊᕆᔭᐅᔪᑦ	☐
4	ᓯᕗᒻᒨᕆᐊᒃᑲᓐᓂᖅᓯᒪᔪᑦ ᓴᕕᕋᔭᒃᓴᖅᓯᐅᕐᓂᕐᒨᑦ ᓄᓇᐅᑉ ᐃᑭᐊᖓᓐᓂᑦᑐᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ	☐	**12**	ᖃᐅᔨᓴᕐᓂᖅ/ᐅᑭᐅᖅᑕᖅᑑᑉ ᖃᐅᔨᓴᕐᓂᐅᔪᑉ ᐊᕐᕌᒍᖓ ᖃᐅᔨᓴᕈᑕᐅᓂᖓ*	☐
5	ᐅᔭᕋᒃᓯᐅᕐᕕᓕᐅᕐᓂᖅ/ᐅᔭᕋᒃᑕᒐᐅᔪᓂᒃ ᐊᒥᓱᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ	☐	**13**	ᐊᖑᓇᓱᐊᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᕆᔭᒃᓴᑦ *	☐
6	ᐃᑎᖅᓴᐃᑦ/ᑐᐊᑉᑕᕕᓪᓗ	☐	**14**	ᐳᓚᕋᖅᑐᓕᕆᓂᕐᒧᐊᓕᖓᔪᑦ *	☐
7	ᑕᕆᐅᒥ ᓴᓇᔭᐅᓯᒪᔪᑦ (ᐅᒥᐊᕐᑯᕕᒃ, ᒪᓪᓕᓗᐊᖅᑕᐃᓕᔾᔪᑦ, ᐃᒃᓴᕕᒃ)	☐	**15**	ᐊᓯᖓ (2):	☐
8	ᖃᓄᑎᒋ ᐃᑎᓂᖅᑲᖅᑎᒋᔭᕆᐊᖏᓐᓂᒃ ᐃᓗᓕᓕᖕᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ ᐅᔭᕋᒃᑕᑖᑦ ᖃᐅᔨᓴᕈᑎᒃᑯᑦ ᐆᒃᑐᕋᐅᑎᒃᑯᑦ	☐			☐

<u>ᖃᐅᔨᒪᔭᐅᔭᕆᐊᖃᖅᑐᖅ:</u>

1. ᖃᓄᐃᑦᑐᑐᐃᓐᓇᐃᑦ ᐱᓕᕆᐊᕆᔾᕐᑯᓖᓂ ᑎᑎᕋᖅᓯᒪᔪᐃᓐᓇᐃᑦ, ᑭᓯᐊᓂ (*)-ᒥᒃ ᓴᓂᕋᒍᑦ ᑎᑎᖅᓯᒪᔪᑦ, ᐱᓕᕆᐊᖃᕈᒪᔪᖅ ᖃᐃᑦᓯᔭᕆᐊᖃᕐᓂᐊᕐᒥᔪᖅᑕᐅᖅ **ᐃᓚᖓ 2-ᒦᑦᑐᒥᒃᑕᐅᖅ ᐱᓕᕆᐊᕆᔪᒪᓪᓚᕆᒃᑕᖓᓐᓄᑦ ᑐᓴᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᒃᓴᓂᒃ** Project Specific Information Requirement (PSIR) ᑕᑎᖅᓯᒪᔭᖓᓐᓂᒃ. ᑖᓐᓇ NIRB-ᑯᓐᓄᑦ ᑐᒃᓯᖅᑑᑕᐅᓂᖓ ᐱᔭᕇᖅᓯᒪᔪᖅᑎᑐᑦ ᐃᓱᒪᕐᑲᓯᐅᔾᔭᐅᔪᓐᓇᖀᔾᖏᑦᑐᑦ ᑖᓐᓇ ᐃᓚᖓ 2 PSIR ᑕᑎᖅᑕᐅᓯᒪᔭᕇᙱᑐᐊᖅᐸᑦ.
2. ᖃᐅᔨᒪᔭᐅᕝᓯᐊᕆᐊᖅᑐᖅ ᐱᔭᕇᖅᑕᐅᔪᓐᓇᕐᑯᓪᓗᒍ NIRB-ᑯᓐᓄᑦ ᐱᓕᕆᐊᕆᔭᐅᕙᓪᓕᐊᓂᕆᔭᕆᐊᖅᖅᑕᖓ,tᑖᒃᑯᐊ NIRB-ᑯᑦ ᖃᖓᑐᐃᓐᓇᕝᓯᐊᖅ ᑐᓴᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᕐᓂᒃ ᑐᒃᓲᑎᖃᕈᓐᓇᓚᖓᒋᐊᖏᓐᓂᒃ ᐱᓕᕆᐊᕆᔭᐅᕙᓪᓕᐊᓂᖓᓂᒃ.
3. “ᐊᓯᖏᑦ” ᓂᕈᐊᖅᑕᐅᒍᓂ, ᖃᐅᔨᒋᐊᕐᕕᒋᔭᕆᐊᖅᖅᑕᑎᑦ NIRB-ᑯᑦ ᖃᓄᖅ ᐱᓕᕆᐊᕆᔭᕆᐊᖃᕐᒪᖔᒋᑦ ᐃᓚᖓ 2 PSIR ᑕᑎᖅᑕᐅᔭᕆᐊᖃᕐᓂᐊᕐᒪᖔᖅ.

2. ᐱᓕᕆᐊᒑᖅᓴᓄᑦ 3, 4 ᐅᕝᕙᓘᓐᓃᑦ 5 ᖁᓛᓃᑦᑐᓃᑦᑐᑦ ᓂᕈᐊᖅᑕᐅᓐᓂᕈᑎᒃ, ᖃᓄᐃᑦᑐᓪᓚᕆᖕᒥᒃ ᐅᔭᕋᒃᑕᕈᒪᔭᕆᐊᕕᑦ ᑎᑎᕋᕐᓗᒍ. ᑎᑎᕋᐅᓯᕆᐊᕐᔪᒡᓗᒍ.

☐	ᓴᕕᕋᔭᒃᓴᐃᑦ (ᓵᖕᒃ zinc, ᑳᐳᕐ copper, ᒍᓕ gold, ᓯᐅᓪᕗᕐ silver,ᐊᓯᖏᓪᓗ)________________
☐	ᑕᐃᒪᓐ
☐	ᔪᕋᐃᓂᐊᒻ
☐	ᐊᓯᖏᑦ: ________________

3a. ᐱᓕᕆᐊᒑᖅᓴᐅᒍᓂ 12, 13 ᐅᕝᕙᓘᓐᓃᑦ 14 ᖁᓛᓂ ᓂᕈᐊᖅᑕᐅᓐᓂᕈᑎᒃ, ᐊᑎᕐᓯᐊᖓᓐᓃᑦᑐᖅ ᐱᔭᕇᕐᓗᖕᒍ ᐊᐱᖁᑕᐅᓯᒪᔪᓪᓗ ᑭᐅᓗᒋᑦ ᐊᑖᓃᑦᑐᑦ.

ᐃᖏᕐᕋᔪᑕᐅᓂᐊᖅᑐᖅ (ᑦ)	ᖃᑦᓯᑦ	ᖃᓄᖅ ᐊᑐᖅᑕᐅᓂᐊᕐᒪᖔᖅ	ᖃᓄᑎᒋ
ᐆᒃᑑᑎᒋᓗᒍ: ᖁᓛᒍᓕᒃ	*1*	*ᐱᓕᕆᐊᕆ ᕝᕕᐅᔪᓄᑦ (ᔪᓂᒃ) ᐊᙱᖅᑑᑕᐅᖅᑲᑦᕐᓗᓂ*	*6 -ᓂᒃ ᐅᓪᓗᓂᒃ*

3b. ᐅᖃᐅᓯᕆᓗᒋᑦ ᑐᓚᒃᑕᕐᕕᖅᑲᖅᐸᑦ, ᐅᓯᐊᒃᑯᒃᑕᖅᑲᖅᐸᑦ, ᒥᑦᑕᕐᕕᖅᑲᖅᐸᑦ, ᐅᕝᕙᓘᓐᓃᑦ ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᔪᒪᔭᕐᓄᑦ. ᐱᔾᔪᑎᖃᖅᑐᓂᒃ. **ᖃᐅᔨᒪᔭᐅᔭᕆᐊᖃᖅᑐᖅ: ᓄᓛᑦ ᐊᖅᑭᒃᓱᖅᑕᐅᔭᕆᐊᓖᑦ ᐃᓚᖓ 2-ᑰᖅᑐᑦ ᑕᑕᑎᕋᖅᓴᑐᐃᓐᓇᕆᐊᖃᕐᓂᖏᓐᓂᒃ.**

ᐱᑕᖃᖅᑐᖅ ᒥᑦᕕᖏᒃ ᐃᓂᖓᓂ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᖅ ᓇᓕᖃᑖᓕᕐᑎᑦᑎᔪᓂᒃ ᓄᓇᖓᓂᒃ ᑕᒪᓇ ᐱᓕᕆᖑᔪᒪᔪᖅ. ᐅᓇ ᒥᑦᕕᒃ ᖃᓄᐃᖏᑦᑎᐊᖅᑐᖅ ᐊᒻᒪᓗ ᓴᓇᔭᐅᓂᑯ ᑕᐃᑲᓂ CHᐃᕐHᐅᐊᖅ ᑕᓯᖅᔪᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐃᖏᕐᕋᑎᓪᓗᒍ.
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____

3c. ᑐᐱᕐᕕᒃᓴᖅᑲᑲᐃᓐᓇᕆᐊᖅᑲᕐᓂᕈᓂ, ᖃᓄᐃᑦᑐᓂᐊᕐᓂᖏᓐᓂᒃ ᐅᖃᐅᓯᐅᑦᓯᐊᕆᐊᓖᑦ ᖃᓄᐃᑦᑐᓂᒡᓗ ᐊᐅᓚᐅᑎᓂᒃ ᐊᑐᕐᓂᐊᕆᐊᕕᑦ ᑐᐱᕐᕕᒋᓂᐊᖅᑕᕐᓂ ᐅᖃᐅᓯᕆᑦᓯᐊᕐᒥᓗᒋᑦᑕᐅᖅ ᑕᐃᒪᐃᓐᓂᐊᕐᓂᕈᓂ.

ᑖᓇᐅᔪᖅ CHᐃᕐHᐅᐊᖅ ᑕᓯᖅᔪᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐃᓄᖅᑲᕐᕕᖓ ᓇᑉᐸᖅᑕᐅᓯᒪᔪᖅ ᐊᑐᖅᑕᐅᓗᓂ ᐃᓂᖓᓂᒃ ᓇᓕᖃᑖᓕᕐᑎᑦᑎᓇᓱᖕᓂᖏᓐᓂ. ᑕᐃᒪᓗ ᐃᓂᖓ ᐱᔭᕇᖅᐸᑦ ᐅᓇ ᑕᖕᒫᖅᓯᒪᕕᒋᔭᖓᑦ ᐃᓄᖃᕐᕕᒋᔭᖓᑦ ᓱᕋᑦᑎᔭᐅᓗᓂ ᐊᒻᒪᓗ ᓴᐅᔭᐅᓗᓂ. ᑕᖕᒫᖅᓯᒪᔪᑦ ᖃᐅᖅᒪᖁᑎᖃᕐᕕᖏᑦ ᐃᑯᒪᓂᐊᖅᑐᑦ ᔭᓄᓚᐃᑕᒧᑦ ᐅᑯᐊᓗ ᑕᐃᑲᓃᑦᑐᑦ ᑕᐃᒪᖓᓂᑦ CHᐃᕐHᐅᐊᖅ ᑕᓯᖅᔪᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕕᒃ ᐃᖏᕐᕋᑎᓪᓗᒍ.
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____
____

4. ᓴᓇᕙᑦ

ᖃᑦᓯᐅᕙᑦ ᓴᓇᖃᑕᐅᔪᑦ = (A)	50	ᖃᓄᑎᒋᒻᒪᕆᒃ ᓴᓇᓂᐊᖅᐸᑦ = (B)	180	ᖃᓄᑎᒋᐅᓂᐊᕐᓂᖏᑦ ᑲᑎᓪᓗᒋᑦ (A) x (B) = 9000 (ᐅᓄᓛᑦ)

5. ᖃᖓᐅᑎᓪᓗᒍ

ᖃᖓᓪᓚᕆᒃ ᓴᓇᓂᐊᖅᐸᑦ	ᔮᓄᐊᕆ 2017	ᒥᑦ	ᒫᔾ 2018 ᒧᑦ
ᖃᓄᑎᒋ ᑲᔪᓯᒃᑲᖅᑕᐅᓂᐊᕋᓯᒋᔭᐅᓂᖓ:	ᔮᓄᐊᕆ 2017	ᒥᑦ	ᒫᔾ 2018

ᒧᑦ

6a. ᐊᕙᒃᑐᖅᓯᒪᐅᕐᓂᕐᒥ (ᑎᑎᕐᓗᒋᑦ ᑕᒪᐃᑕ ᐊᑐᕐᓂᖃᕐᓂᐊᖅᑐᑦ):

- [ ] ᕿᑭᖅᑖᓗᑉ ᐅᐊᖕᓇᖕᒐᓂ
- [ ] ᕿᑭᖅᑖᓗᑉ ᓂᒋᐊᓂ
- [ ] ᑭᕙᓪᓕᖅᒥ
- [ ] ᒥᙱᐃᖅᓯᕙᖕᒥ
- [x] ᕿᑎᕐᒥᐅᓂ
- [ ] ᓄᓇᑖᕙᐅᔩᑉ ᑭᒡᓕᖅᑐᖅᑕᐅᓯᒪᓂᐊᓂ: ______

6b. ᐅᖃᐅᓯᕆᑦᓯᐊᕐᓗᒍ ᓄᓇᕗᑦ ᓇᓕᐊᖕᓂ ᐊᕙᒃᑐᖅᓯᒪᐅᕐᓂᖕᒐᓐᓂᐊᓂᐊᖕᒐᓐᓂᒃ ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᔪᒪᔭᐃᑦ, ᓇᓕᐊᖕᓂᒡᓗ ᓄᓇᒋᔭᐅᔪᒥᑦ ᖃᓂᓐᓂᖅᑰᖑᕗ ᓄᓇᒥ ᓴᐳᒻᒥᒃᔫᐊᕙᐅᔫᒥᑦᓴᕆᐊᖕᒐᓂᒡᓗ.
ᐅᓇ ᐃᓂᖓ ᓇᓕᖃᕇᓕᖅᑐᖅᑕᐅᓂᖓ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᖅ ᐃᒡᓯᓇᖅᑕᐅᓂᑯᒥ ᐃᓄᖃᖕᖏᑦᑐᒥ ᑕᕼᐃᕐᕼᐅᐊᖅ ᑕᓯᖅᔭᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕙᒃ [Jericho Mine] ᑕᐅᕙᓃᑦᑐᖅ 260 ᑭᓚᒦᑕᑉ ᓂᒋᐊᓂ ᑲᓇᖕᓇᖕᒐᓂ ᖁᕐᓗᖅᑐᖅ, ᓄᓇᕗᑦ ᐊᒻᒪᓗ 30 ᑭᓚᒦᑕ ᐅᐊᖕᓇᖓ ᔫᐱᓐ [Lupin Mine] ᐅᔭᕋᖕᓂᐊᕐᕙᒃ ᑕᐅᕙᓂ ᑕᓯᕐᔭᐊᖅ-ᐃᑦᓯᓐ [Contwoyto-Itchen] ᓄᓇᖕᒐᓐᓂ.

6c. ᑎᑎᕋᐅᓯᕆᓗᒍ ᐱᓕᕆᐊᕆᕚᕆᔭᒪᔭᕙᑦ ᐃᓂᖓ ᐱᓕᕆᐊᕆᕚᐅᓚᐅᖅᓯᒪᔭᕆᐊᖕᒐᓐᓂᒃ.

ᐅᓇ ᑕᕼᐃᕐᕼᐅᐊᖅ ᑕᓯᖅᔭᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕙᒃ ᒪᑐᐃᓚᐅᖅᓯᒪᔭᖅ 2006 ᑖᒃᑯᓇᖕᒐᑦ ᑎᕼᐃᐅᓚ ᑕᒪᓐᓴ ᑯᐊᐳᓃᓴᓐ [Tahera Diamond Corporation] ᐅᑯᐊᓗ ᑮᓇᐅᔭᕐᕙᓐᓅᖅᓯᒪᔪᑦ ᑲᑦᒃᓯᒪᓪᓗᑎᒃ 2008-ᒥ. ᓯᐅ ᑕᒪᓐᓴ ᑯᐊᐳᓃᓴᓐ [Shear Diamonds Corp] ᓇᖕᒥᓂᖅᑖᕆᓚᐅᖅᓯᒪᔭᖕᒐᑦ ᑖᓐᓇ ᑕᕼᐃᕐᕼᐅᐊᖅ ᑕᓯᖅᔭᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕙᒃ ᑕᐃᒃᑯᓂ 2010 ᐊᒻᒪᓗ ᐃᖕᒋᕐᕋᑎᓪᓗᒍ ᐅᔭᕋᖕᓂᐊᖅᓗᑎᒃ ᐊᑖᒍᑦ ᐸᕿᔭᐅᓗᑎᒃ ᐊᒻᒪᓗ ᓴᓇᔭᐅᖅᑲᑦᑕᖅᓗᑎᒃ ᑎᑭᓐᓇᓱᖕᓂᖕᒐᓂ 2012 ᑕᐃᒃᑯᓂ ᓯᐅ ᓄᖅᑲᓚᐅᖅᑐᖅ ᐅᔭᕋᖕᓂᐊᖅᑕᑎᒃ. ᐃᓄᓕᕆᕝᑐᖅᑳᒃᑯᑦ ᑲᓇᑕᒥ ᐱᓕᕆᓯᒪᓂᖅᑕᖕᒐᑦ ᐊᕝᕙᑎᖕᒐᓂᒃ ᓴᐳᓐᓂᐊᖅᓗᑎᒃ ᑕᕼᐃᕐᕼᐅᐊᖅ ᑕᓯᖅᔭᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕙᒃ ᑕᒪᖕᒐᓂᑦ ᐳᕐᖔᖅ 2013, ᐊᒻᒪᓗ ᐊᐅᓚᓪᓗᒍ ᑕᕼᐃᕐᕼᐅᐊᖅ ᑕᓯᖅᔭᐊᖅ ᐅᔭᕋᖕᓂᐊᕐᕙᒃ ᑕᒪᖕᒐᓂᑦ ᔫᓄᐊᓇ 2014.
ᐅᓇ ᐋᕿᒃᓯᒪᓂᑐᕐᑲᖕᒐ ᐅᔭᕋᖕᓂᐊᕐᕙᒃ ᐸᕐᓇᐅᑎᑐᕐᑳᑦ ᐋᕿᒃᑕᐅᓚᐅᖅᑐᖅ ᐱᓕᕆᐊᖑᔪᒧᑦ 8-ᓄᑦ ᐊᕐᕌᒍᓄᑦ ᐃᖕᒋᕐᕋᑎᓪᓗᒍ ᐊᒻᒪᓗ ᐲᔭᐃᓪᓗᑎᒃ ᓴᕙᕋᔭᒃᓴᓂᒃ ᐊᑐᖅᓯᓪᓗᑎᒃ ᖁᓕᖅᑳᖕᖏᑦᑐᒥᒃ ᐅᔭᕋᖕᓂᐊᕐᕙᖅᑲᖅᓗᑎᒃ ᐊᒻᒪᓗ ᓄᓇᐅᑉ ᐃᑭᐊᖕᒐᓂ ᐱᓕᕆᔾᔪᑎᖏᓐᓂᒃ ᐊᑐᖅᓗᑎᒃ. ᐅᓇ ᐅᔭᕋᖕᓂᐊᕐᕙᖕᒥ ᓴᓇᓂᖅ ᐱᕚᓪᓕᓚᐅᙱᑦᑐᖅ ᐊᓯᐊᓄᑦ ᖁᓕᖅᑲᕐᓂ ᐅᔭᕋᖕᓂᐊᖅᑐᑦ ᓄᓇᒥᑦ ᐲᔭᐃᔪᑦ.

6d. ᓇᖕᒥᓂᖅ ᖃᐅᔨᒪᔭᖃᕆᐊᕙᑦ ᐃᑦᓴᕐᓂᑕᖃᕐᕕᕙᓂᖅᑕᖃᐅᕆᐊᖕᒐᓐᓂᒃ /ᑐᐱᕐᕕᕙᓂᖅᑕᖃᐅᕆᐊᖕᒐᓂᒡᓗ ᐅᖃᐅᓯᕆᒍᒃ.
ᑎᕼᐃᐅᓚ ᓯᑯᑦᑕᕐᒥᒃ ᐱᔮᓇᐅᑎᑖᕋᒥᒃ ᐆᒃᑑᑎᒥᖕᓄᑦ ᐅᖃᖅᓯᒪᓚᐅᖅᑐᑦ ᐱᔭᓃᖅᓂᐊᖅᓗᒍ ᐃᑦᓴᕐᓂᑕᖃᕐᕕᑦ ᐊᒃᑐᖅᑕᐅᓇᔭᕐᒪᖔᑕ ᖃᐅᔨᓴᕆᑎᑦ. ᓇᓂᔭᑎᒃ ᑎᑎᕋᖅᓗᒋᑦ ᑐᑭᓯᓇᖅᓯᑎᑦᑎᔾᔭᑎᒋᑦᓗᒋᑦ ᐃᒪᓐᓇ: “ᐱᑕᖃᙱᑦᑐᖅ 25 ᐃᑦᓴᕐᓂᑕᖃᕐᕕᐅᔭᑦ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᔭᑦ ᐃᓂᖏᓐᓂ ᑕᐃᒃᑯᓂ ᐱᓕᕆᐊᖑᑎᓪᓗᒍ ᐊᕝᕙᑎᖕᒐᓂᒃ ᐊᒃᑐᐃᕙᒐᔭᖅᑐᑦ ᐋᕿᒃᓯᒪᔾᔭᑎᒃᓴᓂᒃ ᖃᐅᔨᔭᖃᓚᐅᖕᖏᑦᑐᖅ ᖃᓄᖅ ᐊᙱᕐᓂᕆᔭᒥᒃ ᐊᒃᑐᖅᑕᐃᓚᒪᑎᑦᑎᔾᔭᑕᐅᕙᒐᔭᖅᑐᓂᒃ ᑕᒪᑐᒧᖕᒐ ᐱᕙᓪᓕᐊᑎᑕᐅᓂᖕᒐᓄᑦ.”

ᐊᔾᔨᖕᒋᑦ ᑕᒪᓐᓇᐅᓕᖕᒐᒐᔭᖅᑐᑦ ᐊᕌᑎᔭᑦ ᐃᓂᖓ ᓇᓕᖃᕇᓕᖅᑎᑕᐅᓂᐊᕐᓂᖓ ᓴᓇᓂᐊᖅᑐᑦ ᐊᓯᐊᓄᐊᔮᓐᖏᑦᑐᑦ ᑭᒡᓕᒥ ᐋᕿᒃᑕᐅᓯᒪᔭᓂᒃ ᐅᔭᕋᖕᓂᐊᖅᑲᑦᑕᓚᐅᖅᑐᓂᑦ ᐊᒻᒪᓗ ᐊᑐᖅᓯᓂᐊᖅᑐᑦ ᑖᒃᑯᓂᖕᒐᑦᑕᐃᓐᓇᖅ ᐅᑭᐅᒃᑯᑦ ᐊᕐᑯᑎᖕᒋᓐᓂᒃ ᐊᕐᑯᑎᖅᑲᕐᓗᑎᒃ.

7. ᓄᓇᐅᒧᑦ ᐱᔾᔪᑎᖃᖅᑐᖅ (ᑕᒪᐃᑦ ᐊᑐᕐᓂᖃᕐᓂᐊᖅᑐᑦ ᑎᑎᕐᓗᒋᑦ):

X	ᑲᓇᑕᐅᑉ ᒐᕙᒪᖓᑦᑕ ᓄᓇᖁᑎᖓ		ᑲᒥᓯᓇᐅᑉ ᓄᓇᖁᑎᖓ		ᕼᐊᒪᓚᐅᑉ ᓄᓇᖁᑎᖓ
X	ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔭᖓᓐᓂ ᓄᓇᐅᑉ ᖄᖓᓃᑦᑐᑦ		ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔭᖓᓐᓂ ᓄᓇᐅᑉ ᐃᑭᐊᖓᓃᑦᑐᑦ		

8a. ᓄᓇᙳᐊᖅᑎᒍᑦ ᓱᒃᑯᑦᓯᓪᓚᕆᐊᖓᓐᓃᒻᒪᖔ:

Min ᐊᖕᒧᑦ (degree/minute)	65 ° 58 ' 59.92 " ᐅᐊᖕᓇᖓ	Min ᓴᓂᒧᑦ (degree/minute)	111 ° 25 ' 57.53 " ᐱᓇᖕᓇᖓ
Max ᐊᖕᒧᑦ (degree/minute)	66 ° 02 ' 00.81 " ᐅᐊᖕᓇᖓ	Max ᓴᓂᒧᑦ (degree/minute)	111 ° 32 ' 01.93 " ᐱᓇᖕᓇᖓ

ᓄᓇᙳᐊᒥ ᐆᒥᙵ ᓈᓴᐅᑎᖃᖅᑐᒦᑦᑐᑦ: 076L04; 076E13, 076L03; 076E14

(ᐱᓕᕆᐊᕆᓂᐊᖅᑕᕕᑦ ᓄᓇᙳᐊᑦ ᐃᓚᖃᓯᐅᑎᓂᐊᖅᐸᑎᑦ (1:50,000 ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᕐᓂᕈᓂ, 1:250, 000 ᐃᓚᖃᓯᐅᑎᓪᓚᕆᐊᓖᑦ) ᑲᓇᑕᐅᑉ ᓄᓇᒥᐅᑕᑕᓂᔾᒃᑯᖏᓐᓂ ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᖅᑐᖅ)

8b. ᑐᒃᓯᖅᑑᑎᑎᒍᑦ ᐱᓕᕆᐊᕆᕙᒪᔭᐃᑦ ᐃᒡᓗᑐᖃᕐᓂᐊᕈᓂᓘᓐᓃᑦ ᑐᐱᖅᑕᖃᕐᓂᐊᕈᓂᓘᓐᓃᑦ, ᓱᑯᑦᓯᐊᓃᓪᓚᕆᖕᓂᐊᕆᐊᖏᓐᓂᒃ ᓄᓇᙳᐊᖅᑎᒍᑦ ᐊᑐᐃᓐᓇᐅᑎᑦᓯᓂᐊᖅᐸᑎᑦ

Min ᐊᖕᒧᑦ (degree/minute)	65 ° 59 '26.25" ᐅᐊᖕᓇᖓ	Min Long (degree/minute)	111 ° 30 '08.99 " ᐱᓇᖕᓇᖓ
Max ᐊᖕᒧᑦ (degree/minute)	65 ° 59 '26.25" ᐅᐊᖕᓇᖓ	Max Long (degree/minute)	111 ° 30 '08.99 " ᐱᓇᖕᓇᖓ

ᖁᑦᓛᓂᑦᑑᑉ ᐊᔾᔨᒌᖏᑉᐸᐅᒃ :

ᓄᓇᙳᐊᒥ ᐆᒥᙵ ᓈᓴᐅᑎᖃᖅᑐᒦᑦᑐᑦ: 076L03

(ᐱᓕᕆᐊᕆᓂᐊᖅᑕᕕᑦ ᓄᓇᙳᐊᑦ ᐃᓚᖃᓯᐅᑎᓂᐊᖅᐸᑎᑦ (1:50,000 ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᕐᓂᕈᓂ, 1:250, 000 ᐃᓚᖃᓯᐅᑎᓪᓚᕆᐊᓖᑦ) ᑲᓇᑕᐅᑉ ᓄᓇᒥᐅᑕᑕᓂᔾᒃᑯᖏᓐᓂ ᐊᑐᐃᓐᓇᐅᔪᖅᑕᖃᖅᑐᖅ)

ᖃᐅᔨᒪᔭᐅᓂᐊᖅᑯᖅ ᓱᒃᑯᑦᓯᓪᓚᕖᑦᑎᐊᕐᒋᐊᖕᓂᒃ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᑦ ᑐᓴᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᕐᓂᒃ ᑐᒃᓯᖅᑐᕐᕕᐅᒃᑲᓐᑐᐃᓐᓇᕆᐊᖃᕐᓂᓐᓂᒃ ᐱᓕᕆᐊᕆᓪᓚᕆᑦᑕᕐᒪᖓᑦ ᑐᓴᒃᓴᐅᑎᒃᓴᒃᑲᓐᓂᒃᓴᓂᒃ ᑐᒃᓯᖅᑑᑕᐅᔪᕕᓂᕐᓄᑦ (PSIR). ᖃᓇᑕᐅᓯᖅᑎᒍᑦ ᓄᓇᙳᐊᓕᕕᓂᖅᓃᖕᖑᐃᓐᓇᓇᐊᖃᖅᑐᖅ (GIS).

ᐃᓚᖓ 4: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒧᑦ ᖃᓄᐃᑦᑑᓂᐊᕐᓂᖓᓐᓄᑦ ᐅᖃᐅᓯᐅᓂᖓ

ᐃᓚᖃᓯᐅᑎᓗᒍ ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒧᑦ ᖃᓄᐃᑦᑑᓂᐊᕐᓂᖓᓐᓄᑦ ᐅᖃᐅᓯᕆᔭᑎᑦ, ᑖᒃᑯᐊ ᑎᑎᕋᖅᑕᑎᑦ 500-ᓂᒃ ᐅᖃᐅᓯᑎᑦ ᑎᑎᖅᑲᖃᕆᐊᖃᖅᑐᑦ ᖄᖏᐅᑎᓯᒪᔭᕆᐊᖃᙱᑦᑐᑦ, ᖃᑦᑐᓈᑏᑐᑦᑑᓐᓃᑦ ᐃᓄᒃᑎᑐᑦᑑᓐᓃᑦ (+ᐃᓄᐃᓐᓇᖅᑎᑐᑦᑑᓐᓃᑦ, ᕿᑎᕐᒥᐅᓈᓐᓂᐊᕐᓂᕈᓂ). ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔫᑉ ᐅᖃᐅᓯᐅᓂᖓ ᐅᑯᓂᙵ ᐃᓗᓕᖃᕆᐊᖃᖅᑐᖅ:

- ᐱᓕᕆᐊᒐᒃᓴᒧᑦ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᑦ, ᐱᑕᖃᕆᐊᖃᕐᓂᖏᑦᑐ ᐊᒻᒪᓗ ᖃᓄᖅᑭᑭᓗ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕆᐊᖓᓂᒃ;
- ᐊᐅᓪᓚᖅᑕᐅᑎᐅᓂᐊᖅᑐᑦ ᐊᕙᓗᒃᑕᕈᑕᐅᓂᐊᖅᑐᑦ;
- ᓱᓇᑐᐃᓐᓇᐃᑦ ᓇᑉᐸᖅᑎᖅᑕᐅᓂᐊᖅᑐᑦ (ᓇᐸᑯᑖᖕᓂᐊᖅᑐᑦ/ ᐊᑐᖅᑕᐅᑲᐃᓐᓇᕐᓂᐊᖅᑐᓪᓗᓐᓃᑦ);
- ᐊᓯᖖᖏᑦ ᐊᑐᖅᑕᐅᖖᑮᓇᖅᑐᑦ; ᐊᒻᒪᓗ
- ᓯᕗᓂᒃᓴᑯᑖᒧᑦ ᓴᓇᔭᐅᕙᓪᓕᐊᓂᖃᕐᓂᐊᖅᑐᑦ, ᓴᓇᔭᐅᓂᐊᕌᓯᕆᔭᐅᔪᓄᓪᓗ ᓱᓇᒧᑦ ᐊᑐᖅᑕᐅᓂᐊᕆᐊᖏᓐᓄᑦ ᐱᓕᕆᐊᕆᐅᕕᐅᓂᐊᖅᑐᒥ ᐊᒻᒪᓗ ᖃᓄᑎᒋᓂᐅᓂᐊᕌᓯᕆᔭᐅᓂᖏᑦᑐ ᐊᑐᖅᑕᐅᓂᐊᕆᐊᖏᑦᑕ.

<u>ᖃᐅᔨᒪᔭᐅᓪᓚᕆᐊᖃᖅᑐᖅ:</u> ᐱᓕᕆᐊᕆᔭᐅᓂᐊᓴᑦ NIRB PART 2 PSIR-ᒧᑦ ᑕᑕᑎᕈᑕᑎᖃᕆᐊᖃᕐᓂᕈᑎᒃ ᐃᓚᖓ 8-ᒦᑦᑐᖅ ᑭᓯᐊᓂ ᑕᑕᑎᖅᑕᐅᔭᕆᐊᖃᖅᑐᖅ ᑕᒪᓐᓇᑐᐊᐊᖑᓗᓂ, ᐊᓯᖏᓪᓕ ᐃᓚᖓ 5-ᒥᒃ ᐱᕆᐊᕐᕕᒋᓗᒍ ᑕᑕᑎᖅᑕᐅᔭᕆᐊᖃᖅᑐᖅ.

ᐃᓚᖓ 5: ᐊᑐᖅᑕᐅᔫᒃᓴᑦ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᖏᑦ

1. ᐱᖁᑎᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᑎᑎᕋᕐᓗᒋᑦ (ᐃᓚᖃᓯᐅᑎᓗᒋᑦ ᐃᑯᑕᕈᑎᑦ, ᐅᖅᓱᖅᑐᐃᑎᑦ, ᑎᖕᒥᔾᑦ, ᓄᓇᒃᑰᑦ, ᐊᓯᕈᑑᔭᖏᓪᓗ.):

ᖃᓄᐃᑐᖅ ᐱᖁᑦ ᓈᓴᐅᑎᖓᓗ	ᐊᖏᓂᖓ – ᑕᑭᓂᖓ ᐳᖅᑐᓂ	ᓱᓇᒧᑦ

2a. ᐅᖅᓱᒃᓴᐃᑦ ᐊᑦᑕᓇᖅᑐᖅᑎᓪᓗ ᐊᑐᖅᑕᐅᓂᐅᓴᑦ ᐅᖃᐅᓯᐅᖠᓯᐊᓇᐊᓖᑦ:

ᐅᖅᓱᒃᓴᑦ	ᐅᖅᓱᕐᑲᐅᑏᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᐃᒪᖃᖅᑎᕆᓂᖏᓪᓗ ᖃᑦᑕᐅᔭᐃᑦ	ᐅᖅᓱᒃᓴᐃᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᑲᑎᓪᓗᒋᑦ (ᓛᑕᐃᑦ ᐊᑐᕐᓗᒋᑦ)	ᖃᓄᖅ ᑐᖅᑯᖅᑕᐅᓯᒪᓂᐅᓴᑦ
ᐅᖅᓱᕐᔪᐊᖅ			
ᒐᓴᓖᖅ			
ᑎᖕᒥᔪᖅᓯᐅᑏᑦ			
ᐳᓪᓚᓖᑦ			
ᐊᓯᖏᑦ			
ᐊᑦᑕᓇᖅᑐᖅᑖᓪ ᐃᓚᐅᖅᓱᖅᓯᒪᔾᓪᓗ		ᑲᑎᓪᓗᒋᑦ ᐊᑦᑕᓇᖅᑐᖅᑖᓪ ᐃᓚᐅᖅᓱᖅᓯᒪᔾᓪᓗ (ᓛᑕᐃᑦ ᐊᑐᕐᓗᒋᑦ)	

2b. ᑯᕕᔾᖅᑕᕐᑲᕐᓂᐊᕓᖅᑎᓪᓗᒍ ᖃᓄᖅ ᐸᕐᓇᐅᑎᕐᑲᕐᓂᐊᕆᐊᕕᑦ ᑯᕕᔾᖅᑕᕐᑲᕐᓂᖅᐸᑦ ᐅᖃᐅᓯᕆᕝᓯᐊᕈᒃ .

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3a. ᖃᓄᑎᒋ ᐃᒪᕐᒥᒃ ᐊᑐᕐᑲᑦᑕᕐᓂᐊᕋᓱᒋᖕᒪᖔᖅᐱᑦ

ᐅᓪᓗ ᑕᒪᖅ ᐱᖓᓱᐊᖅᑎᕐᓗᒍ (m³)	ᓱᓇᒧᑦ ᖃᓄᕐᓗ ᐃᒥᖅᑕᕐᑲᑦᑕᕐᓂᐊᕆᐊᕕᑦ	ᓇᑭᑦ ᐃᒥᖅᑕᕐᑲᑦᑕᕐᓂᐊᕆᐊᕕᑦ

3b. ᐃᒥᖅᑕᖅᑕᕋᓂᐊᕋᓂᒍᑦ ᓄᓇᕗᒥ ᐃᒪᓕᕆᓂᖅᓴᑦ ᑲᑎᒪᔨᓂᖅ ᓕᐃᓴᐅᓚᑕᕐᓯᐊᖅᐱᑦ ?

☐ ᐊ ☐ ᐊᖏᑐ

ᐊ-ᖃᓄᓂᕈᓂ, ᖃᓄᐃᑕᑐᖅᓄᑦ ᓕᐃᓴᖅᓯᑎᒍᑦ ?

☐ Class A ᐃᒥᖅᑕᕋᓂᒍᑦ ᓕᐃᓴᐅᓴ

☐ Class B ᐃᒥᖅᑕᕋᓂᒍᑦ ᓕᐃᓴᐅᓴ

ᐃᓚᖓ 6: ᐊᒃᑕᑑᑦ ᐃᒋᐅᖃᖅᑕᐅᓂᐊᕐᓂᖏᓐᓄᑦ ᓴᓗᒻᒪᖅᓴᐃᓂᕐᒧᓪᓗ

1. ᑎᑎᕋᕐᓗᒋᑦ ᐊᒃᑕᖅᑕᐅᔾᔭᓴᑦ ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᓂᐅᓴᕚᑦ ᓴᖅᑭᐊᑎᑕᐅᓂᐊᕋᓱᒋᔭᐅᔪᑦ :

ᐊᒃᑕᑑᖅ	ᓴᖅᑭᐊᓂᐊᕋᓱᒋᔭᐅᔪᑦ	ᖃᓄᖅ ᐃᒋᐅᖃᖅᑕᐅᓂᐊᖅᐸᑦ	ᓴᓗᒻᒪᖅᓴᐅᑕᐅᒃᑲᓂᕐᓂᐊᖅᑐᑦ
ᕿᖅᑕᑦ (ᐃᓄᒃᓃᖅᑐᑦ)			
ᐅᐊᓴᕈᑎᕙᓃᑦ			
ᐃᑯᐊᓚᑕᐅᔪᓐᓇᖅᑐᑦ			
ᐃᑯᐊᓚᑕᐅᔪᓐᓇᖏᑦᑐᑦ			
ᓄᓇᒥᑦᑐᑦ (ᓄᓇ, ᐊᑐᖅᑕᐅᔪᓐᓇᕐᓂᐊᖏᑦᑐᑦ, ᓯᕿᑖᖅᑐᖅᑕᐅᓯᒪᓂᑯᐃᑦ)			
ᐊᑦᑕᓇᖅᑐᖅᑖᑦ			
ᐊᓯᖏᑦ:			

2. ᐅᖃᐅᓯᕆᓗᒍ ᖃᓄᖅ ᐊᒃᑕᑑᑦ ᐃᒋᐅᖃᖅᑕᐅᖃᑦᑕᕐᓂᐊᕆᐊᖏᓐᓄᑦ.

ᐃᓚᖓ 7: ᓄᓇᓕᒋᔭᐅᔪᑦ ᐃᓚᐅᑎᑕᐅᓂᐊᕐᓂᖏᓐᓄᑦ & ᐊᕙᒃᑐᖅᓯᒪᐅᖅᑐᒧᓪᓗ ᐃᑲᔫᑕᐅᓂᐊᖅᑐᑦ

1. ᑎᑎᕋᕐᓗᒋᑦ ᓄᓇᓕᒋᔭᐅᔪᒥ ᑭᒡᒐᖅᑐᐃᓃᑦ ᖃᐅᔨᒃᑲᖅᑎᑕᐅᔪᕙᓃᑦ ᐊᒻᒪᓗ ᑲᑎᒪᔾᔪᑎᕙᓂᖅᑕᖃᕐᓂᕈᓂᓗ ᐊᑐᐃᓐᓇᐅᑎᓪᓗᒋᑦ:

ᓄᓇᓕᔮᖅ	ᐊᑎᖓ	ᑲᑐᔾᔨᖃᑎᒌᑦ	ᐅᓪᓗᖓ ᖃᐅᔾᔨᒃᑲᖅᑕᐅᓂᕙᓂᖓ

ᐃᓚᖓ8: ᑭᓱᑐᐃᓐᓇᕐᒧᑦ ᐊᐱᖅᑯᑏᑦ

1. ᖃᐅᔨᒪᔭᐅᔪᓂᒃ ᐃᓚᓴᕐᓂᑖᖃᕐᕕᓂᕐᓂᒃ ᐊᒃᑐᐃᓂᐊᖅᐲᑦ ?

☐ ᐄ X ᐋᒃᑲ

ᐃᓚᖓ9: ᐊᑎᓕᐅᕈᑦ

ᑐᒃᓯᖅᑏᑦ ᐊᑎᓕᐅᕐᓗᒍ ᐅᑦᓗᖓᓗ ᑎᑎᕋᕐᓗᒍ :

ᐊᑎᓕᐅᕈᑦ	ᑭᓯᓕᖕᔫᓂᑦ	ᐅᑦᓗᒥ

ᐊᑕᔪᖅ A
ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᓄᑦ ᑐᑭᖏᑦ

ᐊᑐᕆᐊᒃᓴᓕᐅᕈᒪᓂᖅ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᓄᓇᒃᑰᔫᓄᑦ ᐊᑐᕆᐊᖅᑕᕐᑲᕈᓐᓇᕐᑯᓪᓗᒍ ᓄᓇ ᓱᓐᓂᓗᐊᖅᑕᐅᑦᑕᐃᓕᒪᓗᓂ.

ᓯᕗᒻᒧᒋᐊᖅᑕᐅᓯᒪᔪᖅ ᓴᐳᔾᔭᒃᓴᖅᓯᐅᕈᒪᓂᖅ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᓇᓗᓇᐃᖅᑕᐅᓇᓱᐊᕐᓗᓂ ᐊᕐᕌᓂᖓ, ᐱᐅᓂᖓ, ᖃᓄᐃᑦᑐᓂᖓᓗ ᓴᐳᔾᔭᒃᓴᖅᑕᕐᑲᖅᑑᑉ ᐊᒻᒪᓗ ᑮᓇᐅᔭᓕᐅᕈᑕᐅᔪᓐᓇᕐᔭᕆᐊᖓᓂᒃᓗ ᐅᔾᔪᕐᓯᐅᕐᕕᓕᐅᖅᑕᐅᔪᓐᓇᕐᔭᕆᐊᖓᓂᒃᓗ ᓴᐳᔾᔭᒃᓴᖅᑕᕐᑲᖅᑐᖅ.

ᖃᓄᐃᑦᑐᐃᓐᓇᒃᑯᑦ ᓯᓚᒃᑯᑦ ᐊᕐᑯᓯᐅᕈᒪᓂᖅ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐊᕐᕑᒍᓕᒫᖅ ᐊᑐᖅᑕᐅᕐᑲᑦᑕᕈᓐᓇᕐᔭᖅᑐᒥᒃ ᖃᓄᐃᑦᑐᐃᓐᓇᒃᑯᑦ ᓯᓚᒃᑯᑦ ᐊᕐᑯᓯᐅᕐᕕᐅᔪᒪᓪᓗᓂ.

ᐅᔾᔨᒃᑕᒐᐃᑦ ᖃᐅᔨᓴᒐᒃᓴᐅᔪᒪᓂᕆᑦ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐅᔾᔨᐸᐅᔾᔨᕐᓂᒃ ᐅᔾᔨᒃᑕᕐᓂᖅ ᓴᐳᔾᔭᒃᓴᖅᑕᕐᑲᕆᐊᕆᓐᓂᒃ ᖃᐅᔨᓴᒐᒃᓴᐅᓂᐊᖅᑐᓂᒃ ᑲᑎᑕᐅᒍᑎᒃ ᐅᕐᑯᒪᐃᑦᑑᑎᒻᒪᕆᐅᓕᕈᓐᓇᖅᑐᓂᒃ ᐋᔭᐃᕙᐅᓗᓂ. (ᓯᕐᑲᓖᖅᑐᖅᑕᐅᑐᐃᓐᓇᕆᐊᕐᑲᖅᑐᑦ ᐅᔾᔨᒃᓯᐅᕐᕙᒃᑕᕐᑲᖅᑭᒃᑲᓗᐊᓪᓚᖅᑎᓪᓗᒍ)

ᐊᖑᓇᓱᐊᕈᒪᓂᖅ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐊᖑᓇᓱᐊᕐᓂᒃᑯᑦ, ᑕᕆᐅᒥᓗ ᓂᕐᔪᑎᓂᓪᓗᓐᓂᑦ ᐊᒻᒪᓗ/ᐅᑲᓗᓐᓂᑦ ᐃᕐᑲᓗᒃᓯᐅᕐᓂᕐᓗᓐᓂᑦ ᑕᒪᐃᓐᓂᒃ ᐊᑐᓂ ᐱᑕᕐᑲᖅᑐᓂᒃ ᐊᖑᓇᓱᐊᕐᓂᒃᑯᑦ ᒥᑭᒋᐊᖅᑕᕐᓂᒃᑯᑦ ᐃᓄᖕᓄᑦ ᓂᕆᔭᐅᓂᐊᖅᑐᓂᒃ ᐊᒻᒪᓗ ᓂᐅᕕᐊᒃᓴᐅᓂᐊᖅᑐᓂᓪᓗ.

ᑕᕆᐅᒥ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅᑕᕐᑲᕐᓂᖅ: ᑕᕆᐅᒥ ᐱᓕᕆᐊᕆᔭᐅᔪᓐᓇᖅᑐᖅ, ᐆᒃᑑᑎᒋᓗᒍ ᐅᒥᐊᒃᑯᑦ ᓄᓇᓕᐅᓐᓇᖅᑐᒃᑯᑦ ᑕᕆᐅᒥᓗᓐᓂᑦ ᐱᓕᕆᐊᕐᑲᕈᓐᓇᕐᓗᓂ.

*ᖃᐅᔨᒪᔭᐅᔭᕆᐊᕐᑲᖅᑐᖅ ᓄᓇᓕᕆᔭᐅᔪᓄᑦ ᓂᐅᕙᒃᓴᓂᒃ ᐊᓯᔭᖅᑐᐃᓂᖅ ᐅᑲᓗᓐᓂᑦ ᐃᓕᒃᑰᖅᑐᑦ ᐅᒥᐊᑦ ᐅᒥᐊᕐᔪᐊᓪᓗ ᑲᓕᒡᒌᓪᓗ ᓄᓇᒥᓗ ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᓄᑦ ᐱᔾᔪᑎᖃᖕᓂᕐᑐᑦ ᓄᓇᕗᒥ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᑲᑎᒪᔩᓄᑦ ᕿᒥᕐᕈᔭᐅᕐᑲᕐᑕᔫᖑᕆᓐᓂᖕᓂᕆᓐᓂᒃ (ᐃᓚᖓᑦᑕ ᐃᓚᖓᓐᓂᑦᑐᖅ 12.12.2 ᓄᓇᑦᕐᓂᕐᒧᑦ ᐊᖏᕈᑎᓂᑦᑐᖅ).

ᐅᔾᔨᕐᓱᐅᕐᕕᓕᐅᕈᒪᓂᖅ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐅᔾᔨᖅᑕᕐᓂᐊᕐᓗᓂ ᓯᕐᑯᑦᑎᖅᑕᐅᓯᒪᔪᓂᒃ ᓴᐳᔾᔭᒃᓴᖅᑕᕐᑲᖅᑐᓂᒃ ᐱᐅᓂᕐᑲᐅᖅᑐᓂᒃ ᐊᒥᓲᓂᓪᓗ ᑮᓇᐅᔭᓕᐅᕈᑕᐅᔪᓐᓇᕐᓂᐊᖅᑐᓂᒃ ᐅᔾᔨᕐᓱᐅᕐᕕᒃᑕᕐᑲᓕᖅᐸᑦ ᓂᐅᕕᖅᑕᐅᔪᓐᓇᕐᓂᐊᖅᑐᓂᒃ (ᐅᐊᕐᓂᒃ). ᐅᐊᕐᑕᕈᓐᓇᕐᔭᕐᓗᑎᒃ ᓄᓇᐅᑉ ᖃᖓᓐᓂᒃ ᐊᒻᒪᓗ /ᐅᑲᓗᓐᓃᑦ ᓄᓇᐅᑉ ᐃᑭᐊᖓᓂᓪᓗᓐᓃᑦ. ᐅᔾᔨᒃᑕᖅᑎᓪᓗᒋᑦ ᓯᕐᑲᓖᖅᑐᖅᑕᐅᕙᓪᓕᐊᑐᐃᓐᓇᕆᐊᕐᑲᖅᑐᑦ. ᓯᕐᑲᓖᖅᑐᐃᓂᖅ ᓴᓗᒪᖅᓴᖅᑕᐅᕙᓪᓕᐊᔪᓐᓇᕆᓪᓗᑎᒃ ᐊᐅᓚᐅᑎᕐᑲᖅᑐᑎᒍᑦ ᐃᓚᐅᖅᓱᖅᓯᒪᔪᒧᓪᓗᓐᓃᑦ ᐊᑭᑐᔫᑏᔭᖅᑕᐅᓗᑎᒃ ᑮᓇᐅᔭᓕᐅᕈᑕᐅᓇᖅᑐᐃᔭᕐᓗᒋᑦ.

ᓴᐳᔾᔭᒃᓴᖅᓯᐅᕈᒪᓂᖅ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐅᔾᔨᒃᑕᐅᔪᓐᓇᖅᑐᓂᒃ ᐊᔾᔨᖃᕐᑎᑐᓂᒃ ᕿᓅᔭᕐᕕᐅᓗᓂ. ᓴᐳᔾᔭᒃᓴᕐᕕᐅᔪᒪᔪᖅ ᕿᓂᕐᕕᐅᔪᓐᓇᖅᑐᖅ (ᓄᓇᒃᑯᑦ ᐊᒻᒪᓗ /ᑎᖕᒥᓲᒃᑯᓪᓗᓐᓃᑦ) ᓴᐳᔾᔭᒃᓴᓂ ᑮᓇᐅᔭᓕᐅᕈᑕᐅᔪᓐᓇᖅᑐᖅᓯᐅᕐᕕᐅᓗᓂ ᒃ.

ᑕᕆᐅᒥ ᓇᑉᐸᖅᑎᒐᐅᔪᒪᔪᑦ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᓂᐅᕐᕋᐃᔭᕐᕕᐅᔪᓐᓇᖅᑐᓕᐅᕐᕕᐅᓗᓂ ᓯᓈᓂ ᑕᕐᑭᐅᑉ ᐅᑲᓗᓐᓃᑦ ᑕᓯᕐᒥᓗᓐᓃᑦ. ᐆᒃᑑᑎᒋᓗᒋᑦ ᓂᐅᕐᕋᐃᕖᑦ ᐅᓯᓕᖅᑐᐃᕖᑦ ᑐᓚᒃᑕᕐᕖᑦᑐ.

ᐅᖅᓱᕐᔪᐊᖅᓯᐅᕐᓂᖅ ᓴᓵᖅᓯᐅᕐᓂᖅ/ᐱᓕᕆᐊᕆᔭᐅᔪᒪᓂᕆᑦ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐃᓚᖃᒻᒥᓯᓂ 1) ᓴᐳᔾᔭᒃᓴᖅᓯᐅᕐᓂᖅ, ᓄᓇᒥ ᐃᑭᐊᕐᕌᓂᒧᑦ ᐃᒪᖅᑕᕐᑲᖅᑐᒥᒧᑦ ᓄᓇᙳᐊᓕᐅᕐᒪᓂᖅ, 2) ᐅᖅᓱᕐᔪᐊᖅᓯᐅᕐᓂᕐᒧᑦ ᓴᓵᖅᓯᐅᕐᓂᕐᒧᑦ ᐃᑰᑕᒃᑯᑦ, 3) ᓱᓪᓗᑰᑦᑖᓕᐅᕐᓂᖅ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᒥᒃ, ᓴᓵᒃᓴᓕᐅᕐᕕᒃ ᐅᖅᓱᐊᓗᕐᑲᐅᑎᕐᑲᕐᕕᒃᓴᓕᐅᕐᓂᖅ ᓴᓵᓂᖕᕕᒃᓴᓕᐅᕐᓂᕐᒧᑦ ᓄᓇᕗᒥ.

ᐃᑎᖅᓴᐃᑦ ᑐᐊᐸᒃᑕᕐᕖᑦᑐ ᓯᐅᕋᖅᑕᕐᕖᑦᑐ ᓄᓇᑕᕐᕕᑦᑐ : ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐃᑎᖅᓴᓕᐅᕐᒪᓂᐊᕐᑐᓂ, ᓯᐅᕋᐃᔭᖅᑕᐅᖕᕕᐅᓗᓂ ᑐᐊᐸᐃᔭᖅᑕᐅᕙᓪᓕᐊᓗᓂᓘᓐᓃᑦ ᐊᒻᒪᓗ ᑐᐊᐸᒃᑕᕐᓂᕐᑐ, ᓯᐅᕋᖅᑕᕐᓂᕐᑐ ᓄᓇᑕᕐᕕᐅᓂᐊᕐᑐᓂᑐ ᕿᒡᔪᐃᔭᖅᑕᐅᓗᓂ ᖃᐃᖅᑐᐃᔭᖅᑕᐅᓗᓂᓘᓐᓃᑦ ᓯᕐᒥᔭᖅᑕᐅᓗᓂᓘᓐᓃᑦ.

ᑭᓱᑐᐃᓐᓇᐃᑦ ᖃᐅᔨᓴᕈᑕᐅᔪᒪᓂᕆᑦ: ᑐᒃᓯᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᖅ ᐊᔾᔨᐅᕆᑦᑐᓂᒃ ᐊᔾᔨᖃᕐᑎᑐᓂᒃ ᖃᐅᔨᓴᕐᑲᑦᑕᕐᓂᐊᕐᑐᓂ ᐱᓕᕆᐊᕆᕙᐅᔪᓂ ᖃᐅᔨᔭᐅᕙᓪᓕᐊᔪᑦᑐ ᑎᑎᕋᖅᑕᐅᓯᒪᔪᑦ ᑲᑎᖅᓱᖅᑕᐅᕙᓪᓕᐊᓗᑎᒃ ᐆᒃᑐᕋᐅᑎᓄᑦᑐ ᐆᒃᑐᖅᑕᐅᕐᑲᑦᑕᕐᓗᑎᒃ ᑭᒡᓕᓕᖅᑐᖅᑕᐅᓯᒪᕕᕐᑲᕐᓗᓂ ᖃᐅᔨᓴᖅᑕᐅᓂᐊᖅᑐᑦ.

ᓄᓇᒥ ᑕᑎᐅᒥᓘᓐᓂᑦ ᓄᓇᖑᐊᓕᐅᕈᒪᓂᖅ: ᑐᑭᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔪᐅᔪᒪᔪᖅ ᖃᓐᖑᑎᖃᖅᑐᒧᑦ ᑕᐅᑐᒐᐅᖃᑦᑕᕐᓗᓂ ᖃᓄᑎᒋ ᓄᓇᐅᑉ ᐃᑭᐊᑐᐃᓐᓇᖓᓂ ᐅᔾᕿᐃᑦ ᖃᐃᖅᑐᐃᑦᑐ ᐃᓗᑐᓂᖃᖅᑎᒋᔭᕆᐊᖏᑦ ᖃᐅᔨᓴᐅᒻᒧᑦ ᖃᐅᔨᓴᖅᑕᐅᓪᓗᑎᒃ ᓯᕿᖑᔪᐅᑉ ᐃᖏᕐᕿᔪᒪᓛᖑᓐᓄᑦ ᓂᐱᓕᐅᑉ ᓂᐱᑐᓂᖓ ᐅᑎᕐᓂᕆᓲᖓ ᒪᓕᒃᓗᒍ ᓄᓇᐅᑉ ᖄᖓᓐᓃᖕᖗᖅᑐᖅ. ᑕᕿᐅᒥ ᖃᐅᔨᓴᑐᐃᓐᓇᓇᕆᐊᖃᓱᖑᖏᔪᑦᑕᐅᖅ (13 ᒪᐃᓕᑦ ᐃᓗᐊᓂᒋᐊᖃᓐᖏᑦᑐᖅ ᓇᒥᑐᐃᓐᓇᖅ ᓯᒃᔭᒥᑦ), ᓯᒡᔭᖅᐸᓯᐅᑉ ᖃᓂᒋᔮᓂᒃ, ᓄᓇᓪᓚᕆᖕᒥᒡᓗ.

ᐱᓕᕆᐊᕆᕝᕕᐅᔪᑦ ᓴᓗᒻᒪᖅᓴᖅᑕᐅᔪᒪᓂᖏᑦ: ᑐᑭᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔪᐅᔪᒪᔪᖅ ᐱᓕᕆᐊᕆᕝᕕᐅᔪᓂᒃ ᓴᓗᒻᒪᖅᓴᐃᓂᖅ (ᑎᐅᓚᐃᖃᕐᕖᑦ ᐃᓚᖃᓯᐅᑎᓗᒋᑦ), ᐃᓚᐅᖅᓱᖅᓯᒪᐃᔭᕐᕕᐅᓗᑎᒃ ᓄᓇᑦᑕᖅᑕᐅᕙᓪᓕᐊᔪᑦ, ᓄᓇᑦᑕᕐᕕᐅᓗᑎᒡᓗ ᓄᑖᓂᒃ ᒪᓂᒃᓴᖅᑕᐅᑦᓯᐊᕐᓗᑎᒡᓗ ᐊᒻᒪᓗ ᐊᒃᑕᕙᑦ, ᐃᒡᓗᕙᓂᑦ ᐊᕐᑯᓯᐊᕙᓃᑦ ᒥᕝᕙᕙᓃᓪᓗ ᐃᑐᑦᑎᖅᑕᐅᓗᑎᒡᓗ/ᐃᒋᐅᕐᑲᖅᑕᐅᓗᑎᒡᓗ ᐊᒃᑕᑯᓪᓗ ᓄᓇᒥ ᑲᑕᒃᖅᑕᐅᓂᕙᕙᓂᑦ ᐊᒻᒪᓗ ᓇᐅᑦᓯᖅᑐᖅᑕᐅᔭᖅᑐᕐᑲᑦᑕᕐᓗᓂᓗ ᓴᓗᒻᒪᖅᓴᖅᑕᐅᓯᒪᔭᕇᖅᓯᒪᓕᕈᓂ.

ᐳᓚᕋᖅᑐᓕᕆᓂᖅ: ᑐᑭᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔪᐅᔪᒪᔪᖅ ᐳᓚᕋᖅᑐᓕᕆᓂᖅ ᒥᓐᖑᐃᖅᓴᕆᐊᖅᑐᖅᓯᒪᔪᓄᑦ ᓄᓇᓕᒋᔭᐅᔪᓂᒃ ᑕᑯᔭᖅᑐᖅᓯᒪᔪᓄᑦ ᓄᖃᖓᕕᐅᒋᐊᖅᑐᖅᓯᒪᑲᐃᓐᓇᕈᓐᓴᖅᑐᓄᑦᑐ ᐊᑐᖅᑕᐅᓂᐊᕐᓗᓂ ᐊᕐᕌᒍᑉ ᐃᓚᐃᓐᓇᑐᐃᓐᓇᖑᓐᓂ.

ᐅᑭᐅᒃᑯᑦ ᐊᖅᑯᓯᐅᕈᒪᓂᖅ: ᑐᑭᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔪᐅᔪᒪᔪᖅ ᐅᑭᐅᒃᑯᑦ ᐊᑐᖅᑕᐅᔪᓐᓇᕋᔭᖅᑐᒥᒃ ᐊᖅᑯᓯᐅᕐᓂᖅ ᒪᓂᒃᓴᖅᑕᐅᓗᓂ ᑲᑎᖅᓱᖅᑕᐅᓗᓂᓗ ᐊᐳᑦ ᓄᓇᐅᑉ ᖃᖓᓂᖅᑐᖅ ᓯᑯᓗ. ᐃᑐᑦᑎᖅᑕᐅᓇᔭᖅᑐᖅ ᐅᐱᙳᓕᖅᑎᓪᓗᒍ ᐊᑐᖅᑕᐅᔭᓃᕈᓂ.

ᐅᑭᐅᒃᑯᑦ ᐊᑐᒐᐅᔪᓐᓇᖅᑐᒥᒃ ᐊᑐᓇᐊᒃᓴᓕᐅᕈᒪᓂᖅ: ᑐᑭᖅᑑᑎᒃᑯᑦ ᐱᓕᕆᐊᕆᔪᐅᔪᒪᔪᖅ ᐊᑐᓇᐊᒃᓴᓕᐅᕐᓗᓂ ᐅᑭᐅᒃᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕈᓐᓇᕋᔭᖅᑐᒥᒃ ᐊᑕᐅᔾᔫᓐᓇᕐᒧᑦ ᐊᒃᓴᓗᐊᖃᖅᑐᒧᑦ ᐊᑐᓇᐊᖑᔪᓐᓇᖅᑐᒥᒃ ᐳᐊᕐᓇᑎᖃᖅᑐᒧᑦ, ᑕᐃᒪᐃᒋᐊᖃᕐᓂᕈᓂ.

Ilaga 1 Titigakhak
HAVAGIYAOYUMAYUMIK HIVUNIKHIYUTIKHANIK PIKAGEAKAKNIGA

Hivonikhivaligomagovin Nonavomi Avatilikiyin Katimayenik (NIGB-kon) takoenagealgin kagitaoyami kongeakhan ovani www.nirb.ca tapkoatlunet piyanginik Avatilikiyit titigakotae, havangoyot naonaeyaotae, tapkoatlo havangoyot naonaeyakne takoinagealgit tapkoat Nonavot Avatiligiyit Katimayit ftp kagitaoyakakvea http://ftp.nirb.ca.

ATOKLOAKTOK!
Kaoyimaneakutin una tukhigaotin havagiyaolimaetok ukoa ilagani 1-min 9-mun inikaktilogin tamaeta Kavlunatun Inuktitulo (Inoenaktulo, Kitikmeonetpan).

ILAGA 1: TUKHIGAKTUP KANOGINIGAGUN HIVONIKHIYUTIN

1. b) Havap Atea Jericho Uyaraqtarvik Nayugaa Ihuaqhiyakhat, Nunavut

2. Tokhigaktum tamaeta aten titigakakvikulo tugaktakvea:

Inuliqiyit Kavamatuqatkunnut Kanatami
10th Floor, 25 Eddy Street
Gatineau, QC
K1A 0H4

Kayumiktokun:
Hivayaota:
Kagitaoyakun:

3. Okakvigiyaoloaktukham tamaeta aten titigakakvikulo tugaktakvea:

Mark Yetman, Angayukhium Havaariyakhanut Kiuliqiyi Inuliqiyit Kavamatuqatkunnut Kanatami
10th Floor, 25 Eddy Street
Gatineau, QC K1A 0H4

Kayumiktokun: 819-934-1188
Hivayaota: 819-934-9229
Kagitaoyakun: mark.yetman@aandc.gc.ca

ILAGA 2: AGIGUTAOYAGEAKAKTOK UKUNANGA

1. Titiklogit tamaeta agigeakaktun tugagayunik havagiyaoyumayumun:

x	Aviktokhimayuni Inoen Katimayen (RIA-guyun)		Kanatami Aolaktitigeagutinun Aneaknaetukun (CLS-kun)
x	Nunavumi Imalikiyin Katimayin (NWB-kun)		Avatilikiyin Kanatami (EC-kun)
x	Nunavumi Paknaeyaeyin Katimayin (NPC-kun)		Kavaman Nunavumi (GN-kun)
x	Kavamatukani Inulikiyin (AANDC-kun)		Kavamatukani Aguyaktulikiyin (DND-kun)
	Kavamatukani Imakmeotalikiyin (DFO-kun)		Hamleoyok
	Nunalikni Kavamalikinikun Ikayutiniklo (CG&S-kun)		Mingeokhikvilikiyin Kanatami (PC-kun)
	Nunavumi Ilitokhaeyin Havakvean (NRI-kun)		Kanatami Umayulikiyin (CWS-kun)
	Ilitkuhilikiyin, Pitqhiliriyitkolo (C&H-kun)		Ahelo (Okateayavatin):

2. Titigaklogit atokhimaktun piyunaotit, laesaoyulo, tapkoatlonet ahenik ihumakhutaoyun togagayun havagiyaoyumayumun ihulilvikhaelo:

- Tibbit-mit Tahiryuamut Ilagiyangit Ukiumi Apqutikhanut - Naammagiyangit Atuqtakhat Nayuqtakhangillu Kuin

Nunaani Piyunnautit
Nuna Piyunnautit 75 M/11-1 (Ilagiyakhaat 1). Iniqtirutaanit 2033.

3. Titigaklogit <u>nahugiyaoyun</u> piyunaotit, laesaoyulo, tapkoatlonet ahenik ihumakhutaoyun togagayun havagiyaoyumayumun:
- Inuliqiyit Kavamatuqangit Kanata (INAC) Nuna Atuqtaunikhainut Piyunnautit (Ilagiyakhaat 2)
- Nunavunmi Imaliriyit Laisia (Ilagiyakhaat 3)
- Kitikmeot Inuit Katudjiqatigiit (KitIA) Inikhaliurutikhamut uvunga Inuit Nanminiriyangit Nunaqutait Piyunnautit (Ilagiyakhaat 4)
- Nunavunmi Parnaiyaiyit Malittiarnikhanut Qimilrurningit

4. Una havak, <u>ilagiyaelunen havam</u> hivoagun ilitokhaktaohimavan ihivgeoktaohimavalunen NIRB-kunin?

☐ **IYA** ■ **IMANAK**

Agiguvin, okayavan atigiyagaloaga havam NIRB-kunilo titigagiyaeni napa.

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ILAGA 3: HAVAGIYAOYUMAYUM KANOGITUNIGA

1. Titiklogo kanogituniga havagiyaoyumayum (titigaklogin tamaeta atoktun)([1],[2]):
(Takulogo Oegoa A Havam Kanogituniganik Okaoheoyunik)

1	Ukeogalok Apkutaoyok/Aolakveoyok Nunanun	☐	**9**	Inigiyatik Kiklimaktiklogo / Utiktigeaklogolo Ilitkuhigaloaganun	■
2	Ukeomi Apkutaoyok / Ukeomi Aolakveoyok	■	**10**	Okhokyoakheoknik Kasileniklo	☐
3	Oyagakheokvikhakheoknik	☐	**11**	Takyumi Havaguyun	☐
4	Oyagakheokvikhakheoveokhaktok	☐	**12**	Naonaeyaenik/Hilakyoami Ukeoktaktumi Ilitokhaenik*	☐
5	Oyagakheoktun / Agiyunik Naonaeyaeyun	☐	**13**	Angunahoaknen*	☐
6	Oyagaktaken	☐	**14**	Polakpaktun hulilugagutikhaen *	☐
7	Takyumi pikutin (tulaktakvik, malelgumeovik, tunmigak)	☐	**15**	Ahea [(2)]:	☐
8	Nunanik Ilitokhaenik Havivalukaknikata	☐			☐

<u>Kaoyimaneakutin:</u>

1. Tamaeta havan titigakhimayun havuma kulanetuni, ukoagugitok titigakaktunik (*)-mik, piyageakakneakok Havakagumayok tunihiyagan **Ilaga 2-mik Havakhamun Hivunikhiyutaoyunik Piyageakaktunik (PSIR-mik) Titigakhamik**. NIRB-kun tukhiknikun aolaniga ihumagiyaolimagitok pikagitpan Ilaga 2 PSIR-mik Titigakhamik.
2. Ilihimaneakuhi iniktigeagani taman NIRB-kun aolaniga, NIRB-kun tukhikneagunakhiyun ilageagutikhanik hivunikhiyutikhanik kagugulika aolanigiyamikni.

3. “Ahea” titigakhimakpan, okakatigiyavatin NIRB-kun kanogileoguhikhamik piyavikni Ilaga 2 PSIR-mik Titigakhamik piyageakakmaga.

2. Havam Kanogituniganik 3, 4-lunen 5-lunen titigakhimakpan havuma kulanetuni, okayavan kanogitunik oyagakhakakmaga. Naetugaloamik okateayavan hunaokmaga.

- [ ] Havivaloen (zinc, kanoyak, Kuli, Kivliktulo, taemaetunik)
- [ ] Pinikutikhanik
- [ ] Nuguyoetunik
- [ ] Ahenik:

3a. Havam Kanogituniganik 12, 13-lunen 14-lunen titigakhimakpan havuma lulanetuni, iniktiyavan naonaepkun apkutaoyulo havuma atanetuni.

Aolagutim Kanogituniga	Kavin	Kanok Atoktaoneakmaga	Hivituniga Atoknigagun
Imatun, Hanikaptak	*Ataohik*	*Nunanin nunanun akyaktoelotik*	*Siksini upluni*

3b. Okateaklogin tulaktakven, tunmikalo, milvelo atoktulo pikutin havagiyaoyumayumi. Kaoyimaneakutin: napaktigiyagani nutanik pikutinik atugeakakneagunakhiyutin Ilaga 2-mik Titigakhamik.

Tadja milvingit atuqtauhimmaaqtuq havagvianit parnautigiyakhait haffumani tukhiutauhimayumik nayugaanit ihuaqhaiyakhanut hulidjuhiit. Una milvik nakuuvluni hanayauhimayangit hamna Jericho Uyaraqtarviugaluaq aulattitivluni.

3c. Hiniktakveokavuktukhamik pineaknikata, okayavatin hunaokmaga napayukhan kanogituniginiklo kanoklo alguyaktutikakneakmaga iglukpakakvikhami atugeakaknikan.

Tadja havakhimayauyuq Jericho Uyaraqtarvik nayugaat igluliurahuaqtunut parnautiginiaqtangit nayugaat ihuaqhaiyakhangit hulidjutikhainit. Hamna nayugaat ihuaqtaunikkut hulidjuhiit inirumiuk hamna nayugaat ahivaqtauniaqtuq nunam illiriyauhunnguyuqtauq. Nayuqtangit qullikhait uunaqutikhait januviitanit parnautiginiaqtangit inikhainit hamna Jericho Uyaraqtarviup aulapkaivluni.

4. Havakteoyun

Tamaeta kaveonigin havaktun havakvikmi = (A) 50

Tamaeta uplun havakviknetun = B 180

Tamaeta uplun inukakneaknigagun (A) × (B) = 9000 (angi)

5. Kakongukan Pigeagutikhan

Kanok havakveoneakmaga: Ubluqtuhinia 2017 *talvonga* Qiqailruq 2018

Atugumayanik hivitunikhata piyunaotim: Ubluqtuhinia 2017 *talvonga* Qiqailruq 2018

6a. Nonalet Aviktokhimanea (titiklogit tamaeta atoknilgit):

- [ ] Tununga Kigiktalok
- [ ] Hivuga Kigiktalok
- [ ] Kivalik
- [ ] Mingoekhikvik
- [x] Kitikmeot
- [ ]
- [ ] Nonani ataohenaogitumi:

6b. Okaklogin humenigin havagiyaoyumayun nunan aviktokniga atoklogo, okaklogolo kanitoanenikhak nunagiyaoyok monagiyaoyulo pikaknikan nunanik.

Una nayugaanit ihuaqhaqtauyukhat havaariyakhat havaktauniaqtuq ikhinnaqhimayumi Jericho Uyaraqtarvik nayuqhimayaraluangit huqpaniittumi 260 km hivuraa kivataani Qurluqtuq, NU una 30 km tun'nganiittuni Lupin Uyaraqtarvik iluani Tahiryuaq-Itchen Aviktuqhimayumi.

6c. Discuss the history of the site if it has been used for any project activities in the past.

Hamna Jericho Uyaraqtarvik angmaqhimagaluaqtuq 2006 mi ukunanngat Tahera Diamond Kuapuriisan (Tahera) maniiqtauhimayuq uvani 2008 mi. Shear Diamonds Kuapuriisan (Shear) amiriyangit haffumani Jericho Uyaraqtarvik 2010 mi aulapkaivluniuk uyaraqtarviup amirivlugulu havaktauvlunilu nutqaqhutik uvani Apitilirvik 2012 mi hamna Shear nutqaqtitauvluniuk aulavingat. INAC iniqtiriniaqhimayangit kigliinnangit avatikhanut hapummiyakhait haffumani Jericho Uyaraqtarvik upinngaami 2013 mit, unalu naaguhirivlugulu amiqhaiyakhait haffumani Jericho Uyaraqtarvik uvani Ubluqtuhinia 2014 mi. Hamna nanminikhautaugaluaqhuni havaktaugiaqaraluaqtut uvani iinut ukiukhamut naalugu qiniqhiavlutik Uyarak manilik qiplariktumik angmaumayumik hauvikhainit unalu nunaup iluaniittuni uyaraqtarviuyukhautaugaluaqtuni. Una uyaraqtarvik havaangit havaktauhimaittuni angmaumayumik hauvikhamut uyaraqtarviunikkut.

6d. Indicate if there are any known archaeological/palaeontological historical sites in the area.

Tahera piyunnautilraanga atuqtakhanut uqariiqhimagaluaqtut iniqhimavlutiguuq Initurlinganit Aktuqturningagut Ihivriuqhimaningit. Naunairiiqhimayangit titirariiqhimayangit uuminngat: "Ilittupkaqhimanngittangit 25 nit initurliminiit naunaiqhimayangit nunami Havaariyakhautillugit EIS nit ihumagiyauvluni nalaumattiaqtumik ihumagiyauyunit havaktailiquyauvlutik havaanut."

Aulanngittangit qanurilinganingit atiliuqtauyut uvunga nayugaanit ihuaqhaiyakhaat havaangit kiglikhautaunngittumi naunairiiqhimayangit uyaraqtarviugaluami aulattitivlutik huli aulalaittullu atuqtakhamaat ukiumi apqunmi inikhamut aturvikhait.

7. Kiya Nunagikmaga (titiklogit tamaeta atoknilgit):

- [x] Koen
- [x] Inoenaet Nanminea Nunaplo Kaginaenetun
- [ ] Kamisinaop
- [ ] Inoenaet Nanminea Nunaplo Iloanetun
- [ ] Hamleoyun

8a. Humeniga Nunam:

Mikinikha Nunaoyami Hanimon (nahaotaen)	65 ° 58 ' 59.92 " N	Mikinikha Nunaoyuami Tokimon (nahaotaen)	111 ° 25 57.53 " W
Anginikha Nunaoyami Hanimon (nahaotaen)	66 ° 02 ' 00.81 " N	Anginikha Nunaoyami Tokimon (nahaotaen)	111 ° 32 01.93 " W

NTS Nunaoyami Ilagata Napa: 076L04; 076E13, 076L03; 076E14

Ilaoyavun nunaoyan humeniginik havan pikaktunik (1:50,000 **pikakat**, 1:250, 000 **Piyakakpeaktok**) piyaolat talvaga Nunameotalikiyinin Kanatami.

8b. Havakun **hiniktakvikakneaknikata**, titigatyavot nahaotaen hiniktakveoyun.

Hanimon (nahaotaen)	65 ° 59 '26.25" N	Tokimon (nahaotaen)	111 ° 30 '08.99 " W
Hanimon (nahaotaen)	65 ° 59	Tokimon (nahaotaen)	111 ° 30 '08.99 " W

’26.25” N

Alagakpata huvuma kulanetunin hiniktakveoyok:
NTS Nunaoyami Ilagata Napa: 076L03

Nunavumi Avatilikiyin Katimayin piyumaneagunakhiyun hivunikhivaligutikhanik humeniganik ilagani Havam Kanoginigagun Hivunikhiyutikhani (PSIR-guyok). Imaetuneagunakhiyok Nunan Kanoginigagun Nunaoyani Naonaepkutini (GIS-guyun

ILAGA 4: TUKIHEANAKTUNIK HAVAGIYAOYUMAYUMIK OKAOHEOYUN

Ilaopkayavan tukiheanaktok kanogitunikha havam, avatkutaelilogo 500 taegohet, Kavlunatut Inuktitoto (Inoenaktolo, Kitikmeonetpata). Havam kanoginiga ilakaktukhaogaloak ukuniga:

- Havami havagiyaoyukhan, piyakakne hivitonikhalo;
- Kanoktut aolagutikakneakmaga
- Kitulikak napaktakhat hanayaoneat (ilihimaenaktokhat / atokaphoktakhat);
- Aheagugutikhat ihumagiyaoyun; unalo
- Hivunikhami havakhan, kanoklo kigoagun kanogiliyutikha nunani hunaolikalo pivikhakaknigagun.

ATUGEALIK: HAVAGIYAOYUMAYUMI HULILUGAGUTIN TUNIHIYUTIKAGEAKAKNIKATA NIRB-KUN ILAGA 2 PSIR-MIK TITIGAKHAMIK, INIKTIYAVAN ILAGANI 8-METUN TALVATOAK, TAEMAEGITPAN INIKTIKHIMAYAVAN ILAGANI 5-METUN.

ILAGA 5: IHOAKUTIVALOEN ATOKTAOYUKHAN

1. Titiklogit Pikutin (ikutavaloelo, papaotilo, tikmiyan, akhalutivaloelo taemaetun).:

Pikun hunaokmaga napalo	Agitilaga - uktaotitigulo	Kanok atoktaoneakmaga

2a. Oniktoteaknea okhokhat hivoganaktulo honat atoktaone:

Okhokhat	Kaveone Puguyut, Agitilagilo	Ataotimun Okhokhat (Litres-guyuni)	Kanok Tutkumayaoneakmaga
• Okhokyoak			
• Kasilek			
• Tikmiyutin okhokhae			
• Puplakhat			
• Ahenik			
Hivuganaktot Pikutin Kuviyaktulo		**Ataotimun Hivuganak-tun Kuviyaktulo (litaoyuni)**	

2b. Okaohigiyavatin Kuvegitagani Paknaeyaotin.

3a. Oniktokteaknea uplotoagagan imaknik atoknigin kanogalok:

Uplutoagagan (m^3-guyuni)	Atugumayaen imavaloen utiktitagani kanok	Atuligumayaen imavaloen utiktitagani humi

4. Tukhikhimavin Napagiya A-mik Laeseoyumik Nunavumi Imalikiyinin Katimayinin?

☐ **IYA** ☐ **IMANAK**

Agiguvin, hunaova napagiya laeseoyum?

☐ **Napagiya A Imaknik Atugeagani Laeseoyok**

☐ **Napagiya B Imaknik Atugeagani Laeseoyok**

ILAGA 6: IKAGUKNIKUN IMAVALOELO HALUMAGANIGEAGANI HAVAN

1. Titigaklogin kanogitunigin ikaguvaloen:

Kanogituniga ikaguyum	Nalaonealogin kanogalok ikagukakneakmaga	Kanok ikaguneakmaga	Halumaktiganigutikhan piyutin
Anagun (Inoen anagoen)			
Oakhitin			
Ikulalaktun ikaguvaloen			
Ikulalimagitun ikaguvaloen			
Atakoen (halumaektun nunan, ikaguvaloelo, ataguvaloelo oyakikivikmin)			
Hivuganaktun ikaguvaloen			
Ahelo			

2. Okaohigiyavan Ikaguvaloknik Paknaeyaotin.

ILAGA 7: NUNALEN ILAOYUN, AVIKTOKHIMAYUNETUNULO IKAYUHEAGUYUN

1. Titigaklogit nunaliknin kivgaktokte okakatigiyaohimayun, tunilogilo titigakniginik katimayutinun kahaknikata:

Nunaoyok	Atea	Timeoyok	Uploani okakatigiyaokmata

ILAGA 8: HUNALIKA APIKUTIKHAN

1. Kahaknikneakihi kaoyimayaoyunik igilgan inituklenik?

☐ **IYA** ■ **IMANAK**

ILAGA 9: TUKHIGAKTUP SAENEOTA

Saeniyavan uploaniklo titigaklogo tukhiktutin:

Saeneota: **Havanga:** **Uploa:**

OEGUYOK A
Havami Kanogituniginik Tukitagutin

Tikitagani Ineoyun Nunami: Havagiyaoyumayumi ihumagiyakaknikata akhalutikun tikitagani ihumagiyaoyumun aktoknikakpalalimaginikan manikanik.

Nalvakheokveokhaktok: Havagiyaoyumayumi naonaeyaeneakata agitilaginik, peoteaknigilo, kanogitunigilo oyagaktakhan naonaeyageaganilo manileogutaoteakneakmaga havatigulo namateakneakmaga oyagaktakveoliknikan.

Ukeogalok Apkutaoyok: Havagiyaoyumayumi apkutuleogumakpata atoktaoyukhamik ukeogalok.

Uyagaktakhanik Naonaeyaenik: Havagiyaoyumayumi ahivaeneakgumik agiyunik havivalokaktunik oyakanik ukumaeyoaktunik pineaknikata. Naonaeyaevaktun oyagaktakveoyukhamin naonaeyaktaoyumin. Hikuptigilaktun oyakikivikmi (mikaogaloamik).

Angunahoaknik: Havagiyaoyumayumi agunahoakneakata umayunik, takyumeotaniklo huganik ikalokniklunen nunaginaeyin agunahoaklogin nanigeaktoklogilunen nanminik atoktakhamiknik neovgutigiyakhamikniklunen.

Takyumi Hulilugagutin: Hulilugagutin takyumi avataoyumi, umiyanik atoknikata nunami havamikni ikagumiklunen takyumun.

*Kaoyimaneakutin nunaliknun umiyan tikitpaktun akyaktun pikutinik ilaoginman nunami havagiyaoyumayunun ilitokhaktaolimagitun NIRB-kunin (Ilagani 12.12.2-mi NLCA-mi).

Oyagaktakvikhamik Pivaleanik: Havagiyaoyumayumi ahivaeneakata hikuptikhimayunik oyakanik havivalukaktunik ukumaeyoaktuniklo manileogutaotealakan oyagakheokveoligumi (oyagaktak). Oyagaktageagani oyagaktanik anmukpalealotik nunam kaganin iloanugakpalealotiklunen nunamun. Oyagaktaknik oyakikivikalaktok. Oyakikinik ahivakpaleayagani atoklogin pikutin kuviyaktulo piyutin atoktaolaktun ugavageagani akituyok oyagaktakhak.

Oyagaktakvikhakheoknik: Havagiyaoyumayumi kinikheaneakata oyagaktakveoneaktunik nunanik. Nunanik ihivgeoknik (nunakun tikmeakulunen) nanihiyagani agiyunik takunaktuniklo oyagaktakhanik.

Takyumi Pikutin: Havagiyaoyumayumi hananeakata uheyakvikhanik pikutinik hinanin takyumi atanikata nunaloamun takyumin imavaloknilunen avataoyumin. Ayikutaen ukoa tulaktakvik, tunmigaklo, umiyanilune atoktaoyunik.

Ohokyoanik Kasileniklo Nalvakheoknik/Hulilugagutilo: Havagiyaoyumayumi ilakaktumik 1) nalvakheoknikmik, ima kukulaktunoen atoklogin nunaoyatigulunen, 2) ikutakan okhokyoaktakvikhanik kasileniklo, 3) hanakpan atukalo tukhoakyoanik, kasileniklo hanakivikmik okhokyoakakvelunen kasilekakvelunen Nunavumi.

Heogaktakveoyun: Havagiyaoyumayumi heogaktakneagumik, ahivaeneakata heogavaloknik (imaetun, heokan oyagalealo) oyagaktakatalo, ahivaeneakata ataotimetunik oyakanik (imaetun, kaektunik, kikumayuniklo nunanik).

Naonaktunik Naonaeyaenik: Havagiyaoyumayumi atuligeagani iglukakveoyumi hulilugagutinik taotuklogin akliknaktun, naonaeyaklogilo katitigeaklogilo naonaepkutikhan piyageakaktun naonaktunik ilitokhaenikun tikoaktaohimayuni nunani pivikhakaklaktilogilo.

Kokulaktunoanun Naonaeyaenik: Havagiyaoyumayumi naonaeyaeneakata nunaoyeogeagani hiliktilagin unugagalok oyakan nalgulogin kanok kokuktunoak utikniga naonaegutaoneakman hiliktilaganik nunam kaganin. Naonaeyaeven takyumelaktun (iloanelimagitun 12-nik maelinik ugahiktilaganik hinanin imam), hinatalo kanitoanilo, unanilaloklo takyumi.

Inigiyaoyun Kiklimaktiknigin: Havagiyaoyumayumi inigiyaoyun kiklimaktikneakata (ukoalo Tulaekakven kiklimaktiktaonigin), ihumagiloakhugin utiktitagani ilitkuheanun kuviyaktuvaloknin halumaekhimayun nunavaloen, aolalimaegeaganilo haohimayun kuvelo, agiptikniginiklo / ikaklogilo napayun pikutin ikaguvaloelo amigilogilo kanogilivaleanigagun kigoagun kiklimaktiktaotakan.

Polaktulikiyutin Havan: Havagiyaoyumayumi aolaktitiyagani tugagaloaktunik tunikgoektigiyutinun, ulapkiyutinulo neamgiyaginageaganilunen tikoaktaohimayumi nunami pivikhakaktilogo hivitunigagun

Ukeoginakmi Apkun: Havagiyaoyumayumi apkutileokneakata ukeomi atoktukhamik atagikhaklogin kikhoktiklogilo kaginaen aputin hikulo. Ukeomi apkutoayok ahivaktaoneakok kikumanaekan ukeom ilagani.

Ukeoginakmi Inin: Havagiyaoyumayumi hananeakata inimik ukeomi atoktukhamik ataotimin tulakaktumin akhalunmin atoklotik poalgiyaonmik, piyageakaknikan.

SCREENING PART 2 FORM
PROJECT SPECIFIC INFORMATION REQUIREMENTS (PSIR)

1. SUBMISSIONS

The Proponent must submit all information pertaining to the Project as a whole. The information requirements below are designed for the purpose of environmental assessment and are not limited to the scope of a single permit or license application.

IMPORTANT: Please be advised of the following:

1. NIRB does not accept references to an ftp or web sites as a submission.

2. The Proponent must provide NIRB with 1 (one) electronic copy and 1 (one) hardcopy of the required information in English.

3. All maps should be shapefiles, be legible, and should include grids, be of appropriate scale, indicate the scale, include latitude and longitude references, NTS Maps numbers, title, legend and a north arrow. To the extent possible, avoid hand-drawn demarcations and faxed maps; and,

4. Please complete all required information in each section below. If the required information is not applicable to the project proposal, please indicate this in the response with "n/a". If the request has been provided in a different section or report, please note the section or report where the response can be found.

2. GENERAL PROJECT INFORMATION REQUIREMENTS

Project Coordinates and Maps

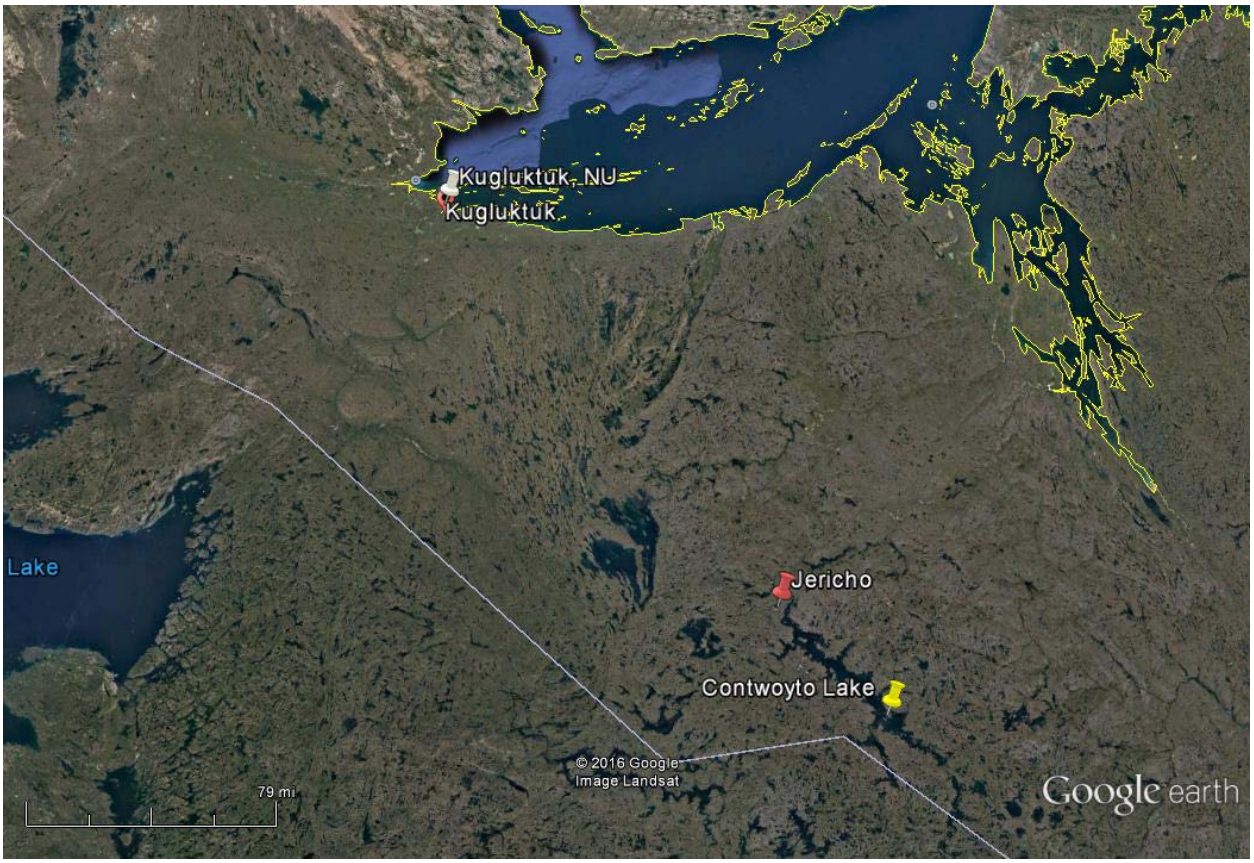
1. The preferred method for submitting project coordinates information is through the use of a Geographic Information System (GIS) compatible digital file. Although an ESRI ArcView 3.x shape file (in decimal degrees) is the preferred interchange format, the NIRB has the capacity to receive over 100 GIS and CAD related formats, including MapInfo and AutoCAD, provided proper format and projection metadata is also submitted. The NIRB requires coordinates for the project proposal which reflect the entire project area as defined by:

   - Area/sites of investigation;
   - Boundaries of the foreseen land use permit/right-of-way area(s) to be applied for;
   - Location of any proposed infrastructure or activity(s); and,

- Boundaries of the mineral claim block(s) where proposed activities will be undertaken.

Min Lat (degree/minute)	65 ° 58 ’ 59.92 ” N	Min Long (degree/minute)	111 ° 25 ’ 57.53 ” W
Max Lat (degree/minute)	66 ° 02 ’ 00.81 ” N	Max Long (degree/minute)	111 ° 32 ’ 01.93 ” W
NTS Map Sheet No:	076L04; 076E13, 076L03; 076E14		

The Jericho Mine site is located approximately 260 km southeast of Kugluktuk, NU and 30 km north of the Lupin Mine in the Contwoyto-Itchen Region. The site is accessible by air and the Tibbitt to Contwoyto Winter Road.



Please see additional diagrams and maps contained in the Phase III Environmental Site Assessment located in Appendix 8. Additional details on the proposed Site Stabilization work can be found in Appendix 9.

2. Map of the project site within a regional context indicating the distance to the closest communities.
   Please see response in question 1 above.

3. Map of any camp site including locations of camp facilities.

This project will utilize the existing camp infrastructure found at:

Latitude: (65 ° 59 ’26.25” N) Longitude: (111 ° 30 ’08.99 ” W)

4. Map of the project site indicating existing and/or proposed infrastructure, proximity to water bodies and proximity to wildlife and wildlife habitat.

Please see additional diagrams and maps contained in the Phase III Environmental Site Assessment located in Appendix 8.

Project General Information

5. Discuss the need and purpose of the proposed project.

The activities of the Site Stabilization Plan will accomplish the following:

- stabilize the site to prevent water accumulation
- restore the site to an environmentally safe condition and
- prevent environmental migration of contaminants into the surrounding ecosystem

6. Discuss alternatives to the project and alternative methods of carrying out the project, including the no-go alternative. Provide justification for the chosen option(s).

The activities of the Site Stabilization Plan will accomplish the following:

- stabilize the site to prevent water accumulation
- restore the site to an environmentally safe condition and
- prevent environmental migration of contaminants into the surrounding ecosystem

The alternative no-go alternative would see the site left in its present abandoned mine state with limited care and maintenance activities being conducted. This alternative would almost certainly result in environmental migration of contaminants into the surrounding ecosystem.

7. Provide a schedule for all project activities.

- February/March 2017: JV winter road extension Ekati to Jericho
- March 2017: Mobilization of materials and equipment to Jericho Site
- May-October 2017: Site Stabilization activities
- February/March 2018: JV winter road extension Ekati to Jericho
- March 2018: Demobilization of materials and equipment

8. List the acts, regulations and guidelines that apply to project activities.

- Canada Labour Code (R.S. 1985, c.L.-2)
- Canada Occupational Health and Safety Regulations (SOR/86-304)
- Environmental Protection Act (Nunavut) (R.S.N.W.T. 1988, c.E-7)
- Transportation of Dangerous Goods Act (S.C. 1992, c. 34) a 1999, c. 31
- Nunavut Land Claim Agreement (Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada, 1993)
- Spill Contingency Planning and Reporting Regulations (N.W.T. Reg. 068-93)
- Migratory Birds Convention Act (1994, c. 22)
- National Fire Code of Canada (1995) a. 2002
- Ozone Depleting Substances Regulations (SOR/99-7)
- Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CCME, 1999)
- Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME, 1999)
- CCME - Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (2002).
- Canadian Environmental Protection Act (1999, c. 33)
- Controlled Products Regulations (SOR/88-66) a.SOR/2001-254
- Transportation of Dangerous Goods Regulations (SOR/2001-286) a. SOR/2003-400
- Intra-provincial Movement of Hazardous Waste Regulations (SOR/2002-301)
- Nunavut Waters and Surface Rights Tribunal Act (2002, c. 10)
- Nunavut Environmental Guideline for Waste Asbestos (GN, 2002)
- Contaminated Sites Management Policy (INAC, 2002)
- Northern Affairs Contaminated Sites Management Policy (INAC, 2002)
- A Federal Approach to Contaminated Sites (CSMWG, 2002)
- Used Oil and Waste Fuel Management Regulations (N.W.T. Reg. 064-2003)
- INAC NCSP Project Level Risk Management Guidance Document (AANDC, 2008);
- Contaminated Sites Cost Estimating Guide (AANDC, 2012)
- Treasury Board Policy on Management of Real Property (TB, 2006)

- Risk Management Tool & Reporting Tool User Guide (INAC, 2007)
- Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil (CCME, 2008)
- Environment, Health & Safety Management System Manual (AANDC, 2012)
- Environment, Health & Safety Standard Operating Procedures Manual (INAC, 2008)
- Environment, Health & Safety Control Framework, Northern Contaminated Sites Program (INAC, 2008)
- Environment, Health & Safety Audit Program Guide (INAC, 2008)
- Construction Project Safety Management Guide, 5th Edition (PWGSC, 2008)
- Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197)

9. List the approvals, permits and licenses required to conduct the project.

The approvals, permits, licenses required include:
- Water Licence (Appendix 3)
- Crown Land-Use Permit (Appendix 2)
- Inuit Owned Land Access Permit (Appendix 4)

DFO Operational Statement (OS) Conformity

10. Indicate whether any of the following Department of Fisheries and Oceans (DFO) Operational Statement (OS) activities apply to the project proposal:
    - Bridge Maintenance
      N/A
    - Clear Span Bridge
      N/A
    - Culvert Maintenance
      Potential
    - Ice Bridge
      Potential
    - Routine Maintenance Dredging
      N/A
    - Installation of Moorings
      N/A

    Please see DFO's OS for specific definitions of these activities available from DFO's web-site at http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/index-eng.htm
11. If any of the DFO's OS apply to the project proposal, does the Proponent agree to meet the conditions and incorporate the measures to protect fish and fish habitat as outlined in the applicable OS? If yes, provide a signed statement of confirmation.

    Aboriginal and Northern Development Canada agrees to meet the conditions and incorporate the measures to protect fish and fish habitat as outlined in the applicable Operational Statements.

Mark Yetman
Senior Project Advisor – Contaminated Sites Program

2016-09-09
Date

Transportation

12. Describe how the project site will be accessed and how supplies will be brought to site. Provide a map showing access route(s).

The Jericho Mine site is located approximately 260 km southeast of Kugluktuk, NU and 30 km north of the Lupin Mine in the Contwoyto-Itchen Region. The site is accessible by air and the Tibbitt to Contwoyto Winter Road.

Material and equipment to conduct this site stabilization work will be mobilized and demobilized to and from Jericho via the JV Winter Road. Presently the Road is only constructed as far as the Ekati Diamond Mine, therefore the extension to Jericho will be constructed as part of this project. See Appendix 10 and 11 for maps related to the winter road.

Site crews and other specialized contractors will be flown in using the airstrip that was constructed and used for mining operations at Jericho when the mine was in operation. The diagram below shows a map of the airstrip in relation to the site.

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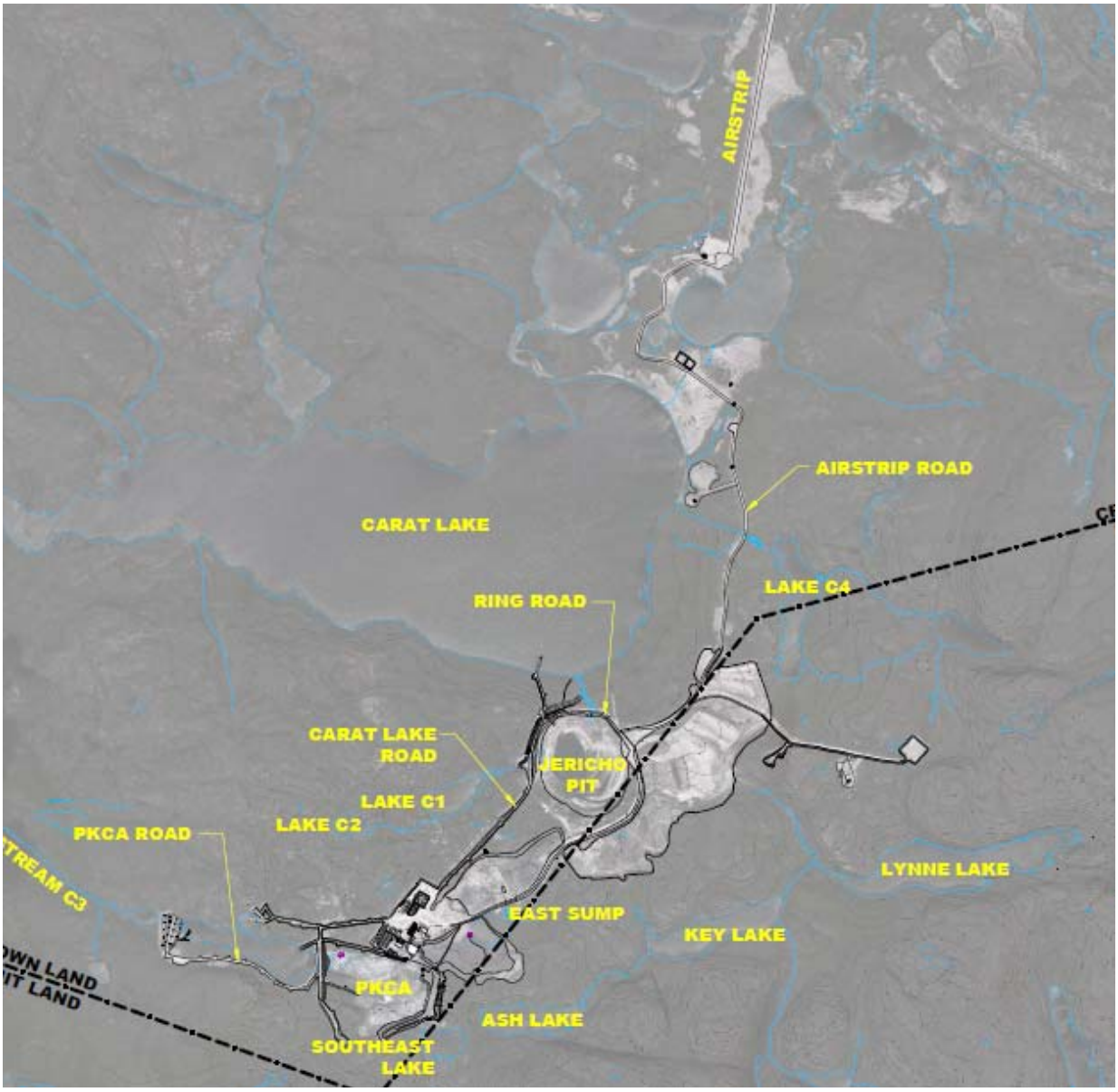

13. If a previous airstrip is being used, provide a description of the type of airstrip (ice-strip/all-weather), including its location. Describe dust management procedures (if applicable) and provide a map showing location of airstrip.

Please see response in question 12 above. The airstrip is located at:

Latitude: (66 ° 01 ’35.75” N) Longitude: (111 ° 27 ’48.59 ” W)

14. If an airstrip is being constructed, provide the following information:
    a. Discuss design considerations for permafrost
       N/A; existing airstrip
    b. Discuss construction techniques
       N/A; existing airstrip

c. Describe the construction materials, type and sources, and the acid rock drainage (ARD) and metal leaching (ML) characteristics (if rock material is required for airstrip bed).
   N/A; existing airstrip
d. Describe dust management procedures.
   N/A; existing airstrip
e. Provide a map showing location of proposed airstrip.
   N/A; existing airstrip

15. Describe expected flight altitudes, frequency of flights and anticipated flight routes.

It is anticipated that crews will be shifted in and out every two weeks via aircraft. Chartered aircraft will for the most part be flown out of Yellowknife and Kugluktuk to Jericho. Flight altitudes to and from Jericho will be heavily dependent on weather and the ceiling available to the pilots for flying.

Camp Site

16. Describe all existing and proposed camp structures and infrastructure

Presently there exist three large sleeping quarters, recreation facilities, offices, as well as a kitchen and eating area. There structures were built for use during peak mine operations. For the proposed site stabilization work we foresee the contractor using only one of the sleeping quarters as well as the kitchen, recreation area and potentially some of the office space. Please see diagram below for locations of all of these pieces of infrastructure.

17. Describe the type of camp:
    a. Mobile
    b. Temporary
    c. Seasonal
    d. Permanent
    e. Other
18. Describe the maximum number of personnel expected on site, including the timing for those personnel involved with the project.

The maximum number of individuals expected onsite is 50.

Timing:

May/June: 10-20 people on site
July/Aug: 30-50 people on site
Sept/Oct: 10-20 people on site

Equipment

19. Provide a list of equipment required for the project and discuss the uses for the equipment.

Site Stabilization Activities:

The following equipment will be used for the site stabilization activities listed in Appendix 9:

- Drum crusher
- 3 x excavators
- 6 x Rock trucks
- 2 x bulldozer
- Compactor
- Water pump (s)
- Incinerator
- Generator
- Loader
- aqueous liquid waste treatment system to treat aqueous liquids for onsite disposal
- water truck to haul water to camp, if required, or for dust suppression
- trucks for transportation on site
- ATVs
- Other equipment as deemed appropriate by the contractor

Winter Road construction:

Nuna Logistics is constructing the Tibbitt to Ekati portion of the winter road and it is likely that similar equipment will be used. The following is an excerpt from Nuna's website which discusses the types of equipment that they use in the construction of the JV Winter road.

"Nuna commences construction of the TCWR January of each year which entails the use of Nuna's specialized early road opening equipment such as Hagglund amphibious track vehicles equipped with ground penetrating radar to determine ice thickness and light plow equipment;

both supported by helicopter surveillance to report major ice cracks or pressure ridges ahead. Throughout the road season, Nuna uses plows, graders, water trucks, dozers, snow blowers and other specialized low ground pressure equipment to keep the road clear of snow in order to continually build up ice thickness and keep portages smooth. At various locations along the entire length of the road Nuna measures the lake ice thickness and determines allowable vehicle load weights.

20. If possible, provide digital photos of equipment.

Not possible at this time.

Water

21. Describe the location of water source(s), the water intake methods, and all methods employed to prevent fish entrapment. Provide a map showing the water intake locations.

Carat Lake was the water source which was approved for usage (quality and quantity) when the Jericho Mine was in operation. The volumes of water being proposed for usage in this application are for a small camp, which is a fraction of what was used during mine operations. Before the water from Carat Lake would be used for camp operations, extensive water testing would be conducted to ensure its safety and suitability for this camp of no more than 50 workers.

Water will be extracted using an intake hose with a screen to ensure that no fish become trapped. Water will either be pumped directly from the lake to the camp using existing infrastructure put in place when the mine was in operation, or will be transported via truck to the camp.

22. Describe the estimated rate of water consumption (m^3/day).

    10 m^3/day to support camp and remedial activities.

23. Describe how waste water will be managed. If relevant, provide detail regarding location of sumps, including capacity of sumps and monitoring.

    Waste water will be managed as per previously approved Tahera Waste Water Treatment Plant Operations Plan (see Appendix 12)

24. If applicable, discuss how surface water and underground water will be managed and monitored.

    N/A

Waste Water (Grey water, Sewage, Other)

25. Describe the quantities, treatment, storage, transportation, and disposal methods for the following (where relevant):
    - Sewage

    30 litres/day x 50 people (max) = 1500 litres/day

    Waste water will be managed as per previously approved Tahera Waste Water Treatment Plant Operations Plan (see Appendix 12)

    - Camp grey water

    80 litres/day x 50 people (max) = 4000 L/day

    Waste water will be managed as per previously approved Tahera Waste Water Treatment Plant Operations Plan (see Appendix 12)
    - Combustible solid waste]

    2 m3

    Combustible solid waste generated from camp operations will be incinerated in an on-site incinerator.

    - Non-combustible solid waste, including bulky items/scrap metal

    42,919 m3 +2,614 items

    On-site non-hazardous landfill

- Hazardous waste or oil

Hazardous waste	1,286 m3 (Organic content and materials in drums, ASTs, tanks, pails, etc.)	Incinerate using on-site incinerator that meets applicable emission controls.
Hazardous Materials	2,467 items (Batteries, light bulbs, drums, compressed gas cylinders, fire extinguishers, batteries, etc.)	Depressurize gas cylinders and fire extinguishers. Sort and ship offsite to a designated licensed disposal facility if contents are unknown or cannot be discharged to environment. If known, dispose of in landfill if appropriate.

- Contaminated soils/snow

Soils contaminated with PHC 3,315 m3
Metal impacted soil: 64 m3

Excavate, load-haul and consolidated the PHC soils to on-site landfarm.

- Empty barrels/ fuel drums

- Empty barrels/fuel drums will be handled as per the Barrel Protocol described in the Abandoned Military Site Remediation Protocol (INAC 2009).
- Barrels will be inspected, sampled, tested, have any contents removed and treated, cleaned, crushed, Landfilled.

- Any other waste produced

Not at this time.

26. If the project proposal includes a landfill or landfarm, indicate the locations on a map, provide the conceptual design parameters, and discuss waste management and contact-water management procedures.

The generalized landfarm design consists of a bermed enclosure graded to direct runoff to a sump area at one corner. The area is lined to prevent contaminant migration and the berms are sized to accommodate runoff from a 1:10 24-hour storm event. The liner system comprises a high density polyethylene liner, sandwiched between layers of non-woven geotextile for protection. Contaminated soil is spread in a thin layer over the landfill base and tilled to encourage biodegradation of the hydrocarbon-impacted soils. It is expected that the PHC soils can be remediated however, amendments to the PHC contaminated soil, such as oxidizers, may be required to effectively treat the soil within the Project schedule.

The Phase I and II tankfarns shown in the diagram below will be the location of the Landfarm. During the planned Site Stabilization activities the tanks in the tank farm will be removed from their present location and treated. Please see appendix 9 for further details on this.

Fuel

27. Describe the types of fuel, quantities (number of containers, type of containers and capacity of containers), method of storage and containment. Indicate the location on a map where fuel is to be stored, and method of transportation of fuel to project site.

Fuel	Number of Containers and Capacity of Containers	Total Amount of Fuel (in Litres)	Proposed Storage Methods
Diesel		300,000 L	Large fuel tanks, as per appropriate storage regulations
Gasoline	25	5125L	205 L drums, as per appropriate storage regulations
Aviation fuel			
Propane	16	45kg tanks	as per appropriate storage regulations

All fuel will be mobilized to site via winter road and will be stored as per appropriate storage regulations. Please see details in attached Interm Fuel Contingency Plan for Jericho (Appendix 13)

28. Describe any secondary containment measures to be employed, including the type of material or system used. If no secondary containment is to be employed, please provide justification.

Interm Fuel Contingency Plan for Jericho (Appendix 13)

29. Describe the method of fuel transfer and the method of refuelling.

Interm Fuel Contingency Plan for Jericho (Appendix 13)

30. Describe spill control measures in place.

Interm Fuel Contingency Plan for Jericho (Appendix 13)

Please refer to Environment Canada's fuel storage tank system regulations (*Storage Tank System for Petroleum and Allied Petroleum Products*) website at http://www.ec.gc.ca/st-rs/ for details on fuel storage requirements.

Chemicals and Hazardous Materials*

**included but not limited to oils, greases, drill mud, antifreeze, calcium or sodium chloride salt, lead acid batteries and cleaners*

31. Describe the types, quantities (number of containers, the type of container and capacity of containers), method of storage and containment. Indicate the location on a map where material is to be stored, and method of transportation of materials to project site.

A small amount of oil and grease will be brought to site to complete the maintenance requirements for the equipment on site. These will be transported as per the requirements of the Transportation of Dangerous Goods (TDG) Act & Regulations. The oil and grease will be stored in the fuel storage area until used. Used oil and grease will be collected and shipped off site for disposal at a licenced disposal facility. The exact quantities of these will be determined once a contractor is hired.

32. Describe any secondary containment measures to be employed, including the type of material or system used.

Interm Fuel Contingency Plan for Jericho (Appendix 13)

33. Describe the method of chemical transfer.

Interm Fuel Contingency Plan for Jericho (Appendix 13)

34. Describe spill control measures in place.

Interm Fuel Contingency Plan for Jericho (Appendix 13)

Workforce and Human Resources/Socio-Economic Impacts

35. Discuss opportunities for training and employment of local Inuit beneficiaries.

The contract for remedial activities will contain an Inuit Opportunities Considerations (IOC) clause that requires the contractor to maintain a target level of Inuit employment on the project (and applies a penalty if the contractor fails to meet the target level). On past similar projects the Inuit employment level in the IOC has been in the range of 60-70%. The IOC also sets a target level of Inuit subcontracting. Past similar projects have had minimum Inuit subcontracting levels of 60-80%.

The contract will also contain a training fund that will allow the contractor access to up to 2% of the contract value.

36. Discuss workforce mobilization and schedule, including the duration of work and rotation length, and the transportation of workers to site.

It's assumed that workers will be mobilized to site from both Kugluktuk and Yellowknife. Site stabilization work will take place from May- October 2017. Workers will work on a rotational schedule to be determined by the contractor.

37. Discuss, where relevant, any specific hiring policies for Inuit beneficiaries.

N/A

Public Involvement/ Traditional Knowledge

38. Indicate which communities, groups, or organizations would be affected by this project proposal.

Residents and community organization from Kugluktuk would be positively impacted from this project and the employment/training opportunities it provides.

39. Describe any consultation with interested Parties which has occurred regarding the development of the project proposal.

In August 2016 a community meeting occurred in Kugluktuk to present the details of the proposed site stabilization work and to seek community feedback and direction. Appendix 14 contains the meeting summary notes while Appendix 15 the attendance sheet.

Furthermore a separate meeting with the Kitikmeot Inuit Association took place the day before the community meeting to discuss the site stabilization activities and get their feedback. Please see Appendix 16 for a letter from the KIA in support of the site stabilization activities.

40. Provide a summary of public involvement measures, a summary of concerns expressed, and strategies employed to address any concerns.

Please see appendix 14 which summarizes questions raised at the community meeting in Kugluktuk. There were no direct concerns raised at this community meeting.

41. Describe how traditional knowledge was obtained, and how it has been integrated into the project.

At the present time traditional knowledge has not been directly integrated into the site stabilization project, however, community elders from Kugluktuk did attend the community consultation.

42. Discuss future consultation plans.

Additional community meetings will be held in Kugluktuk once a contractor is hired. The first will be in early 2017 to tell people about the plan for the summer and potential employment/training and sub-contracting opportunities. There will also be a meeting held prior to the conclusion of the work in either late 2017 or early 2018. The purpose of the final meeting will be to let the community know the results of the work.

3. PROJECT SPECIFIC INFORMATION

The following table identifies the project types identified in Section 3 of the NIRB, Part 1 Form. Please complete all relevant sections.

It is the proponent's responsibility to review all sections in addition to the required sections to ensure a complete application form.

Table 1: Project Type and Information Required

Project Type	Type of Project Proposal	Information Request
1	All-Weather Road/Access Trail	Section A-1 and Section A-2
2	Winter Road/Winter Trail	Section A-1 and Section A-3
3	Mineral Exploration	Section B-1 through Section B-4
4	Advanced Mineral Exploration	Section B-1 through Section B-8
5	Mine Development/Bulk Sampling	Section B-1 through Section B-12
6	Pits and Quarries	Section C
7	Offshore Infrastructure(port, break water, dock)	Section D
8	Seismic Survey	Section E
9	Site Cleanup/Remediation	Section F
10	Oil and Natural Gas Exploration/Activities	Section B-3 and Section G
11	Marine Based Activities	Section H
12	Municipal and Industrial Development	Section I

SECTION A: Roads/Trails

A-1. Project Information

1. Describe any field investigations and the results of field investigations used in selecting the proposed route (e.g. geotechnical, snow pack)

The Tibbitt to Contwoyto Winter Road Joint Venture (JV Winter Road) will be used for the mobilization and demobilization of equipment and materials from the Jericho site. When the Jericho Mine was in operation the JV Winter Road extended all the way to Jericho. During the planning for this, many field investigations would have been conducted to validate the selected route. It's anticipated that a very similar route will be used for the construction of this winter road, and that detailed field investigations by the contractor will once again be conducted.

2. Provide a conceptual plan of the road, including example road cross-sections and water crossings.

Please see Appendix 10 for detailed driving maps for the JV winter road as well as appendix 11 for the route of the proposed extension of the road from Lupin to Jericho.

3. Discuss the type and volume of traffic using the road/trail (i.e. type of vehicles and cargo and number of trips annually).

From Ekati to the Jericho site we anticipate 20-25 truckloads going up and back on the winter road per season. The project will have two winter road seasons from 2017-2018.

4. Discuss public access to the road.

The Ekati to Jericho section of the winter road is being built for the sole purpose of mobilizing and demobilizing equipment and materials to the Jericho site. For these reasons we don't anticipate any public access to the road at this point.

5. Describe maintenance procedures.

Maintenance of the road will be the responsibility of the company hired to build the road.

6. Describe whether any portion of the road will be located outside of the Nunavut Settlement Area and whether any other regulatory requirements must be met (e.g. CEAA).

All sections of the road that fall within the Jericho Site Stabilization Project are within the Nunavut Settlement Area.

A-2. All-Weather Road/Access Trail

7. Discuss road design considerations for permafrost.

There will be no construction of new all-weather roads.

8. Describe the construction materials (type and sources for materials), and the acid rock drainage (ARD) and metal leaching characteristics of the construction materials.

There will be no construction of new all-weather roads.

9. Discuss construction techniques, including timing for construction activities.

There will be no construction of new all-weather roads.

10. Indicate on a map the locations of designated refuelling areas, water crossings, culverts, and quarries/borrow sources.

There will be no construction of new all-weather roads.

11. Identify the proposed traffic speed and measures employed to ensure public safety.

Vehicle operators are expected to operate all vehicles and machinery in a manner that ensures a high level of public safety on site. We do not envision having to implement any additional measures around this.

12. Describe dust management procedures.

All weather roads onsite will be wetted down when needed to control dust.

A-3. Winter Road/Trail

13. Describe the surface preparation, including the use of snow berms or compaction, and any flooding. If flooding is to be used, provide the location of the water source on a map.

The surface preparation and flooding necessary for winter road construction will be determined by the contractor hired to construction the winter road. Please see appendix 17 for details on the winter road, water withdrawal locations and amounts.

14. Describe the operating time period.

The winter road will be used by 20-25 trucks traveling to and from the Jericho Mine site one time per winter in 2017 and 2018. We anticipate that they will travel in February or March of that year.

15. Identify the proposed traffic speed and measures employed to ensure public safety.

Traffic speed and other measures employed to ensure public safety on these winter roads will be set by the JV Winter Road group.

Typical speeds on ice are as follows:

Loaded trucks – 25 km/hr (15 mph) with some areas 10 km/hr; empty trucks – 60 - 70 km/hr (35 mph) on “Express Lanes” – which are return (southbound lanes) built on larger lakes

16. Discuss whether the selected route traverses any fish-bearing water bodies.

The proposed route traverses fish bearing water bodies such as Contwoyto Lake.

SECTION B: Mineral Exploration /Advanced Exploration /Development

B-1. Project Information

1. Describe the type of mineral resource under exploration.

B-2. Exploration Activity

2. Indicate the type of exploration activity:
   - Bulk Sampling (underground or other)
   - Stripping (mining shallow bedded mineral deposits in which the overlying material is stripped off, the mineral removed and the overburden replaced)
   - Trenching
   - Pitting
   - Delineation drilling

- Preliminary Delineation drilling
- Exploration drilling
- Geophysical work (indicate ground and/or air)
- Other

3. Describe the exploration activities associated with this project:
   - Satellite remote sensing
   - Aircraft remote sensing
   - Soil sampling
   - Sediment sampling
   - On land drilling (indicate drill type)
   - On ice drilling (indicate drill type)
   - Water based drilling (indicate drill type)
   - Overburden removal
   - Explosives transportation and storage
   - Work within navigable waters
   - On site sample processing
   - Off site sample processing
   - Waste rock storage
   - Ore storage
   - Tailings disposal
   - Portal and underground ramp construction
   - Landfilling
   - Landfarming
   - Other

B-3. Geosciences

4. Indicate the geophysical operation type:
   a. Seismic (please complete Section E)
   b. Magnetic
   c. Gravimetric
   d. Electromagnetic
   e. Other (specify)
5. Indicate the geological operation type:
   a. Geological Mapping
   b. Aerial Photography
   c. Geotechnical Survey
   d. Ground Penetrating Survey
   e. Other (specify)
6. Indicate on a map the boundary subject to air and/or ground geophysical work.
7. Provide flight altitudes and locations where flight altitudes will be below 610m.

B-4. Drilling

8. Provide the number of drill holes and depths (provide estimates and maximums where possible).
9. Discuss any drill additives to be used.
10. Describe method for dealing with drill cuttings.
11. Describe method for dealing with drill water.
12. Describe how drill equipment will be mobilized.
13. Describe how drill holes will be abandoned.

14. If project proposal involves uranium exploration drilling, discuss the potential for radiation exposure and radiation protection measures. Please refer to the *Canadian Guidelines for Naturally Occurring Radioactive Materials* for more information.

B-5. Stripping/ Trenching/ Pit Excavation

15. Discuss methods employed. (i.e. mechanical, manual, hydraulic, blasting, other)

Mechanical: - excavations will occur with an excavator.

16. Describe expected dimensions of excavation(s) including depth(s).

The project will use less than 50,000 m3 of borrow material predominantly for the construction of a non-hazardous landfill. We anticipate that much of this borrow material will come from the removal of existing infrastructure such as gravel pads, and dams that are nearby. Any other necessary borrow will be taken from the existing borrow Area “A” shown in the diagram below.

17. Indicate the locations on a map.

18. Discuss the expected volume material to be removed.

The project will use less than 50,000 m3 of borrow material predominantly for the construction of a non-hazardous landfill.

19. Discuss methods used to determine acid rock drainage (ARD) and metal leaching potential and results.

This is an existing borrow source that was used during Jericho Mine development and operations. If the borrow material is suspected of having acid rock drainage and metal leaching potential then it will be sampled. This is unlikely as the material used will be from the surface/near surface and no blasting will occur.

B-6. Underground Activities

20. Describe underground access.
21. Describe underground workings and provide a conceptual plan.
22. Show location of underground workings on a map.
23. Describe ventilation system.
24. Describe the method for dealing with ground ice, groundwater and mine water when encountered.
25. Provide a Mine Rescue Plan.

B-7. Waste Rock Storage and Tailings Disposal

26. Indicate on a map the location and conceptual design of waste rock storage piles and tailings disposal facility.
27. Discuss the anticipated volumes of waste rock and tailings.
28. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.

B-8. Stockpiles

29. Indicate on a map the location and conceptual design of all stockpiles.
30. Describe the types of material to be stockpiled. (i.e. ore, overburden)
31. Describe the anticipated volumes of each type of material to be stockpiled.
32. Describe any containment measures for stockpiled materials as well as treatment measures for runoff from the stockpile.
33. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.

B-9. Mine Development Activities

34. Indicate the type(s) of mine development activity(s):
    - Underground
    - Open Pit
    - Strip Mining
    - Other
35. Describe mine activities.
    - Mining development plan and methods
    - Site access
    - Site infrastructure (e.g. airstrip, accommodations, offshore infrastructures, mill facilities, fuel storage facilities, site service roads)
    - Milling process

- Water source(s) for domestic and industrial uses, required volumes, distribution and management.
- Solid waste, wastewater and sewage management
- Water treatment systems
- Hazardous waste management
- Ore stockpile management
- Tailings containment and management
- Waste rock management
- Site surface water management
- Mine water management
- Pitting and quarrying activities (please complete Section C)
- Explosive use, supply and storage (including on site manufacturing if required)
- Power generation, fuel requirements and storage
- Continuing exploration
- Other

36. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage.

B-10. Geology and Mineralogy

37. Describe the physical nature of the ore body, including known dimensions and approximate shape.
38. Describe the geology/ mineralogy of the ore deposit
39. Describe the host rock in the general vicinity of the ore body.
40. Discuss the predicted rate of production.
41. Describe mine rock geochemical test programs which have been or will be performed on the ore, host rock, waste rock and tailings to determine acid generation and contaminant leaching potential. Outline methods and provide results if possible.

B-11. Mine

42. Discuss the expected life of the mine.
43. Describe mine equipment to be used.
44. Does the project proposal involve lake and/or pit dewatering? If so, describe the activity as well as the construction of water retention facilities if necessary.
45. Discuss the possibility of operational changes occurring during the mine life with consideration for timing. (e.g. open pit to underground)
46. If project proposal involves uranium mining, consider the potential for radiation exposure and radiation protection measures. Particular attention should be paid to *The Nuclear Safety and Control Act*.

B-12. Mill

47. If a mill will be operating on the property in conjunction with mining, indicate whether mine-water may be directed to the mill for reuse.
48. Describe the proposed capacity of the mill.
49. Describe the physical and chemical characteristics of mill waste as best as possible.
50. Will or does the mill handle custom lots of ore from other properties or mine sites?

SECTION C: Pits and Quarries

1. Describe all activities included in this project.
   - Pitting
   - Quarrying
   - Overburden removal
   - Road use and/or construction (please complete Section A)
   - Explosives transportation and storage
   - Work within navigable waters
   - Blasting
   - Stockpiling
   - Crushing
   - Washing
   - Other
2. Describe any field investigations and the results of field investigations used in determining new extraction sites.
3. Identify any carving stone deposits.
4. Provide a conceptual design including footprint.
5. Describe the type and volume of material to be extracted.
6. Describe the depth of overburden.
7. Describe any existing and potential for thermokarst development and any thermokarst prevention measures.
8. Describe any existing or potential for flooding and any flood control measures.
9. Describe any existing or potential for erosion and any erosion control measures.
10. Describe any existing or potential for sedimentation and any sedimentation control measures.
11. Describe any existing or potential for slumping and any slump control measures.
12. Describe the moisture content of the ground.
13. Describe any evidence of ice lenses.
14. If blasting, describe methods employed.
15. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage.
16. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.
17. Discuss safety measures for the workforce and the public.

SECTION D: Offshore Infrastructure

D-1. Facility

1. Describe any field investigations and the results of field investigations used in selecting the site (i.e. aerial surveys, bathymetric surveys, tidal processes, shoreline erosion processes, geotechnical foundation conditions)
2. Provide a conceptual plan, profile description and drawing(s) indicating shoreline, facility footprint, tidal variations, required vessel draft, keel offset, deck height freeboard
3. Discuss how anticipated loads on the seabed foundation and on the offloading platform will be incorporated into the design.
4. Describe how vessels will manoeuvre around the facility. (e.g. pull alongside or in front)
5. Discuss the anticipated life of the facility.

6. Describe whether part of the facility or project will be located outside of the Nunavut Settlement Area and whether any other regulatory requirements must be met (e.g. CEAA).

D-2. Facility Construction

7. Describe the types of material used for construction (i.e. granular or rock, steel piling or sheet piling, concrete). If material is granular, consider acid rock drainage potential, metal leaching potential, percentage of fines, size.
8. Describe dredging activities.
9. Indicate source of granular or rock material used in construction.
10. List quantities of the various types of material used in construction.
11. Describe construction method(s).
12. Indicate whether a site engineer will be on-site to inspect construction.
13. If proposed construction method involves dumping of fill into water, discuss measures for mitigating the release of suspended solids.

D-3. Facility Operation

14. Describe maintenance activities associated with the facility (e.g. dredging, maintenance to account for potential settlement of facility,)
15. Discuss whether the public will have access to the facility(s) and describe public safety measures.
16. Describe cargo and container handling, transfer and storage facilities.
17. Indicate whether fuel will be transferred from barges at this site and describe the method of that fuel transfer.
18. Discuss frequency of use.

D-4. Vessel Use in Offshore Infrastructure

19. Please complete Section H

SECTION E: Seismic Survey

E-1. Offshore Seismic Survey

1. Indicate whether the survey is 2D or 3D at each site.
2. Describe the type of equipment used, including:
   - Type and number of vessels including length, beam, draft, motors, accommodation capacity, operational speeds when towing and when not towing
   - Sound source (type and number of airguns)
   - Type and number of hydrophones
   - Number, length, and spacing of cables/ streamers
3. On a map, indicate the grid, number of lines and total distance covered by each line, the distance to nearby community/communities and sensitive areas (e.g., National Parks, National Wildlife Areas, Migratory Bird Sanctuaries, recognized breeding grounds or migratory routes).
4. Indicate the discharge volume of the airguns, the depth of airgun discharge, the noise levels of acoustic signal at various distances from the source (e.g.,500 metres,1000 metres), and the frequency and duration of airgun operation at each site.

5. Discuss the potential for dielectric oil to be released from the streamer array, and describe proposed mitigation measures.
6. Indicate whether additional seismic operations are required for start-up of operations, equipment testing, repeat coverage of areas.
7. Indicate whether air gun procedures will include a “ramping up” period and, if so, the proposed rate of ramping up.
8. Indicate whether the measures described in the *Statement of Canadian Practice for Mitigation of Noise in the Marine Environment* will be adhered to for this project.
9. Describe whether any part of the project will be located outside of the Nunavut Settlement Area and whether any other regulatory requirements must be met (e.g. CEAA).

E-2. Nearshore/Onshore Seismic Survey

10. For each site, indicate whether nearshore and onshore surveys will be conducted during the ice season or once the ice has melted
11. Describe how nearshore and onshore areas will be accessed.
12. Describe the survey methods to be used (e.g. explosive charge, vibration, air or water gun, other)
13. Describe equipment to be used
14. If applicable, indicate number, depth and spacing of shot holes
15. Describe explosive wastes including characteristics, quantities, treatment, storage, handling, transportation and disposal methods.

E-3. Vessel Use in Seismic Survey

16. Please complete Section H.

SECTION F: Site Cleanup/Remediation

1. Describe the location, content, and condition of any existing landfills and dumps (indicate locations on a map).

There was one landfill constructed during Jericho Mine operations which is located on Inuit Owned Land. This landfill is not part of the proposed Site Stabilization activities. Located below is what is known about this landfill:

Non-hazardous wastes were landfilled by Tahera in Waste Dump 2 on IOL. It was a combination of a dry waste disposal and burn area. Waste from their incinerator was also disposed of in the area. Solids from the waste water clarifier were apparently placed in a segregated sludge pit located away from the waste cells. The landfill was closed by Shear in 2011.

2. Identify salvageable equipment, infrastructure and/or supplies.

As part of the proposed Site Stabilization activities, we are allowing the contractor the option of salvaging any equipment that is on the Jericho site. Please see Appendix E of the Phase III Environmental Site Assessment (ESA) (appendix 8) for a detailed list of all equipment available.

3. Provide a list of all contaminants to be cleaned up, anticipated volumes and a map delineating contaminated areas. This includes buildings, equipment, scrap metal and debris, and barrels as well as soil, water (surface and groundwater) and sediment.

The table below lists all of the contaminants to be cleaned up as part of this project. The location of these can be seen in the Phase III ESA found in appendix8.

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method
Contaminated soil	Soils contaminated with PHC.	3,315 m3	Excavate, load-haul and consolidated the PHC soils to on-site landfarm	Excavate, load-haul and consolidated the PHC soils to on-site landfarm
Contaminated Soils	Metal Impacted Soil	64 m3	Metal-impacted soils will be handled as per the *Abandoned Military Site Remediation Protocol* (AMSRP); Tier 1 soils to be land treated and Tier 2 soils to be removed offsite to a designated licensed disposal facility	Metal-impacted soils will be handled as per the *Abandoned Military Site Remediation Protocol* (AMSRP); Tier 1 soils to be land treated and Tier 2 soils to be removed offsite to a designated licensed disposal facility
Hazardous Materials	Organic content and materials in drums, ASTs, tanks, pails, etc.	1,286 m3	Incinerate using on-site incinerator that meets applicable emission controls.	Incinerate using on-site incinerator that meets applicable emission controls.
Hazardous materials	Batteries, light bulbs, drums, compressed gas cylinders, fire extinguishers, batteries, etc.	2,467 items	Depressurize gas cylinders and fire extinguishers. Sort and ship offsite to a designated licensed disposal facility if contents are unknown or cannot be discharged to environment. If known, dispose of in landfill if	Depressurize gas cylinders and fire extinguishers. Sort and ship offsite to a designated licensed disposal facility if contents are unknown or cannot be discharged to environment. If known, dispose of in landfill if appropriate.

			appropriate.	
Non-hazardous Materials	waste material such as wood debris, metal debris, aboveground storage tanks (AST), drums, rubber, concrete, plastic and other inert items.	42,919 m3	Onsite Non-hazardous landfill	Onsite Non-hazardous landfill
Non-hazardous materials	waste material such as wood debris, metal debris, aboveground storage tanks (AST), drums, rubber, concrete, plastic and other inert items.	2,614 items	Onsite Non-hazardous landfill	Onsite Non-hazardous landfill

4. Describe the degree of pollution/contamination, and list the contaminants and toxicity.

The degree of contamination is low to moderate.

5. Describe technologies used for clean-up and/or disposal of contaminated materials. Include a list of all the physical, chemical and biological cleanup/ remediation methods, operational procedures, and the dosage/frequency of reagents and bacterial medium.

Only proven methods and technologies will be used. See Site Stabilization Plan TOR for further information (Appendix 9)

6. Identify and describe all materials to be disposed of off site, including the proposed off site facilities, method of transport and containment measures.

See chart in question 3 above for list of materials that are being disposed of off-site. The JV Winter Road will be used to transport materials off-site that need to be disposed of. The exact disposal location has yet to be determined but will be once a contract is in place.

7. Discuss the viability of landfarming, given site specific climate and geographic conditions.

Landfarming has proven to be a viable option for the treatment of hydrocarbons (F1-F3) on many other contaminated sites projects that INAC has overseen including both mine and Distant Early Warning (DEW) Line sites in Nunavut.

8. Describe the explosive types, hazard classes, volumes, uses, location of storage (indicate on a map), and method of storage (if applicable).

None

9. If blasting, describe the methods employed.

N/A

10. Describe all methods of erosion control, dust suppression, and contouring and re-vegetation of lands.

None specifically required.

11. Describe **all** activities included in this project.
    - Excavation (please complete Section B-5)
      See section B-5
    - Road use and/or construction (please complete Section A)
      See Section A
    - Airstrip use and/or construction
      See Part 2 – Transportation Questions 12-15.
    - Camp use and/or construction
      See Part 2 – Camp Site Transportation Questions 16-18.
    - Stockpiling of contaminated material
      Contaminated materials will be consolidated and packaged for transportation. They will be stored at a staging area until they are loaded onto trucks to be removed from site. Confirmatory samples will be taken from the staging area once the materials are removed to confirm that the area is not contaminated.
    - Pit and/or quarry (please complete Section C)
      N/A
    - Work within navigable waters (please complete Section H)
      N/A
    - Barrel crushing
      Empty barrels will be handled as pre the Barrel Protocol described in the Abandoned Military Site Remediation Protocol (INAC 2009).
    - Building Demolition
      All structures that are to be demolished are described in the Site Stabilization TOR found in Appendix 9.
    - Other
      N/A

SECTION G: Oil and Natural Gas Exploration/Activities

G-1. Well Authorization

1. Identify the location(s) of the well centre(s) by latitude and longitude. Attach a map drawn to scale showing locations of existing and proposed wells.
2. Indicate if the site contains any known former well sites.
3. Include the following information for each well:
    a. Well name
    b. Surface location
    c. Proposed bottomhole location
    d. Ground elevation (in metres)
    e. Spacing area (in units)
    f. Identify the well type:
        i. Production
        ii. Injection
        iii. Disposal
        iv. Observation
        v. Storage
        vi. Experimental
        vii. Other (specify)
    g. Identify the well classification:
        i. Exploratory wildcat
        ii. Exploratory outpost
        iii. Development
    h. Drilling operation (deviation):
        i. Vertical
        ii. Directional
        iii. Horizontal
        iv. Slant
    i. Objective Zones (copy chart style below)

Objective Formation	Fluid (oil/gas/water)	Depth (mTVD)	Core (Y/N)

    j. Proposed Total Depth in mTDV and mMD.
    k. Formation of Total Depth
    l. Sour well? (yes or no)
        i. If Yes: Maximum H_2S concentration in mol/kmol
            Emergency planning zone radius in km
    m. Blowout Prevention (Well Class I – VI)
    n. Deviation Surveys
        i. Will be run at intervals less than 150m? (yes or no)
    o. Wireline logs
        i. Will run logs in hole for surface casing? (yes or no)
        ii. Will run a minimum of 2 porosity measuring logs? (yes or no)

G-2. On-Land Exploration

4. Indicate if the site contains any known:
    a. Waste Dumps
    b. Fuel and Chemical Storage Areas
    c. Sump Areas
    d. Waste Water Discharge Locations
5. Attach maps drawn to scale showing locations of existing and proposed items identified in (2) above, as well as all proposed:
    a. Sumps
    b. Water sources
    c. Fuel and chemical storage facilities
    d. Drilling mud storage areas
    e. Transportation routes
6. If utilizing *fresh water*, estimate maximum drawdown and recharge capability of the river or lake from which water will be drawn.
7. Indicate if permafrost is expected to be encountered under:
    a. Camp Facilities
    b. Well Site
    c. Access Routes
    d. Sumps
    e. Other: _____
8. Indicate any potential for encountering artesian aquifers or lost circulation within the surface hole (to casing depth).
9. Will drilling wastes contain detrimental substances (including, but not limited to, oil-based or invert mud and high salinity fluids)? If yes, indicate the substances and estimated volumes.
10. Indicate methods for disposal of drilling wastes:
    a. Sump
    b. Down Hole (requires NEB approval)
    c. On-Site Treatment (provide plan)
    d. Off-Site (give location and method of disposal)
11. If a sump is being used, attach the following information:
    a. scale drawings and design of sumps
    b. capacity in cubic metres
    c. berm erosion protection
    d. soil permeability and type
    e. recycling/reclaiming waters
    f. surface drainage controls
    g. abandonment procedures
12. Attach the proposed or existing contingency plan which describes the course of action, mitigative measures and equipment available for use in the event of system failures and spills of hazardous materials.
13. Attach an outline of planned abandonment and restoration procedures.

G-3. Off-Shore Exploration

14. Will drilling wastes contain detrimental substances (including, but not limited to, oil-based or invert mud and high salinity fluids)? If yes, indicate the substances and estimated volumes.

15. Attach the proposed or existing contingency plan which describes the course of action, mitigative measures and equipment available for use in the event of system failures and spills of hazardous materials.
16. Attach an outline of planned abandonment and restoration procedures.
17. Please complete Section H.

G-4. Rig

18. Type of Rig. Draw works, make and model
19. Derrick/Mast make and model
20. H.P. available to draw-works

SECTION H: Marine Based Activities

H-1. Vessel Use

1. Describe the purpose of vessel operations.
2. List classes and sizes of vessels to be used.
3. Indicate crew size.
4. Indicate operating schedule.
5. Provide a description of route to be traveled (include map).
6. Indicate whether the vessel will call at any ports. If so, where and why?
7. Describe wastes produced or carried onboard including the quantities, storage, treatment, handling and disposal methods for the following:
    a. Ballast water
    b. Bilge water
    c. Deck drainage
    d. Grey and black water
    e. Solid waste
    f. Waste oil
    g. Hazardous or toxic waste
8. List all applicable regulations concerning management of wastes and discharges of materials into the marine environment
9. Provide detailed Waste Management, Emergency Response and Spill Contingency Plans
10. Does the vessel(s) possess an Arctic Pollution Prevention Certificate? If yes, indicate the date of issue and the name of the classification society.
11. Describe the source of fresh water and potable water
12. Indicate whether ice-breaking will be required, and if so, approximately where and when? Discuss any possible impacts to caribou migration, Inuit harvesting or travel routes, and outline proposed mitigation measures.
13. Indicate whether the operation will be conducted within the Outer Land Fast Ice Zone of the East Baffin Coast. For more information on the Outer Land Fast Ice Zone, please see the Nunavut Land Claims Agreement (NLCA), Articles 1 and 16.
14. Indicate whether Fisheries or Environmental Observers or any other *Qualified Marine Observer* will be onboard during the proposed project activities. If yes, describe their function and responsibilities.

15. Describe all proposed measures for reducing impacts to marine habitat and marine wildlife (including mammals, birds, reptiles, fish, and invertebrates).
16. Describe whether any part of the project will be located outside of the Nunavut Settlement Area and whether any other regulatory requirements must be met (e.g. CEAA).

H-2. Disposal at Sea

17. Provide confirmation you have applied for a *Disposal at Sea* permit with Environment Canada.
18. Provide a justification for the disposal at sea.
19. Describe the substance to be disposed of, including chemical and physical properties.
20. Indicate the location where the disposal is to take place.
21. Describe the frequency of disposals (disposals per day/week or month).
22. Describe the route to be followed during disposal and indicate on a map.
23. Indicate any previous disposal methods and locations.
24. Provide an assessment of the potential effects of the disposal substance on living marine resources.
25. Provide an assessment of the potential of the disposal substance, once disposed of at sea, to cause long-term physical effects.
26. Describe all mitigation measures to be employed to minimize the environmental, health, navigational and aesthetic impacts during loading, transport and disposal.

SECTION I: Municipal and Industrial Development

1. Describe the business type, including public, private, limited, unlimited or other.
2. Describe the activity (e.g. development of quarry, development of hydroelectric facility, bulk fuel storage, power generation with nuclear fuels or hydro, tannery operations, meat processing and packing, etc.).
3. Describe the production process or service provision procedures.
4. Describe the raw materials used in this activity, the storage and transportation methods. If hazardous materials are included in raw materials, products or by-products; include safety regulations methodology.
5. Provide detailed information about the structure and/or building in which the activity will be conducted.
6. List the PPE (personal protective equipment) and tools to be used to protect personal health and safety.
7. Describe the firefighting equipment that are or will be installed.
8. Describe the noise sources, noise level in work area, technical measurements that will be adopted to abate the noise levels and regulatory requirements for noise abatement and noise levels.
9. Describe the type of gaseous emission that will be produced during this activity. Include the allowable thresholds and mitigation measures.
10. Describe odours that the activity might release and include corresponding allowable threshold. Describe mitigation measures if thresholds are exceeded.
11. Describe radiation sources that might be emitted during the activity. Include type and source and include mitigation measures. Also describe preventative measures for human exposure (i.e. PPE).
12. Discuss the employee safety and environment protection training program.
13. If the activity involves a bulk fuel storage facility, include drawings showing the bulk fuel storage facility location in proximity to natural water courses, high water marks, etc.

14. If the activity involves the development of a new quarry or expansion of an existing quarry, complete Section C.

4. DESCRIPTION OF THE EXISTING ENVIRONMENT

Describe the existing environment, including physical, biological and socioeconomic aspects. Where appropriate, identify local study areas (LSA) and regional study areas (RSA).

Please note that the detail provided in the description of the existing environment should be appropriate for the type of project proposal and its scope.

The following is intended as a guide only.

Physical Environment

Please note that a description of the physical environment is intended to cover all components of a project, including roads/trails, marine routes, etc. that are in existence at present time.

A description of the physical environment can be found in the Final Environmental Screening Report which is located in Appendix 18.

- Proximity to protected areas, including:
  i. designated environmental areas, including parks;
  ii. heritage sites;
  iii. sensitive areas, including all sensitive marine habitat areas;
  iv. recreational areas;
  v. sport and commercial fishing areas;
  vi. breeding, spawning and nursery areas;
  vii. known migration routes of terrestrial and marine species;
  viii. marine resources;
  ix. areas of natural beauty, cultural or historical history;
  x. protected wildlife areas; and
  xi. other protected areas.
- Eskers and other unique landscapes (e.g. sand hills, marshes, wetlands, floodplains).
- Evidence of ground, slope or rock instability, seismicity.
- Evidence of thermokarsts.
- Evidence of ice lenses.
- Surface and bedrock geology.
- Topography.
- Permafrost (e.g. stability, depth, thickness, continuity, taliks).
- Sediment and soil quality.
- Hydrology/ limnology (e.g. watershed boundaries, lakes, streams, sediment geochemistry, surface water flow, groundwater flow, flood zones).
- Tidal processes and bathymetry in the project area (if applicable).
- Water quality and quantity.
- Air quality.
- Climate conditions and predicted future climate trends.

- Noise levels.
- Other physical Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review.

Biological Environment

- Vegetation (terrestrial as well as freshwater and marine where applicable).
- Wildlife, including habitat and migration patterns.
- Birds, including habitat and migration patterns.
- Species of concern as identified by federal or territorial agencies, including any wildlife species listed under the *Species at Risk Act (SARA)*, its critical habitat or the residences of individuals of the species.
- Aquatic (freshwater and marine) species, including habitat and migration/spawning patterns.
- Other biological Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review.

Socioeconomic Environment

- Proximity to communities.
- Archaeological and culturally significant sites (e.g. pingos, soap stone quarries) in the project (Local Study Area) and adjacent area (Regional Study Area).
- Palaeontological component of surface and bedrock geology.
- Land and resource use in the area, including subsistence harvesting, tourism, trapping and guiding operations.
- Local and regional traffic patterns.
- Human Health, broadly defined as a complete state of wellbeing (including physical, social, psychological, and spiritual aspects).
- Other Valued Socioeconomic Components (VSEC) as determined through community consultation and/or literature review.

5. IDENTIFICATION OF IMPACTS AND PROPOSED MITIGATION MEASURES

1. Please complete the attached Table 1 – Identification of Environmental Impacts, taking into consideration the components/activities and project phase(s) identified in Section 4 of this document. Identify impacts in Table 1 as either positive (P), negative and mitigable (M), negative and non- mitigable (N), or unknown (U).

Please see attached table.

2. Discuss the impacts identified in the above table.

Please see Final Environmental Screening Report which is located in Appendix 18.

3. Discuss potential socioeconomic impacts, including human health.

Please see Final Environmental Screening Report which is located in Appendix 18.

4. Discuss potential for transboundary effects related to the project.
   Please see Final Environmental Screening Report which is located in Appendix 18.

5. Identify any potentially adverse effects of the project proposal on species listed under the *Species at Risk Act (SARA)* and their critical habitats or residences, what measures will be taken to avoid or lessen those effects and how the effects will be monitored.

Please see Final Environmental Screening Report which is located in Appendix 18.

6. Discuss proposed measures to mitigate all identified negative impacts.

Please see Final Environmental Screening Report which is located in Appendix 18.

6. CUMULATIVE EFFECTS

A cumulative impact (or effect) can be defined as the impact on the environment that results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can also result from individually minor but collectively significant actions taking place over a period of time.

Discuss how the effects of this project interact with the effects of relevant past, present and reasonably foreseeable projects in a regional context.

Please see Final Environmental Screening Report which is located in Appendix 18.

7. SUPPORTING DOCUMENTS

Where relevant, provide the following supporting documents:

- Abandonment and Decommissioning Plan

Please see Site Stabilization Plan TOR in Appendix 9

- Existing site photos with descriptions

Please see Phase III Environmental Site Assessment in Appendix 8

- Emergency Response Plan

Not available, will be completed prior to mobilizing to site.

- Comprehensive Spill Prevention/Plan (must consider hazardous waste and fuel handling, storage, disposal, spill prevention measures, staff training and emergency contacts)

Please see Appendix 13 for draft Spill Contingency Plan.

- Waste Management Plan/Program

Not available, will be completed prior to mobilizing to site.

- Monitoring and Management Plans (e.g. water quality, air pollution, noise control and wildlife protection etc.)

Not available, will be completed prior to mobilizing to site.

- If project activities are located within Caribou Protection Areas or Schedule 1 Species at Risk known locations, please provide a Wildlife Mitigation and Monitoring Plan

Not Applicable

In addition, for Project Type 9 (Site Cleanup/Remediation), please provide the following additional supporting documents:

- Remediation Plan including cleanup criteria and how the criteria were derived.

Please see the Site Stabilization TOR located in appendix 9. The cleanup criteria used in this plan were either the Abandoned Military Site Remediation Protocol (AMSRP) or Canadian Council of Ministers of the Environment (CCME).

- Human Health Risk Assessment of the contaminants at the site.

Not available as established criteria are being used.

THE NUNAVUT IMPACT REVIEW BOARD
PROJECT SPECIFIC INFORMATION REQUIREMENT - PART 2 FORM

TABLE 1 - IDENTIFICATION OF ENVIRONMENTAL IMPACTS

		ENVIRONMENTAL COMPONENTS	PHYSICAL	designated environmental areas (ie. Parks, Wildlife Protected areas)	ground stability	permafrost	hydrology/ limnology	water quality	climate conditions	eskers and other unique or fragile landscapes	surface and bedrock geology	sediment and soil quality	tidal processes and bathymetry	air quality	noise levels	other VEC:	other VEC:	other VEC:	BIOLOGICAL	vegetation	wildlife, including habitat and migration patterns	birds, including habitat and migration patterns	aquatic species, incl. habitat and migration/spawnin	wildlife protected areas	other VEC:	other VEC:	other VEC:	SOCIO-ECONOMIC	archaeological and cultural historic sites	employment	community wellness	community infrastructure	human health	other VSEC: aesthetics
PROJECT COMPONENTS/ACTIVITIES																																	
CONSTRUCTION	Winter road construction, mobilization, transportation of equipment						M				M	M		M							M	M	M						P	P	P		
OPERATION	Camp Operation Including Water Use, Waste Water Treatment, Waste Incineration						M				M		M							M	M	M	M						P	P			
DECOMMISSIONING	Open Pit Infilling and Stabilization				M		M	M				M										M	M	P						P				P
	Processed Kimberlite Containment Area Management				P		P	P				P										M	M	M						P				P
	Structure Demolition and Debris Handling				M		M					M		M							M	M	M						P				P
	Onsite Construction of Non-hazardous Landfill				M		M					M		M							M	M	M						P				M
	Onsite Incineration of Liquid Organic Waste						P	P				M		M							P	P	P						P				P
	Onsite Handling and Consolidation of Hazardous Waste						M	P				M									M	M	M	M					P				P
	Excavation of Impacted soils						M	P				M										M	M	M						P				
	Landfarm Area Operation				M		M					M		M							M	M	M						P				
	Offsite Removal of Hazardous Waste and Tier 2 Metal Impacted Soil						P	P				M		M								P	P	P						P				P
	Site Contouring				M		P					M		M							M	M	M	M						P				P
	Demobilization, Transportation of Equipment on Winter Road						M					M		M								M	M	M								P		
	Long-term Monitoring						M	M														M	M	M						P				

Notes: Please indicate in the matrix cells whether the interaction causes an impact and whether the impact is:

P *Positive*
N *Negative and non-mitigatable*
M *Negative and mitigatable*
U *Unknown*

If no impact is expected then please leave the cell blank

APPENDIX 2

JERICHO SITE STABILIZATION PROJECT TERMS OF REFERENCE

Design-Build Services

Terms of Reference

Jericho Mine Site Stabilization, Nunavut

Public Services and Procurement Canada

July 2016

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TABLE OF CONTENTS

ACRONYMS & ABBREVIATIONS

PSPC	Public Services and Procurement Canada
INAC	Indigenous and Northern Affairs Canada
TOR	Terms of Reference
ESA	Environmental Site Assessment
OA	Options Analysis report
AHJ	Authorities Having Jurisdiction
PKCA	Processed Kimberlite Containment Area
NHL	Non-Hazardous Landfill
ASTs	Aboveground Storage Tanks
HWTA	Hazardous Waste Transfer Area
PHC soils	Petroleum Hydrocarbon Impacted Soils
LPB	Lead-Based Paint
APEC	Areas of Potential Environmental Concern
DR	Departmental Representative
IOL	Inuit Owned Land

1 PROJECT DESCRIPTION

1.1 PROJECT INFORMATION

1.1.1 Project Information

Project Information	
Project Title:	Jericho Mine Site Stabilization
Project Location:	The Jericho Mine is located approximately 270 km southeast of Kugluktuk, NU, and 30 km north of the Lupin Mine in the Contwoyto-Itchen Region. At 65°59'50"N, 111°28'30"W, the Jericho Mine is approximately 60 km south of the Arctic Circle.
Public Services and Procurement Services (PSPC) Project Number:	R.083349.001

1.1.2 Departmental Representative

Departmental Representative	
PSPC Project Manager:	Michael Bernardin

1.2 PROJECT BACKGROUND

1.2.1 Introduction

.1 As the custodian of most federal lands in the North, Indigenous and Northern Affairs Canada (INAC) has responsibility, through the Northern Contaminated Sites Program, to manage a number of contaminated properties that are no longer maintained by the original occupant. The Department's portfolio of contaminated sites originated from private sector mining, oil and gas activities and government military activity dating back over half a century.

.2 This Terms of Reference (TOR) has been developed on behalf of INAC to solicit combined engineering and construction/ decommissioning services from a qualified firm or joint venture company.

.3 The scope of work for the site stabilization, consisting of remediation/ decommissioning of select mine components, including the design of said components, combine to form what is going to be referenced as a design-build procurement approach for this project.

1.2.2 Services

.1 The services of a general contractor with engineering capacity, or a joint venture company providing both design and deconstruction services will be consider the "Contractor" in this document. The Contractor will include a multi-disciplinary team of sub-consultants and suppliers as required to undertake the design and provide the deconstruction services necessary for this project.

.2 The selected Contractor will provide a full team including all required expertise in northern logistics, camp operation, earthworks, hazardous materials abatement, etc. as necessary to complete the work.

1.2.3 Site Description and background

.1 The Jericho Mine was opened in 2006 by Tahera Diamond Corporation (Tahera) who went through bankruptcy proceedings in 2008. Shear Diamonds Corp. (Shear) took over the Jericho Mine in 2010 and operated the mine under care and maintenance until September 2012 when Shear suspended operations. INAC has been undertaking basic environmental protection of the Jericho Mine since spring 2013. It is understood that INAC assumed control of the Jericho Mine in January 2014.

.2 The original mine plan was to construct a project with an eight-year life and extract the kimberlite ore by using an open pit and underground mining methods. The mine work did not advance beyond the open pit extraction.

.3 A detailed Environment Site Assessment (ESA) report was prepared by Tetra Tech EBA (EBA) in December 2014. The report presented the results and finding of their August 2014 on-site investigation work, planned following a gap analysis in support of developing of a remedial action plan for the project site. The scope of the ESA included investigation and assessment for both a full remediation of the site, as well as a limited site remediation option. Contaminated soil, water, hazardous and non-hazardous material and infrastructure, and geotechnical information all form part of the ESA document.

.4 Further to the findings of the ESA, remedial options were evaluated and presented in the EBA Options Analysis (OA) report (April 2015). The OA outlined and determined preferred options available for 3 closure scenarios; a full remediation scenario, limited remediation scenario and preservation of site assets scenario. Descriptions of the remedial activities for each scenario were presented in the document.

.5 In consideration to both the overall remediation objectives for the Jericho Mine Site and the specific maximum funding available to the project, this procurement outlines work that will form the basis of the Site Stabilization Project as well as provide the best value to the Crown.

1.2.4 Design and Construction Scope

.1 As the custodian of the Jericho Mine Site, INAC has an overall mandate to protect the environment and undertake activities to make the most efficient use of the securities held by the department.

.2 Further to the remedial options presented in the OA and based on the specific funding available for the project, the Site Stabilization Work will include remedial activities that address the most immediate site concerns.

.3 The scope items are grouped into the following three work categories; Earthworks, Environmental and Demolition. An outline of work items/ remedial activities are described in the Summary of Work section below.

.4 The Contractor shall be responsible for reviewing and understanding the options analysis for each remedial work item and ultimately the design, implementation and verification of all bid work.

1.2.5 Project Constraints

.1 Aircraft or winter-only overland access to the site.

.2 One-Construction-Season project timeframe, 2017.

.3 Maximum Price Contract.

1.3 PROJECT DELIVERY APPROACH

1.3.1 Approach

.1 This project will use a design/ deconstruction procurement approach, more commonly known as a design/ build approach.

.2 The maximum contract award amount is $10.5M without GST.

.3 The Contractor will be required to provide design and deconstruction services for each of the scope requirements outlined in this document.

.4 Payment for each of the scope requirements is as shown in the Basis of Payment Table.

.5 This Terms of Reference, combined with the ESA and OA outline the minimum design and deconstruction requirements for each of the tasks.

1.3.2 Special Conditions/Considerations

.1 Remote access to the site.

.2 Arctic Environment.

.3 Mine Site Hazards.

.4 Health and Safety considerations associated with the Authorities Having Jurisdiction (AHJ).

.5 Work must be compliant with AHJ.

1.4 PROJECT SCHEDULE

1.4.1 General

.1 The project is to be delivered, including design, all *deconstruction* and disposal components and demobilization from site by March 31, 2018.

.2 See the following table for key milestone date.

.3 Contractor is required to submit a detailed schedule with adherence to the milestone dates provided.

1.4.2 Anticipated Milestone Dates

Project Phase		Milestone Date
.1	Contract award	Dec. 12, 2016
.2	Preliminary Design Submission	Jan.16, 2017
.3	Completion of Design	Feb. 28, 2017
.4	Mobilization to site	Mar. 2017
.5	Construction period	May- Oct. 2017
.6	Demobilization from Site	Mar. 2018
.7	Contract Closeout	Mar. 31, 2018

1.5 SUMMARY OF WORK

1.5.1 Project Administration & Design Services and Construction Services

.1 Carry out the Contract Work, as specified, for the following:
- .1 Project Administration and Design Services; and
- .2 Required Construction Services, in accordance with the provided Technical Specifications.

Details of each are provided in the Sections 2 and 3, respectively.

.2 Mobilize and demobilize all personnel, equipment, support facilities and materials required to complete the Work.

1.5.2 Design/ Deconstruction Scope of Work

The following work items form the components of the Scope of Work, grouped by Earthworks, Environmental and Demolition.

Earthworks

Earthworks consist of various excavation, construction and deconstruction items designed to stabilize different structural components of the former mine. The work includes constructing the berms for the non-hazardous landfill as well as the final landfill cover, once all debris materials are in place.

The specific mine components listed below are described in Section 5 of the EBA Options Analysis (2015) and shown in its appended figures.

.1 Breach the C1 Diversion and construct a Pit Overflow;
- .1 The preferred option to expedite pit filling, by restoring the natural flow back into the pit, and remove any questions about long-term performance of the existing Diversion,
- .2 Construct a channel through the C1 Diversion to divert the C1 flow back into the Open Pit,
- .3 Install a plug to prevent flow down the alignment of the existing C1 Diversion,
- .4 Cut a separate channel to breach and divert future flow out of the Open Pit, and
- .5 Design both breaches to ensure their long term performances.

.2 Breach the West Dam;
- .1 Part of the preferred remedial option to manage the Processed Kimberlite Containment Area (PKCA) Surface Water,
- .2 The West Dam is a frozen core dam located at the west end of the PKCA,

.3 Breach the West Dam near the original lake elevation of 514.4 m to allow surface flow out of the containment area while directing water along its original flow path,

.4 Design the breach section to ensure long-term integrity of the bypass, and

.5 Place armouring material along the channel bottom and side slopes to provide erosion resistance.

.3 Notch Divider Dyke A;

.1 Part of the preferred remedial option to manage the Processed Kimberlite Containment Area (PKCA) Surface Water,

.2 Divider Dyke A divides the PKCA into two areas and consists of a sand and gravel filter zone supported by a rock-fill superstructure,

.3 Notch the Dyke to promote flow between Cells A and B/C at a control elevation of 520 m,

.4 Design the section to discourage snow accumulation and to permit vehicle passage to the West Dam,

.5 Design the notch and a transition to manage flow across a 5 m drop in elevation from the upstream to downstream sides, and

.6 Place armouring material along the channel bottom and side slopes to provide erosion resistance.

.4 Construct a Cover over Cell A;

.1 The preferred remedial option for surface stabilization of the PKCA,

.2 The Cell A tailings surface is exposed and localized erosion channels are evident at spigot locations,

.3 Soft ground conditions will be encountered towards the settling pond upstream of Dyke A,

.4 Construct the cover over Cell A to stabilize fine PK deposits and limit the migration of wind-blown tailings, and

.5 Design the cover to provide long-term erosion resistance.

.5 Construct a Non-Hazardous Landfill (NHL);

.1 For management of non-hazardous materials on-site,

.2 Construct a landfill to contain waste material such as wood debris, metal debris, aboveground storage tanks (ASTs), drums, rubber, concrete, plastic and other inert items,

.3 The preferred landfill location is west of the main camp pad, on largely bedrock controlled terrain,

.4 Design the landfill to have appropriate capacity to contain all the debris identified for the Contractor's bid demolition work – specifically the Main Camp Facility, large ASTs and all non-Truck Shop and non-Process Plant ancillary structures and infrastructures, and

.5 Design the landfill cap to be erosion resistant.

.6 Re-grade the Containment Berms;

.1 There are six (6) containment berms on site – two (2) Tank Farm berms, Genset day tank (AST#18) berm, Airstrip tanks berm, truck shop tank berm, and Hazardous Waste Transfer Area (HWTA) berm (east + west),

.2 The containment berms are to be removed, and

.3 Once the debris, contaminated soils, and liner materials are removed, re-grade the berms to match the surrounding natural terrain.

Environmental

The environmental work shall manage the most significant environmental hazards at the site. The work includes treating the Petroleum Hydrocarbon impacted soils (PHC soils), reducing the potential exposure of the lead-based paint (LBP), draining/ cleaning/ incinerating the organic liquid waste/ waste oil and consolidating and shipping all other specified hazardous wastes off-site to a licensed disposal facility. Cleaned and purged pipes, tanks and drums (non-hazardous) shall be landfilled on-site.

.1 Treat the PHC Soils;

.1 PHC soils have been identified in 15 Areas of Potential Environmental Concern (APEC),

.2 The APEC are described in the ESA (EBA, 2014), volume summary of the PHC soils shown in Table 4.2 of the OA (EBA, 2015) and areas shown in Appendix B of the OA,

.3 Excavate, load-haul and consolidated the PHC soils to a single location to mitigate potential environmental exposure, i.e. Phase 1 and Phase 2 Tank Farm areas in the Main Camp Area are available for use, and

.4 Treat the PHC soils on-site using current treatment methods that will be appropriate for the existing and northern site conditions.

.2 Dismantle LBP coated ASTs;

.1 Blue LBP was identified on nine (9) 62,000-L ASTs,

.2 Drain remaining fuels/ fluids from the ASTs,

.3 Decommission the ASTs in accordance with the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197),

.4 Pressure wash/ clean residual liquids from emptied tanks and piping,

.5 Remove/ strip LBP along cut-lines to allow cutting and dismantling of the tanks, and

.6 Cut and dismantle the ASTs, compacting/ consolidating the sections, and leave staged (for future management) on-site at an area approved by the Departmental Representative (DR).

.3 Consolidate and Incinerate Organic Liquid Wastes or remove off-site for disposal;

.1 Organic liquids waste includes diesel, gasoline, Jet A, Jet B, heating oil, and other organic wastes within drums,

.2 Mobilized an incinerator(s) to site that will meet applicable emissions controls,

.3 The criteria used to determine acceptability of product for on-site incineration are summarized in Table 5.2 of the Abandoned Military Site Remediation Protocol (INAC, 2008),

.4 Develop a process flow diagram to guide testing, characterization and then management of the different types of organic liquid wastes,

.5 Collect and consolidate the different organic liquids from the various drums, pipelines, and tanks to a designated on-site Processing Area,

.6 Test and characterize the liquids in accordance with the process flow diagram,

.7 Decommission the ASTs in accordance with the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197),

.8 Pressure wash/ clean residual liquids from emptied drums, tanks and piping,

.9 Minimize volume of drums, tanks and piping (i.e. crush, cut, etc.) as needed,

.10 Dismantled and landfill cleaned drums, ASTs and piping (non-hazardous) (also referenced under Demolition work),

.11 Incinerate all organic liquid wastes that meet applicable regulatory incineration guidelines,

.12 Containerize and prepare any liquids, which do not meet applicable regulatory incineration guidelines, for off-site transport, and

.13 Demobilize, ship and dispose off-site all hazardous liquid materials at a designated licensed disposal facility.

.4 Depressurize Gas Cylinders and Fire Extinguishers;

.1 Collect and consolidate all compressed gas cylinders and fire extinguishers,

.2 If the contents are known and suitable for open-air discharge, empty the contents of the cylinder/ fire extinguishers into the ambient atmosphere,

.3 Landfill emptied cylinders and containers (non-hazardous) (also referenced under Demolition work), and

.4 If the contents are not known, or should not be discharged; e.g. chlorofluorocarbons (CFCs), ship the cylinders off-site for disposal at a designated licensed facility.

.5 Remove All Other Hazardous Waste off-site for disposal;

.1 'Other hazardous waste' identified at the Jericho Mine Site include refrigerant-containing items, fluorescent lights, batteries, glycol, light ballasts, paint, cement, paraffin wax, and various containers of chemicals that have not yet been characterized,

.2 Separate and consolidate hazardous materials from the buildings and debris areas that are to be demolished and cleaned up; materials from Process Plant not included,

.3 Haul the materials to a designated on-site processing area,

.4 Containerize and prepare the materials for off-site transport, and

.5 Demobilize, ship and dispose off-site all hazardous materials at a designated licensed disposal facility.

Demolition

The demolition shall include demolishing, dismantling and on-site landfilling of all non-hazardous waste materials for all the on-site structures and debris except the Truck Shop and Process Plant. Hazardous materials shall be removed, as per the Environmental work, prior to demolition.

The emulsion plant (and associated structures and debris) is on Inuit Owned Land (IOL) and is not a part of the project scope of work.

As a part of the contract, the Contractor can make use of all available heavy equipment/ materials and tools. The Contractor will also be entitled to salvage any non-hazardous material that makes up part of the contract demolition and debris consolidation work; however and specifically, no building structure/ process equipment salvage from the Truck Shop or Process Plant will be allowed. Following mobilization and inspection of the buildings, the Contractor shall prepare a Salvage Plan outlining the salvage method, intended materials and back haul plans.

The following table presents a summary of the contract demolition work (locations as referenced in the ESA Appendix E – TableE-1: Hazardous and Non-hazardous Materials Inventory Table).

Location	Demolition Work (Remove all Hazardous Materials first)
Airstrip	Leave structures as is, landfill all outer non-hazardous debris
Hazardous Waste Transfer Area	Demolish and landfill all structures and non-haz debris
Core Box Laydown Area	Leave core and core boxes as is
Water Intake Causeway	Demolish and landfill all structures and non-haz debris
North of Laydown Area	Demolish and landfill all structures and non-haz debris
Phase 1 Tank Farm	Demolish and landfill all structures and non-haz debris
Phase 2 Tank Farm	Demolish and landfill all structures and non-haz debris
Laydown Area	Demolish and landfill all structures and non-haz debris
Truck Shop	Remove Hazardous Materials only
Main Camp Facility Area	Demolish and landfill all structures and non-haz debris
PKCA East Dike Tire Berm	Landfill all tires and non-hazardous debris
Process Plant	Leave structures as it, landfill all outer non-haz debris

Further to the above:

.1 Demolish the Main Camp Facility;

- .1 Of the three listed ‘major site buildings’ (the truck shop, camp facility and process plant), the current decommissioning work will include only demolition of the Main Camp Facility,
- .2 The camp facility is approximately 5,341 m^2, made up of metal clad trailers, and consisting of 3 sleeping quarter wings, connected recreational facilities, a kitchen and dining area, and an office area,
- .3 As a part of project implementation, the existing camp is expected to serve as the Remediation Contractor’s camp, and a staged demolition is anticipated,

.4 Prior to demolishing or dismantling, remove all hazardous materials as descried in the Environmental Work,

.5 Demolish or dismantle the camp facility,

.6 Separate and consolidate the debris, and

.7 Haul and landfill all non-hazardous material debris.

.2 Dismantle and landfill Tanks and debris from the Tank Farm Area;

.1 The work includes dismantling the four (4) cleaned, as part of environmental work, 1,500,000 L ASTs and eight (8) 500,000 L ASTs in Tank Farms 1 and 2.

.3 Demolish and landfill remaining structures (Process Plant, Truck Shop, Terminal Buildings and Core Shack not included);

.1 The emulsion plant is on IOL and is not a part of any project work,

.2 The Process Plant, Truck Shop, Terminal Buildings (camp/ genset/ security building) and Core shack are not a part of the demolition scope of work,

.3 Landfill debris from the Airstrip Area,

.4 Landfill debris from the Hazardous Waste Transfer Area,

.5 The remaining on-site areas include – Core box laydown area, Water Intake Causeway Area, North of Laydown Area, Laydown Area and PKCA East Dike Tire berm,

.6 Demolish or dismantle all other site structures, including: utilidors, wastewater treatment plant, incinerators, storage sheds, shacks,

.7 Separate and consolidate the debris, and

.8 Haul and landfill all non-hazardous material debris.

.4 Collect and Landfill remaining Non-Hazardous material;

.1 The emulsion plant is on IOL and is not a part of any project work,

.2 Non-hazardous debris shall include all wood waste as well as all other solid wastes; e.g metal, metal items, sea cans, miscellaneous inert materials, concrete, machinery, vehicles, empty drums, large ASTs and tented tarp shops,

.3 Clean unpainted wood may be burnt on-site if approved by local AHJs,

.4 Drain and clean any hazardous liquids from the debris materials prior to landfill as per Environmental work,

.5 Separate any hazardous solid materials from the non-hazardous debris as per Environmental work,

.6 Haul and place all non-hazardous material debris into the landfill,

.7 Place debris in compacted lifts,

.8 Place intermediate fill as required to fill waste voids,

.9 Cap the landfill after completing the on-site disposal, and

.10 Grade the cap to promote positive drainage.

1.6 SUPPORTING DOCUMENTS

1.6.1 Available Documents

.1 Environmental Site Assessment, Materials Survey and Geotechnical Evaluation – Jericho Diamond Mine, Nunavut (Tetra Tech EBA, 2014).

.2 Options Analysis Rev 02 – Jericho Diamond Mine, Nunavut (Tetra Tech EBA, 2015).

.3 Interim Closure and Reclamation Plan – Jericho Diamond Mine, Nunavut (Tetra Tech EBA, 2011).

.4 Jericho Project – Mine Reclamation Plan (Tahera Corporation, 2003).

1.6.2 Disclaimer

.1 Reference information will be available in the language in which it is written.

1.7 CODES, ACTS, STANDARDS, REGULATIONS & GUIDELINES

1.7.1 Codes and Acts

.1 In addition to all applicable codes and acts, the documents listed below apply to this project:
- .1 National Building Code (NBC);
- .2 Canada Labour Code (including latest revisions of all regulations);
- .3 Canadian Environmental Protection Act (CEPA);
- .4 Canada Oil and Gas Operations Act;
- .5 Other applicable codes, acts, standards and regulations;
- .6 Local and/or municipal codes and bylaws;
  - .1 In the event of a conflict between codes, the more stringent shall take precedence,
- .7 All work to comply with hazardous location requirements of relevant Codes and Standards.

The latest versions of these codes and acts will apply.

1.7.2 Standards, Regulations and Guidelines

.1 In addition to all applicable standards, regulations and guidelines, the documents listed below apply to this project:
- .1 Guideline: Used Oil and Waste Fuel (Government of Nunavut [GN], 2012);
- .2 Guideline: Management of Contaminated Sites (GN, 2014); and

.3 Guideline: Waste Lead and Lead Paint (GN, 2014).

The latest versions of these guidelines will apply.

2 PROJECT ADMINISTRATION AND DESIGN SERVICES

2.1 ROLES AND RESPONSIBILITIES

2.1.1 Contractor' Design Engineer

.1 The Contractor's design engineer must be licensed as a professional engineer in Nunavut:
    .1 Attend meetings, as required, and provide site inspection services.

.2 The Contractor's design engineer shall ensure that design submissions are provided as outlined in this Scope of Work.

2.1.2 Federal Government

.1 Federal authorities having jurisdiction over this project are:
    .1 Public Services and Procurement Canada (PSPC);
        .1 Contracting authority and project delivery, and
        .2 For technical and quality assurance.

2.2 DESIGN SERVICES

2.2.1 Summary of Services

.1 For this project, provide:
    .1 Regulatory Support;
    .2 Documents for Design and Construction;
    .3 Site review services including surveys/ site drawings before and during the Construction Phase; and
    .4 Construction.

2.2.2 Delivery

.1 Deliver the project utilizing best engineering practices in support of the Client Department's requirements, respecting the approved scope, quality, financial budget and schedule.

.2 Ensure the application of sound engineering science, life cycle cost effectiveness, general ease of maintenance and best workmanship possible within the approved budget with minimal environmental impact.

2.2.3 Design and Construction Document Phases

.1 The Contractor will consult with PSPC and the INAC and deliver a comprehensive Preliminary Design Report:

- .1 Section 01 31 19 of the Technical Specifications outlines requirements for Preliminary Shop Drawings, i.e. Preliminary Design Report.

.2 The Contractor's Design Engineer shall:

- .1 Conduct an Analysis of existing conditions and background documentation;
- .2 Analyse scope, budget, schedule and risk and identify any conflicts;
- .3 Analyse project requirements and identify any additional work, indicating the impact on project scope, schedule and costs;
- .4 Visit the project site, analyze site conditions, document any conditions that will impact project delivery and design, and report the results to the Departmental Representative;
- .5 Review and acknowledge all existing reports and documents relating to this project and compare with actual site conditions;
- .6 Confirm availability of all necessary pre-design information;
  - .1 Verify that all information is correct and notify Departmental Representative about any missing information, and
- .7 Identify the applicable codes, regulations and standards.

.3 Prepare a Final Design Report that addresses the project objectives and resolves the issues outlined in the Scope of Work.

3 REQUIRED CONSTRUCTION SERVICES

The following Technical Specifications were developed for the Project Work.

APPENDIX 3

JERICHO MINE SITE PHASE III ENVIRONMENTAL SITE ASSESSMENT

APPENDIX 4

JERICHO WASTE WATER TREATMENT PLANT OPERATIONS PLAN

DILLON CONSULTING

January 30, 2006

Dillon File: 05-5605-0100

Tahera Diamond Corporation - Jericho Project
Box 2341
Yellowknife, NT X1A 2P7

Attention: Mr. Mike Tanguay and Ms. Cheryl Wray

Dear Sir and Madam:

Jericho Mine Wastewater Treatment Plant Design Plan - Addendum

Attached please find the final report for the above-noted project.

This report was prepared for the Tahera Diamond Corporation (Tahera) in order to fulfill certain requirements of Nunavut Water Board (NWB) Water Licence Number NWB1JER0410. The report represents an addendum prepared to address deficiencies identified by NWB and INAC during their reviews of the Jericho Diamond Mine Waste Water Treatment Plant Design Plan, (Tahera; April, 2005).

We conclude that – together with previous reports, and Tahera's commitment to update the Operation and Maintenance Manual for the wastewater treatment plant and to conduct influent and effluent monitoring – this present report:

- Corrects inconsistencies in design parameters, and addresses INAC and NWB queries and concerns relating to Design Plan deficiencies.
- Fulfills requirements of Schedule D Item 8 of the Licence.
- Confirms, under a valid NAPEGG stamp, that the Jericho Mine sewage wastewater treatment plant is designed to handle and treat the sewage from the camp to levels compliant with the Licence requirements.

We hope that the attached report meets your present needs. It has been a pleasure to work with Tahera on this present assignment, and we look forward to now turning our attention to the WWTP Operation and Maintenance Manual update.

Please contact the undersigned if you have any questions or require further information.

Sincerely,
Dillon Consulting Limited

John Hart, P.Eng.
Associate, Project Manager

G. STRONG

Gary Strong, P.Eng.
Partner, Technical Reviewer

Dillon Consulting Limited

Jericho Mine Wastewater Treatment Plant Design Plan - Addendum
Tahera Diamond Corporation

January 30, 2006

Our File: 05-5605-0100

Submitted to:

Tahera Diamond Corporation
Jericho Project
Box 2341
Yellowknife, NT
X1A 2P7

Submitted by:

Dillon Consulting Limited
303 – 4920 47th Street
Yellowknife, NWT
X1A 2P1

TABLE OF CONTENTS

FIGURES (attached in Appendix A)

APPENDICES

1.0 Introduction

This report was prepared for the Tahera Diamond Corporation (Tahera) in order to fulfill the requirements of Nunavut Water Board (NWB) Water Licence Number NWB1JER0410. Part D Item 8 of NWB Licence states that:

> *The Licensee shall submit to the Board for approval, a detailed Waste Water Treatment Plant Design Plan (…) including drawings stamped by an Engineer. The plan shall be developed in accordance with Schedule D, Item 8.*

Schedule D Item 8 of the NWB Licence refers to essential items to be included in the wastewater treatment plant (WWTP) design plan, and Tahera submitted to the NWB the Jericho Diamond Mine Waste Water Treatment Plant Design Plan, (Tahera, April 2005).

Following the Indian and Northern Affairs Canada (INAC) May 25, 2005 review, NWB requested in their July 28, 2005 correspondence that Tahera prepare a re-submission, and confirm within it the following items:

- That identified deficient items from Schedule D Item 9 have been satisfied, namely:
  b. Design criteria/parameters.
  e. Treatment efficiency expectations.
- Corrections to any inconsistencies in design parameters and expectancies already raised by the parties and/or Board's Technical Advisor.
- Include a thorough understanding of flow and waste constituent loading to the plant.
- Treatment mechanics of the RBC.
- Verification that treatment efficiency will meet requirements of Licence Part G Item 6(a)(i).

Thus, this present report is an addendum to the Jericho Diamond Mine Waste Water Treatment Plant Design Plan, (Tahera, April 2005), prepared in order to address the above-noted re-submission requirements. As such, and for clarity's sake, some limited information has been restated in this present report regarding the mine and the WWTP in question. For additional details regarding this WWTP, refer to the Jericho Diamond Mine Waste Water Treatment Plant Design Plan, (Tahera, April 2005).

1.1 Background

Benachee Resources Inc., a wholly owned subsidiary of Tahera, has constructed and operates the Jericho Diamond Project near the north end of Contwoyto Lake in Nunavut Territory (NT), 65°59'50" N Latitude, 111°28'30" W Longitude.

Operations will commence with an open pit mine at the north end of Contwoyto Lake in West Kitikmeot. Ore will be mined and processed year round. With current resources the mine and processing plant will have an 8-year life and employ a total of approximately 105 to 175 people (including employees and contractors), with approximately half that number on site at any rotation. The camp is designed to accommodate 100 people in a single occupancy arrangement. However, if required to run at double occupancy the camp could hold 192.

A WWTP package system was installed at the mine site in the early construction phase, at the same time as the camp. It is housed in a stand alone, metal clad, insulated building located next to the accommodations complex at the mine site (refer to Figures 1 and 2). The WWTP building was founded on a prepared pad of crushed rock under rig mats for ground insulation, and is supplied heat from baseboard electrical heaters. The WWTP is sized to service 200 people, and will be operated by site maintenance personnel.

2.0 Wastewater Treatment

2.1 Wastewater Sources

The WWTP was designed to treat domestic sewage and grey water originating at the camp. Wastewater sources include the following:

- Laundry facilities.
- Washroom/shower facilities.
- Kitchen (equipped with grease trap).
- Two 1000 L sewage holding tanks: one located at the Emulsion building; and one in the construction office trailers (to be decommissioned shortly).

Note that the contents of the floor drainage sump within the Emulsion building will be trucked via vacuum truck to the main mill site, and drained into the plant process water system. The WWTP design is incapable of handling either the volume (~16 m^3/week) or expected elevated ammonia and nitrate concentrations from the Emulsion building sump water.

2.2 Estimated Flows and Loadings

Design parameters for the plant were estimated using 200 people as the maximum camp occupancy. A per-capita daily wastewater generation rate of 227 L/person-day was selected to estimate the average daily flowrate to the plant. This value was obtained from the BC Sewerage System Standard Practice Manual, and is the value provided for a work camp. The Harmon Equation was used to estimate peak flow. Design flowrates are summarized in Table 1 below, and process calculations are presented in Worksheet #1 in Appendix A.

Table 1: Theoretical Flowrates

Parameter	Value
Design Average Daily Flowrate (184 persons)	45.4 m^3/day
Theoretical Peak Hourly Flowrate	7.85 m^3/hr

Flows through the treatment system are equilibrated, so the flowrate into the RBC is equal to the flowrate out of the RBC.

In their May 25, 2005 correspondence to NWB, INAC queried regarding the "impacts of operating the WWTP at 50% (or less) of design capacity." Since RBC technology is typically well-suited in applications with dilute flows, and per discussion in sections 3.1 and 3.2 regarding loadings to this WWTP, we do not anticipate any negative impacts from dilute sewage or reduced flowrates.

Referring to early monitoring data from Jan.13 to 15, 2006 (refer to Worksheet #2 in Appendix B), note that the current metered flowrates to the WWTP (current occupancy 180 people) are roughly half of the anticipated flows at full camp occupancy (192 people). Because of this, and since the camp population will drop to approximately 100 occupants within the coming months, we have utilized the maximum Design Average Daily Flowrate, and not peak flows, in calculating the design capacity of this WWTP. Given the current body of meter data, we believe that utilizing the maximum Design Average Daily Flowrate is appropriate for the present exercise.

Wastewater composition was estimated using typical industry parameters. Refer to Worksheet #1 in Appendix B, and the summary in Table 2 below.

Table 2: Wastewater Influent Composition

Parameter	Concentration
BOD_5	375 mg/L
Total Suspended Solids (TSS)	400 mg/L
Total Nitrogen	40 mg/L
Total Phosphorous	8 mg/L
Fats, oils, grease	150 mg/L
Faecal Coliform	1,000,000 to 10,000,000 units/100 mL
Wastewater Temperature	13^{o}C minimum

There are two grease traps installed in the camp kitchen; Tahera cleans these traps weekly and ships the grease off site for disposal. Information was not available regarding whether the grease traps were installed per the P.J. Hannah's specifications in section 1.2.3 of the Operation and Maintenance Instructions manual. P.J. Hannah was provided with the "Nishi-Khon/SNC Lavalin Specifications" that cites an influent O&G loading of 175 mg/L (refer to Worksheet #1 in Appendix B) and, therefore, was aware that the WWTP should be designed to handle such loadings. Notwithstanding the above, Tahera will monitor WWTP influent and effluent O&G; refer to section 4.3 below.

2.3 Effluent Requirements

Refer to section 3 of this present report for additional details regarding the wastewater treatment process; from the design review herein, we generally conclude that this WWTP is properly designed and adequately sized to handle the expected loadings from the sewage sources identified.

Given the expected loadings to this WWTP during normal operation (refer to Tables 1 and 2), we expect that the WWTP's design specifications (refer to Appendix B) will result in an effluent with a quality as summarized in Table 3 below.

Table 3: Average Wastewater Effluent Composition

Parameter	Concentration
BOD_5	<10 mg/L
Total Suspended Solids (TSS)	<10 mg/L
Total Nitrogen	20 mg/L
NH_3 – N	20 mg/L
Total Phosphorous (without precipitation)	6 mg/L
Oil and Grease	<15 mg/L
Faecal Coliform	<100 units/100 mL
Clarifier Sludge Production (1-2% solids m/m)	2.1 m^3/day

Calculating the anticipated WWTP effluent concentrations for O&G and coliforms with certainty is difficult; the values stated in Table 3 are reasonable estimates. Note that the environment in the PKCA is inhospitable for faecal coliform growth due to the low temperature, sun light during summer months, and lack of organics growth substrate. Consequently, and in addition to dilution, there will be further decay of the bacterial count prior to PKCA discharge to Stream C3.

The WWTP discharge is directed to the PKCA. Part G 6(a)i of the Jericho Diamond Mine Water Licence NWB1JER0410 requires that the main PKCA discharge to Stream C3 meets the effluent quality requirements summarized in Table 4 below.

Table 4: Effluent Quality Requirements, Stream C3 when WWTP in Operation

Parameter	Maximum Average Concentration	Maximum Concentration of any Grab Sample
BOD_5	15.0 mg/L	25.0 mg/L
Oil and Grease	3.0 mg/L	5.0 mg/L
Faecal Coliforms	10 CFU/100 ml	20 CFU/100 ml

The WWTP discharge is a relatively small component of the total flows to the PKCA; notwithstanding that the concentrations in the WWTP discharge exceed the values stipulated in Part G 6(a)(i) of the Licence, we think it unlikely that the Licence requirements will be exceeded for these values at the point of sampling (PKCA discharge to Stream C3). Monitoring shall confirm this; refer to section 4.3 below.

The Table 4 requirements are in addition to the requirements of Part G 6(a) of the water licence, which specifies effluent quality requirements for all PKCA discharges to Stream C3. Several of the parameters cited in Part G 6(a) may also be influenced by discharges from the WWTP; these are summarized in Table 5 below.

Table 5: Effluent Quality Requirements, Stream C3, General

Parameter	Maximum Average Concentration	Maximum Concentration of any Grab Sample
Total Ammonia - N	6 mg/L	12 mg/L
Nitrate - N	28 mg/L	56 mg/L
Nitrite - N	2.5 mg/L	5.0 mg/L
Phosphorous - P	0.2 mg/L	0.4 mg/L
TSS	15.0 mg/L	25.0 mg/L

Predicted phosphorous loadings from the WWTP effluent to the PKCA, when phosphorous removal is not used, could be sufficiently high that discharges from the PKCA to stream C3 may exceed the maximum concentrations specified in the water licence. This speculation is based upon the water balance data provided to Dillon by Tahera; additional monitoring is required in order to confirm this (refer to section 4.3 of this report).

Tahera will conduct monitoring of other discharges to the PKCA to ensure that the discharges from the WWTP (refer to Table 3), combined with other mine discharges (refer to worksheet #5 in Appendix B), will not result in any exceedences of the NWB Licence requirements (refer to Tables 4 and 5).

3.0 Treatment Process Description

Refer to the Jericho Diamond Mine Waste Water Treatment Plant Design Plan, (Tahera, April 2005) for a detailed description of the nature and mechanics of waste treatment within Rotating Biological Contactor technology and the associated appurtenances in this WWTP. Utilizing RBC and secondary clarifier technology for the biological and physical treatment of sewage is well understood and accepted within this industry sector. Similarly, dual media filtration and UV disinfection are also widely accepted methods for effluent polishing.

3.1 Pretreatment

Raw wastewater from the camp is collected in a sump and fed to the WWTP using a level activated submersible solids grinding pump. The raw wastewater is pumped into an aerated Equalization Tank.

Refer to the sewage loading and Equalization Tank design calculations within worksheets #1 and #2, respectively, in Appendix A. Calculations in these worksheets confirm that the Equalization Tank is designed to provide adequate volume storage to buffer the WWTP against hydraulic shocks. The Equalization Tank is also expected to buffer the treatment system against variations in influent quality.

3.2 Rotating Biological Contactor Secondary Treatment

A rotating biological contactor (RBC) provides secondary treatment for the wastewater generated at the Tahera camp; a PJ Hannah Model D10BFP RBC package plan was installed.

The RBC is equipped with three rotating discs arranged in two stages: a single disc first stage and a two disc second stage. The discs consist of rigid polypropylene media supported on galvanized steel frames and are rotated using a direct mechanical drive system (3/4 hp motor).

An underflow line from the Equalization Tank feeds wastewater into the first stage of the RBC. A bucket wheel pump assembly connected to the discharge side of the first disc is used to deliver a measured dose of wastewater to the second stage of treatment system.

Refer to the RBC design calculations within worksheet #3 in Appendix B. Note that, in preparing the design calculation and to err on the side of conservatism, Dillon assumed that negligible soluble BOD reduction occurs in the Equalization Tank.

Calculations in worksheet #3 confirm that the RBC units are designed to handle the expected hydraulic, organic, and solids loadings from the sewage. The calculations also confirm that the WWTP design effluent quality – at this stage of the treatment process and given the

associated downstream appurtenances – is consistent with the overall treatment requirements in order to meet the relevant requirements of the Licence.

3.3 Effluent Solids Separation and Disinfection

Effluent from the RBCs overflows into a four-hopper clarifier for solids removal. A timer activated pump transfers settled sludge to the aerobic digestor every three hours, with the pump run time currently set to 3 minutes. Clarified effluent overflows to the Wescan filter feed tank.

The plant drawing includes a provision for optional phosphorous removal using alum injection into the RBC's discharge to the secondary clarifiers. This equipment is not present at the Tahera WWTP.

Calculations in worksheet #4 confirm that the clarifier are adequately sized to handle the expected hydraulic and solids loading from the RBCs.

Decant water from the clarifier overflows to a filter feed tank, and is then pumped through a Wescan dual media (sand/gravel) filter for final solids removal. Performance specifications for this unit were unavailable; however, under normal clarifier and filter operating conditions and due to dilution and residence time within the PKCA, we do not expect TSS loadings from the WWTP effluent to pose a problem to the quality of the PKCA discharge to Stream C3.

Effluent from the filter is discharged to the backwash feed tank where it undergoes UV disinfection prior to discharge to the PKCA. Manufacturer performance specifications for this UV unit provide for a minimum 4-log reduction in faecal coliforms.

Filter effluent is also used to backwash the filter, and the backwash effluent from the filter is directed into the Equalization Tank.

Filtered and UV disinfected water is gravity fed to the PKCA when the water level in the backwash tank reaches a pre-determined level.

Digestor aeration is periodically ceased, and decanted digestor water is manually recycled to the Equalization Tank using an airlift pump. The digestor can also overflow into the Equalization Tank during normal operation. Tahera is currently removing approximately 6,000 L per week of settled/digested sludge; this fits well with the calculated values in Table 3 given anticipated solids reduction in the digestor. This sludge is transported to the Waste Rock Dump for disposal via vacuum truck.

A decant line transfers liquid from the top of the aerobic digestor to the Equalization Tank as required to accommodate sludge transfers from the secondary clarifier. An overflow line connects the aerobic digestor with the Equalization Tank in the event that the aerobic digestor is overfilled.

Design calculations for the solids separation processes are summarized in Appendix B.

3.4 Plant Upset Conditions

In the event of a plant upset, untreated wastewater will be discharged via vacuum truck directly to the east end of the PKCA; Tahera will consider installing a WWTP bypass in spring 2006.

Tahera reports that the discharge to Stream C3 is located at the west end of the PKCA. Discharges of untreated wastewater will be diluted with natural lake water and process plant effluent, and flow through the intermediate filter dyke before reaching the discharge point at the west side of the PKCA. Potential impacts of untreated wastewater on Stream C3 water quality should be minor in the event of a WWTP upset, provided the plant is brought back into operation with minimum delay.

Wastewater temperatures lower than 13^{o}C reduce the treatment efficiency of RBCs. Current operating experience indicates that January wastewater temperatures are on the order of 20^{o}C, which are adequate for plant operation.

Additional discussion regarding plant upset conditions is contained within the Operating and Maintenance Instructions (P.J. Hannah), and Dillon will provide to Tahera an update and expansion to this document. Refer also to sections 4.3 and 4.5 below.

4.0 Wastewater Treatment Plant Design

4.1 Wastewater Treatment Plant and Building Layout

The WWTP is located at the south side of the camp, between the camp residential area and the diamond plant (refer to Figures 1 and 2). No WWTP building layout drawing is available. Refer to Figure 3 for the actual WWTP equipment layout.

The building is equipped with 3 dehumidifiers, which drain back into the Equalization Tank, clarifier, and aerobic digestor.

Measured January temperatures were 15°C air temperature in the WWTP building, and 20°C in the process water. Note that these are acceptable temperatures since RBC technology generally requires that process water temperatures remain above 13°C. Tahera will install a make-up air unit with a heater to increase the ambient air temperature in the building during the winter months.

4.2 Influent and Effluent Drainage

Wastewater is transferred from the first stage of the RBC to the second stage using a bucket pump. Flow through the remainder of the system is via gravity, until the clarified effluent is pumped through the tertiary filter. If the tertiary filter pump fails, clarified water overflows into the backwash water tank and to the WWTP effluent, bypassing the sand filter and the UV disinfection.

An overflow weir located several centimeters above the high level mark in the RBC first stage allows wastewater to overflow into the RBC second stage if the water level in the plant exceeds the design high-water level.

The plant is not currently equipped with a by-pass system.

4.3 Plant Operation and Maintenance

The Operating and Maintenance Instructions (P.J. Hannah) discusses the generic operation and control of the WWTP. Dillon will review this document and provide an updated version to Tahera.

We noted in Tahera's correspondence that the Western Canada Waste and Wastewater Association provided a training course for the WWTP operators.

Dillon will recommend a WWTP influent and effluent monitoring regime within the Operation and Maintenance Manual update.

4.4 Instrumentation and Control

The Operating and Maintenance Instructions (P.J. Hannah) contains several drawings related to the configuration of the electrical control panels. Dillon received this manual with insufficient time to incorporate meaningful discussion within this present report; thus, additional discussion regarding the instrumentation and control of the WWTP will be incorporated into the Operation and Maintenance Manual update.

4.5 Plant Contingency Plan

Various contingency planning is discussed above, and in P.J. Hannah and Tahera documentation. As this issues is germane to the Operation and Maintenance Manual, this subject shall also be discussed more at length in Dillon's update to that document.

5.0 References

AMEC Earth and Environmental, 2004. *Wastewater Treatment Plant Operations Plan, Jericho Diamond Mine, Nunavut*, May 2004.

British Columbia Ministry of Health Services, 2005. *Sewerage System Standard Practice Manual*, June 7, 2005.

Metcalfe & Eddy, Inc., 1991. *Wastewater Engineering: Treatment, Disposal and Reuse*, McGraw-Hill Inc., Toronto.

Nishi-Khon/SNC Lavalin, 2000. *Engineering Specification, Sewage Treatment Plant,* 334244-1120-45ES-3701, Revision C, June 26, 2000.

Nunavut Water Board, 2005. *Letter Re: Tahera Diamond Corporation; Wastewater Treatment Plant Design Plan; NWB1JER0410*, July 28, 2005.

Nunavut Water Board, 2004. *Licence NWB1JER0410*. December 21, 2004.

P.J. Hannah Equipment Sales Corp., 2005. *Basic Design Criteria – Tahera WWTP*, April 4, 2005, 4 pages.

P.J. Hannah Equipment Sales Corp. *P.J. Hannah Rotating Biological Contractor (RBC) Operating and Maintenance Instructions for P.J. Hannah RBC Model DS10H BFP for 200 Man Camp Wastewater Treatment,* Serial Number K17550.

Tahera Diamond Corporation, 2005. *Jericho Diamond Mine Waste Water Treatment Plant Design Plan, Revision No. 2,* April 2005.

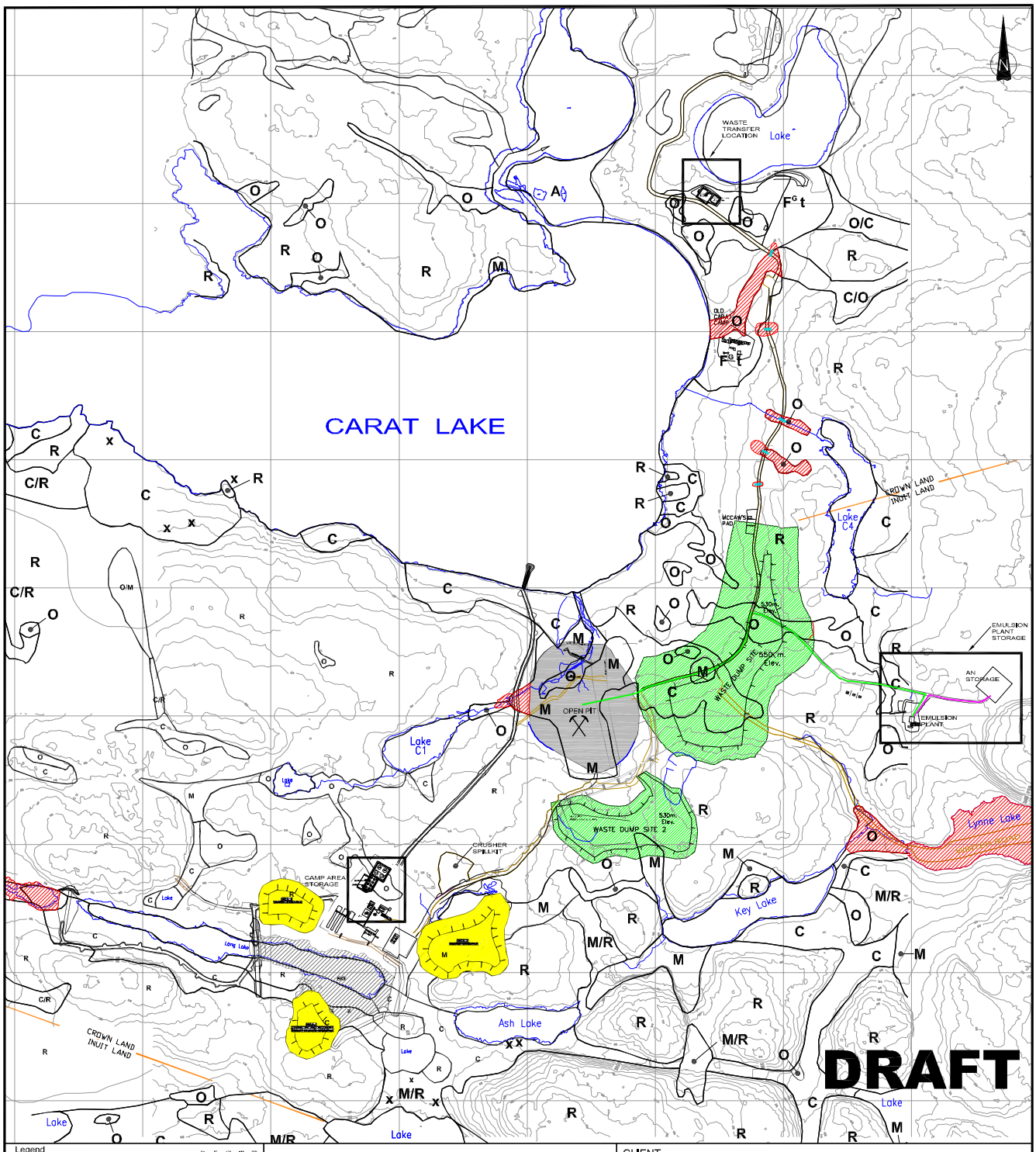
Tahera Diamond Corporation. *Jericho Project, Project Description,* D:\Project Description\Project Description (Final) Jan11.doc.

Tahera Corporation, 2003. *Jericho Project, Baseline Summary Report,* January 12, 2003.

Water Pollution Control Federation, 1977. *Wastewater Treatment Plant Design, A Manual of Practice, MOP/8*, Lancaster Press, Inc., Lancaster, Pa.

Appendix A:
Figures

Figure 1:
Site Map (AMEC "Environmental Site Map" Figure No.1)



Legend

Quaternary Holocene Deposits
A. River and creek deposits.
C. Colluvium.
D. Organic deposits.
F. Quaternary Pleistocene Deposits

Fluvioglacial sediment.
M. Till, silt, sand, gravel, cobbles and boulders.

Pre-Cambrian Bedrock.
R. Undifferentiated metamorphic and volcanic bedrock.

- Spill Sensitive Area
- Stockpile
- AN truck route
- Explosives truck route
- Culvert
- Waste Dump
- PKCA
- Open Pit

NOTE:
Base map provided by Tahera. Stockpiles and PKCA boundary provided by SRK Consulting.

AMEC Earth & Environmental

2227 Douglas Road, Burnaby, B.C. V5C 5A9
Tel. (604) 294-3811 Fax. (604) 294-4664

CLIENT

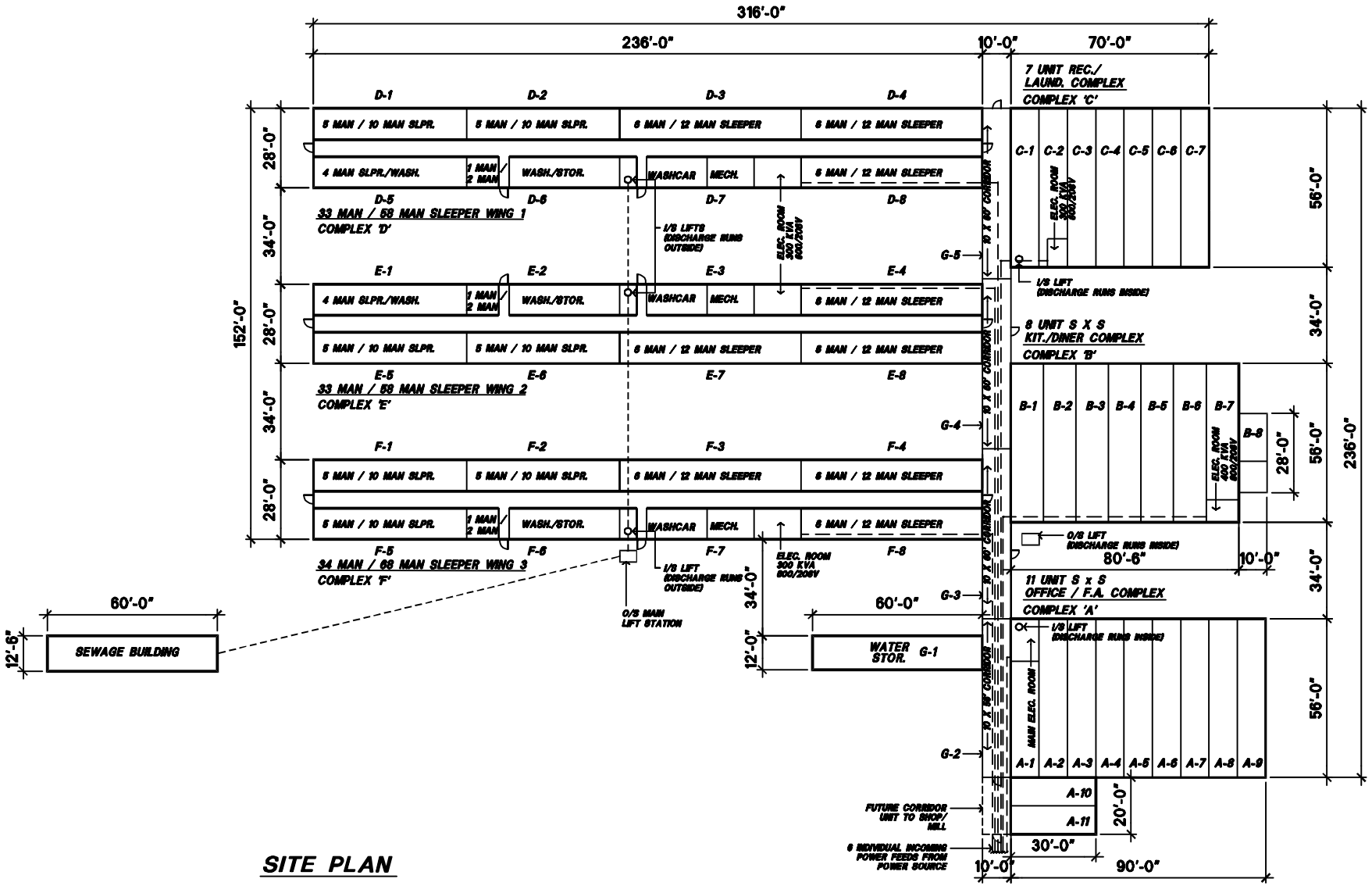
PROJECT: JERICHO DIAMOND PROJECT

TITLE: ENVIRONMENTAL SITE MAP

DWN BY:	DATUM:	DATE:
BWS	NAD27	JANUARY 2006
CHK'D BY:	REV. NO.:	PROJECT NO:
BO	A	VE51295
PROJECTION:	SCALE:	FIGURE No.
UTM Zone 12	AS SHOWN	FIGURE 1

C:\DOCUME~1\ADMINI~1\LOCALS~1\Temp\Jericho_EnvSiteMap.dwg - Environmental Site Map - Jan. 16, 2006 11:33am - Administrator

Figure 2:
Site Plan (Shanco Sheet No.F-440A)



SITE PLAN

SCALE: 1"=50'-0"

SHANCO CAMP SERVICES LTD. "Simply the Best"	by VIC	date 03-12-2004
	scale 1"=50'-0"	sheet number F-440A

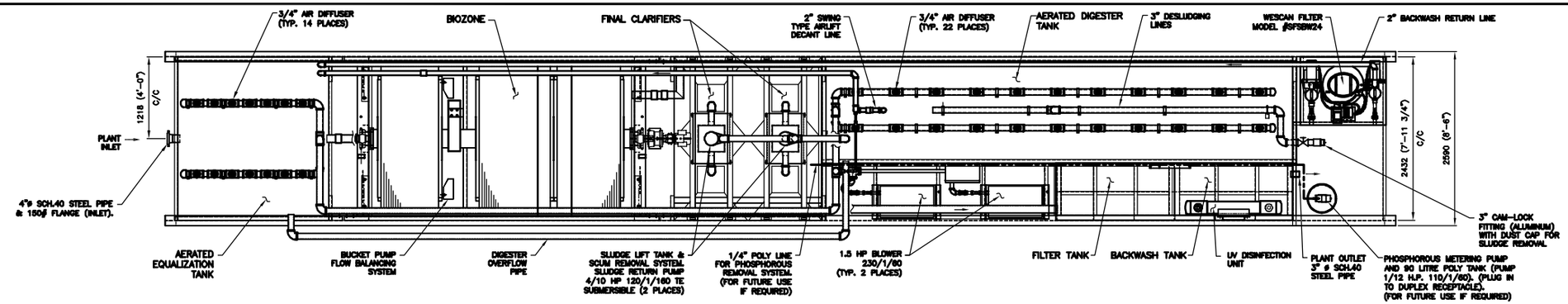
project

NUNA LOGISTICS - TAHERA CAMP

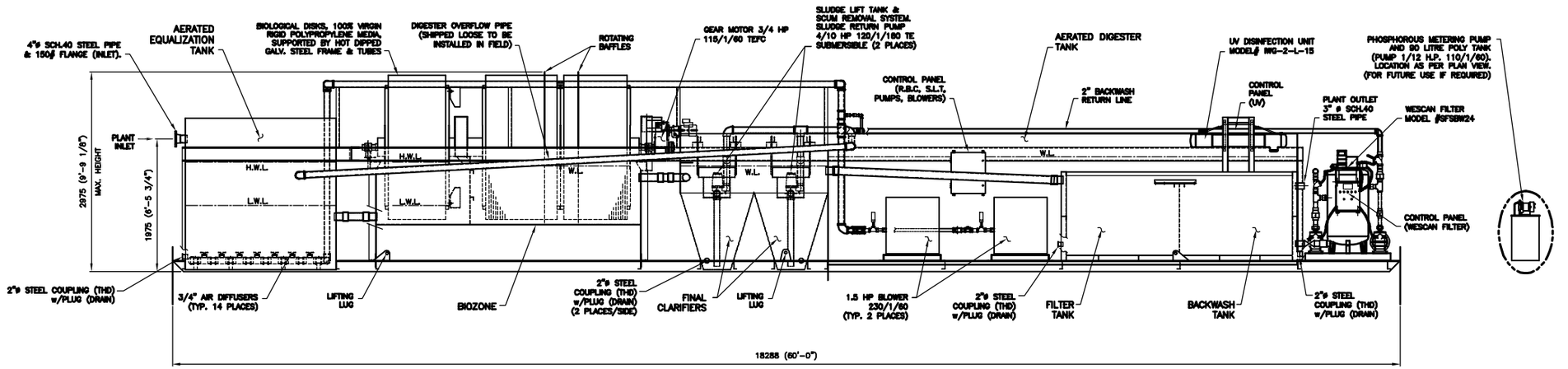
drawing

SITE PLAN

Figure 3:
WWTP Schematic (P.J. Hannah Drawing No.A1-K17550-10455)



PLAN VIEW



ELEVATION VIEW

CRITERIES DE CONCEPION	DESIGN CRITERIA		UNITS	
DEBIT JOURNALIER MOYEN	AVERAGE DAILY FLOW	46.5	M³/day	
SOURCE: EGOUT DOMESTIQUE	SOURCE: DOMESTIC SEWAGE			
DEBIT DE POINTE	PEAK FLOW	5.7	M³/H	
DÉ'ETRE DEBIT BALANCER PAR	TO BE FLOW BALANCED TO	2.18	M³/H	
AFFLUENT DBO TOTALE: ETE / HIVER	INFLUENT BOD TOTAL: SUMMER / WINTER	17.06	KG/day	
AFFLUENT DBO SEDIMENTE	INFLUENT BOD SETTLED	11.94	KG/day	
AFFLUENT SOLIDES EN SUSPENSION	INFLUENT SUSPENDED SOLIDS	20.48	KG/day	
EFFLUENT DBO	EFFLUENT BOD (AVERAGE)	10	mg/l	
EFFLUENT SOLIDES EN SUSPENSION	EFFLUENT SUSPENDED SOLIDS (AVERAGE)	20	mg/l	AFTER FILTER
PHOSPHORE	PHOSPHORUS	1.0	mg/l	AFTER FILTER
COLIFORME FÉCALE	FECAL COLIFORM	10	CFU	
TEMPÉRATURE	TEMPERATURE	11°	°C MIN	
		21°	°C MAX	
INFORMATIONS TECHNIQUES	**TECHNICAL INFORMATION**			
DIAMETRE DU DISQUE BIOLOGIQUE	BIO SUPPORTED MEDIA DIAMETER	2.15	M	
SURFACE DU DISQUE BIOLOGIQUE	BIO SUPPORTED MEDIA AREA	1327	M²	
CHARGE APPLIQUEE SUR LES DISQUES: ETE / HIVER	DISC LOADING: SUMMER / WINTER	9.0	GM/M²	
GRANDEUR MINIMUM COMME REQUIS SUR DEBIT QUOTIDIEN MOYEN AU EAUX D'EGOUT BRUTES DE 375 mg/l.	MINIMUM SIZES AS REQUIRED BY AVERAGE DAILY FLOW AT RAW SEWAGE STRENGTHS OF 375 mg/l.			

REV.	DESCRIPTION	DATE
1	PHOSPHOROUS REMOVAL SYSTEM ADDED.	04/04/05

THIS REVISED DRAWING SUPERSEDES ALL PREVIOUS ISSUES

TOUS LES DIMENSIONS EN mm SINON SPECIFIER AUTREMENT / ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

DRAWN	R.D.M
DATE	02/18/2005
SCALE	1:30
CHECKED	
APPROVED	
PLOT	1:30

P.J. HANNAH EQUIPMENT SALES CORP.
VANCOUVER, TORONTO

NORTH AMERICAN LICENSEE OF KEE PROCESS (FORMERLY KLARGESTER)
•CANADIAN LICENSEE OF BLY INC.

Specialists in pollution control since 1973

CLIENT SHANCO CAMP SERVICES

CONSULTANT

PROJECT TAHERA DIAMOND CORP.

TITLE **GENERAL ARRANGEMENT OF 200 MAN CAMP SEWAGE TREATMENT PLANT MODEL D10BFP**

OUR REF. # 17550

YOUR REF. #

DRAWING NO. **A1-K17550-10455**

REV. 1

Appendix B:
Dillon Process Design Calculations

1.0 Design Parameters

1.1 Hydraulic Load

Design Maximum Camp Occupancy:	200 Persons
Wastewater Generation Rate:	227 L/day-person
Average Wastewater Flowrate:	45.4 m^3/day
Harmon Peaking Factor:	4.1
Peak Flow:	7.85 m^3/hr

1.2 Contaminant Load

Plant Wastewater:

$BOD_{5:}$	375 mg/L
TSS:	400 mg/L
NH_3:	30 mg/L
TKN:	40 mg/L
Total N:	40 mg/L
Total P:	8 mg/L
Oil and Grease:	50 mg/L

1.3 Effluent Quality

$BOD_{5:}$	10 mg/L
TSS:	10 mg/L
Total N:	20 mg/L
Total P:	6 mg/L

2.0 Treatment Process

2.1 Equalization Tank

Equalization Volume (includes RBC first Stage):	8.28 m^3
Average Hydraulic Retention Time:	4.38 hr
Aeration Rate:	0.4 m^3/min

2.2 Rotating Biological Contactor:

Media Area:	1327 m^2
Tank Volume/Media Area Ratio:	0.0071 m^3/m^2
Tank Volume:	9.48 m^3
Hydraulic Loading:	0.034 m^3/m^2-day
Hydraulic Retention Time:	5.01 hr

Organic Loading (total BOD_5): 0.013 kg/m^2-day

2.3 Clarifiers

Average Overflow Rate:	8.42 m^3/m^2-day
Surface Area:	5.39 m^2
Surface Solids Load @ Average Flow:	0.034 lb/ft^2-hr
Volume:	4.23 m^3
Hydraulic Retention Time:	2.24 hr
Underflow Rate:	1.02 m^3 once every three hours

2.4 Aerobic Digester

Volume:	21.47 m^3
Solids Loading Rate (@ 1% solids):	2.09 m^3/d
Aeration Rate:	0.62 m^3/min

2.5 Tertiary Filter

Media Type:	Sand/gravel
Filter Bed Area:	0.29 m^2
Backwash Trigger:	Pressure differential

2.6 Ultraviolet Disinfection

Lamp Type:	Low pressure, standard output
UV Dose (@ 2,000 L/hr, 90% UV transmission):	90 mJ/cm^2

Flowrate Estimation

Typical Camp Occupancy =	92	persons
Max Camp Occupancy =	**194**	**persons**
Design Value =	**200**	**persons**

Wastewater generation rates - estimates:

Facility	Unit	BC Sewerage System Standard Practice Manual, June 7, 05,	Metcalfe and Eddy, 1991 - typical values
Construction Camp cw flush toilets	L/day*person	189	
Work Camp	L/day*bed	227	
Motel - full housekeeping	L/day*person	180	
Resort Apartment	L/day*person		227
Special Care Home	L/day*resident	136	
Senior Citizen Home	L/day*resident	227	322
Boarding School	L/day*student	136	284

Work Camp figure = Design Generation Rate = 227 L/day-bed

Use work camp value:

Design Flowrate = # of beds * generation rate/bed
= 45400 L/day
= 45.4 m^3/day

Peak Flowrate:

Harmon Peaking Factor PF = 1 + 14/[4+sqrt(Population/1000)]
PF = 4.1

Peak Hourly Flow = PF * Design Flowrate
= 188 m^3/day
= 7.85 m^3/hour

Rate of discharge of pumper trucks (two holding tanks pumped out to STP as required) may be controlling factor in ***peak flow*** :

Tank Volume: 16 m^3 weekly in one pumper truck load
Pumper Truck Discharge Duration 2 Time (hr) to discharge pumper truck to equalization basin (Assumed)
Pumping Rate: 8 m^3/hr Assumed; **UNACCEPTABLE**, thefore, not used in theoretical loading calculations.

Loading Rate Estimation

Parameter	Guide for Communal WWT System Selection, Dillon, circa 1995	Metcalfe and Eddy, 1991 - typical values	Metcalfe and Eddy, 1991 - typical values	Metcalfe and Eddy, 1991 - typical values	Nishi-Khon/SNC Lavalin Specifications	Nishi-Khon/SNC Lavalin Specifications	Nishi-Khon/SNC Lavalin Specifications	PJ Hannah Design Loadings: dwg K-17550-10455	PJ Hannah Basic Design Criteria - Tahera WWTP, 2005-04-04	**Theoretical Loading Values Utilized for Design**			
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	kg/m^3	kg/hr_{avg}	kg/day
		Weak	Medium	Strong	Min	Max	Avg						
BOD_5	220	110	220	400	237	379	247	375	375	**375**	0.375	1.42	17.03
SS	260	100	220	350	237	454	247	450	375	**400**	0.40	1.51	18.16
NH_3	25	12	25	50	ns	ns	ns	ns	ns	**30**	0.030	0.11	1.36
TKN	40	ns	ns	ns	ns	ns	ns	ns	ns	**40**	0.040	0.15	1.82
Total N	40	20	40	85	ns	ns	33	ns	ns	**40**	0.040	0.15	1.82
Total P	8	4	8	15	ns	ns	17	ns	ns	**8**	0.008	0.030	0.36
Oil and Grease		50	100	150	ns	ns	175	ns	50*	**50**	0.05	0.19	2.27

*: P.J. Hannah design max. loading that this WWTP can handle. Must be confirmed through influent monitoring.

Effluent Standard Confirmation:

	Influent (mg/L)	Effluent (mg/L)	
BOD_5	375	10	**OK - this level is achievable using RBCs with this plants hydraulic and organic loading rate.**
TSS	400	10	**OK - this level is achievable using RBCs with this plants hydraulic and organic loading rate.**
Total N	40	20	
Total P	8	6	

VSS Generated from $BOD_{5,sol}$ reduction: 110 mg/L
= 4971300 mg/day
= 4.97 kg/day

NItrogen Confirmation:

Typical nitrogen content in cell biomass = 0.14
Nitrogen removed in sludge = 0.70 kg/day
Nitrogen remaining in effluent = 1.12 kg/day
= 24.67 mg/L

Phosphorous Confirmation:

Typical phosphrous content in cell biomass = 0.03
Phosphorous removed in sludge = 0.15 kg/day
Phosphorous remaining in effluent = 0.21 kg/day
= 4.72 mg/L

Equlaization Tank Design

Time	Mean Flow	Cum Flow	Avg Flow	Cum Flow	X Marker
0:00		0	0		0
1:00	140	140	836	836	1
2:00	140	280	836	1671	2
3:00	400	680	836	2507	3
4:00	1400	2080	836	3343	4
5:00	1400	3480	836	4178	5
6:00	1400	4880	836	5014	6
7:00	1437	6317	836	5849	7
8:00	1591	7907	836	6685	8
9:00	1489	9396	836	7521	9
10:00	1210	10605	836	8356	10
11:00	1058	11663	836	9192	11
12:00	272	11935	836	10028	12
13:00	434	12369	836	10863	13
14:00	923	13291	836	11699	14
15:00	418	13709	836	12534	15
16:00	536	14245	836	13370	16
17:00	1103	15348	836	14206	17
18:00	506	15855	836	15041	18
19:00	1206	17061	836	15877	19
20:00	1018	18079	836	16713	20
21:00	876	18955	836	17548	21
22:00	500	19455	836	18384	22
23:00	300	19755	836	19219	23
0:00	300	20055	836	20055	24

Time	Mean Flow	Scaled Mean F	Cum Flow	Avg Flow	Cum Flow	X Marker
0:00			0	0		0
1:00	140	280	280	1671	1671	1
2:00	140	280	560	1671	3343	2
3:00	400	800	1360	1671	5014	3
4:00	1400	2800	4160	1671	6685	4
5:00	1400	2800	6960	1671	8356	5
6:00	1400	2800	9760	1671	10028	6
7:00	1437	2873	12633	1671	11699	7
8:00	1591	3181	15814	1671	13370	8
9:00	1489	2977	18791	1671	15041	9
10:00	1210	2419	21210	1671	16713	10
11:00	1058	2116	23326	1671	18384	11
12:00	272	543	23869	1671	20055	12
13:00	434	868	24737	1671	21726	13
14:00	923	1845	26583	1671	23398	14
15:00	418	835	27418	1671	25069	15
16:00	536	1072	28490	1671	26740	16
17:00	1103	2207	30697	1671	28411	17
18:00	506	1013	31709	1671	30083	18
19:00	1206	2413	34122	1671	31754	19
20:00	1018	2036	36158	1671	33425	20
21:00	876	1753	37911	1671	35096	21
22:00	500	1000	38911	1671	36768	22
23:00	300	600	39511	1671	38439	23
0:00	300	600	40111	1671	40110	24

At observed flowrate - equilization tank to be: 5.4 m3

At scaled flowrate - equilization tank to be: **8.7** m3

Assumes plant operating at upper limit of hydraulic capacity. Not the case with this WWTP; refer to RBC worksheet.

Equlization Tank Residence Time:

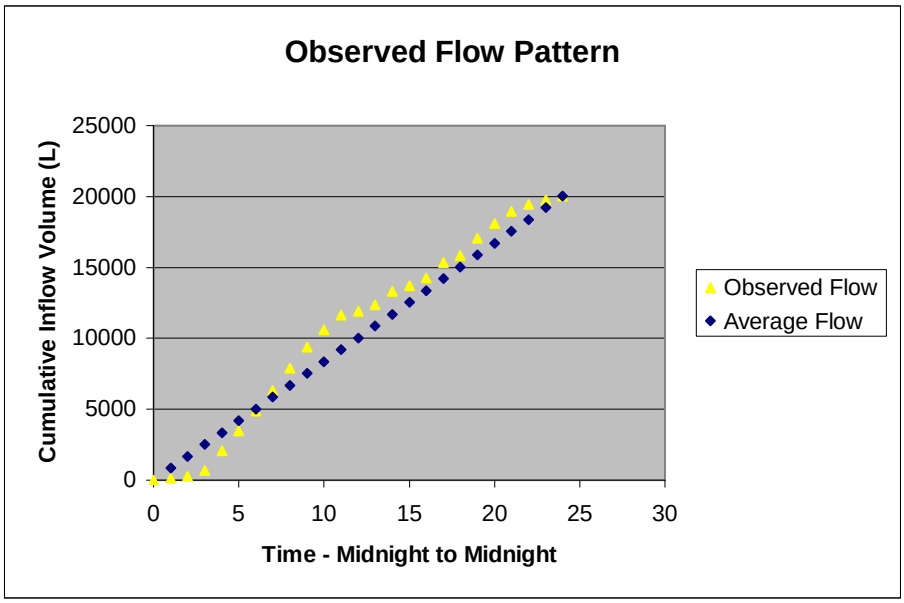
Residence time in Equalization Tank = Tank volume / flowrate
= 0.182 days
= 4.38 hrs

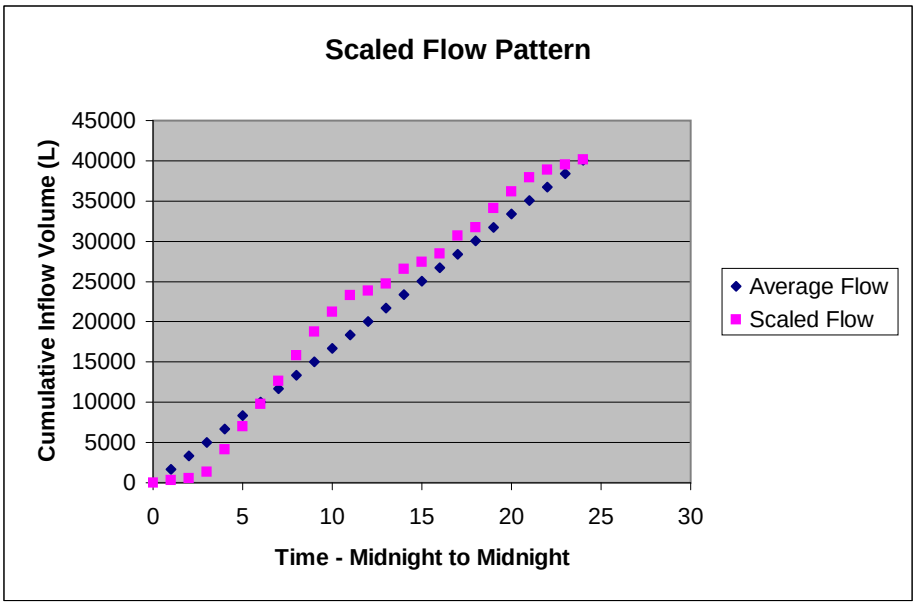
Asssume Tank is full; Q = 2m^3/hr; neglects RBC1 Vessel.

Aeration Rate:

Typical design factors:

Air supply rate =	0.01 to 0.015	m^3/m^3-min	
Assume minimum air supply =	0.015	m^3/m^3-min.	
Actual Aeration Rate =	14.0	cfm	
=	0.4	m^3/min	
Equalization Tank volume =	8.28	m^3	**Excluding RBC1 Vessel**
Actual air supply/volume =	0.048	m^3/m^3-min	**CHECK OK**


Observed Flow Pattern
Cumulative Inflow Volume (L)
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
Time - Midnight to Midnight
Observed Flow
Average Flow


Scaled Flow Pattern
Cumulative Inflow Volume (L)
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
Time - Midnight to Midnight
Average Flow
Scaled Flow

RBC Design

Typical loading factors:

Hydraulic Loading =	3	gal/ft^2-day	
HRT =	1.1	hr	
Organic Loading			
SBOD =	1.4	$lb/10^3ft^2$-d	
TBOD =	2.75	$lb/10^3ft^2$-d	
Max. First Stage Loading			
SBOD =	5	$lb/10^3ft^2$-d	
TBOD =	10	$lb/10^3ft^2$-d	

Typical Design Factors:

Tank/media area ratio =	0.0049	m^3/m^2	
Optimum peripheral velocity =	0.3	m/s	

Design factors for Tahera RBC WWTP:

Average Daily Flowrate =	45.4	m^3/day	
=	11994.72	USG/day	
Media surface area =	1327.00	m^2	
=	14276.40	ft^2	
Hydraulic Loading =	0.84	gal/ft^2-day	**CHECK OK**
RBC1 and RBC2 vessel volume =	9.48	m^3	**Assumes RBC disks occupy negligible volume and excludes Equalization Tank volume**
HRT =	5.01	hr	**CHECK OK**
Tank Volume/Media Area Ratio =	0.0071	m^3/m^2	**CHECK OK**

Organic Loading:

SBOD =	1.31	$lb/10^3ft^2$-d	**CHECK OK**
TBOD =	2.62	$lb/10^3ft^2$-d	**CHECK OK**
Max. First Stage Loading:			
First Stage Media surface area =	442.33	m^2	**Assumes 1/3 of total RBC media area**
=	4758.80	ft^2	
SBOD =	4.08	$lb/10^3ft^2$-d	**CHECK OK, Using 700mg/L peak organic loads forecast by Tahera**
TBOD =	8.15	$lb/10^3ft^2$-d	**CHECK OK**

Solids Outflow from RBC:

Total:Soluble BOD Ratio	0.5		
RBC Influent $BOD_{5, sol}$ =	188	mg/L	
=	0.19	kg/m^3	
=	8.51	kg/day	
=	18.73	lb/day	
Peak RBC Influent $BOD_{5, sol}$ =	350	mg/L	**Using 700mg/L peak organic loads forecast by Tahera occur for 1 hr**
=	$0.35	kg/m^3	
=	$0.66	kg/hr	
=	$8.82	kg/day	
=	$19.40	lb/day	
Effluent BOD_5 = 10 mg/L	10	Assumed	
Effluent $BOD_{5,sol}$ = 10 mg/L	5		
Soluble BOD Removed	183	mg/L	**Assuming negligible BOD removal in Equalization Tank**
BOD:TSS Conversion ration	0.6		
VSS Generated from $BOD_{5,sol}$ reduction:	110	mg/L	
TSS Influent	400	mg/L	
TSS from Clarifier o/f	40		
Total Clarifier Solids Loading	470	mg/L	

Clarifier Design

Typical Clarifier design values:

Hydraulic Loading Rate =	400 to 600	gal/ft^2-day	
=	16.28 to 24.42	m^3/m^2-d	
Solids Loading Rate =	1	lb/ft2-h	
=	4.88	kg/m^2-h	

Clarifier hydraulic loading rate:

Design settling area =	5.39	m^2	
Design Hydraulic Loading Rate =	8.42	m^3/m^2-day	**CHECK OK**
Clarifier Volume:	4.23	m^3	
TSS from RBC =	470	mg/L	
Flow through RBC =	1.89	m^3/hr	
=	1891.67	L/hr	
HRT =	2.24	hr	

Clarifier solids loading rate:

Sludge to Clarifier (solids) = TSS * Flowrate

=	888137.50	mg/hr
=	0.89	kg/hr
=	1.95	lb/hr
=	46.89	lb/day dry basis
=	21.29	kg/day dry basis

Design loading rate of Tahera RBC clarifiers = 0.034 lb/ft^2-hr **CHECK OK**

Verification of clarifier volume occupied by sludge blanket:

Assume 1% solids

sludge volume = weight of dry solids/(density of water * specific gravity of sludge* decimal percent solids)

after 1.5 hours:

sludge volume =	4.60	ft^3	
=	0.13	m^3	
=	130.32	L	

After 3 hours:

sludge volume =	0.26	m^3	
=	260.63	L	

Daily sludge generation:

sludge volume =	2.09	m^3	**Note, this value corroborates PJ Hannah estimate**
Clarifier sludge pump capacity =	90	USGPM	
=	340.65	L/min	
Pump cycle =	3	min "ON" every 3 hrs	
Volume removed every 3hrs =	1021.95	L	**Conclusion: Useable volume of clarifiers is not compromised by sludge blanket build-up**
=	1.02	m^3	

PKCA Partial Water Balance

		Concentration (mg/L)								Mass Loading (kg/yr)						
Source	Annual Flowrate (m^3/yr)	BOD5	Total P	Total N	NH3 - N	TSS	NO2 - N	NO3 - N	O&G	BOD5	Total P	Total N	NH3 - N	TSS	NO2 - N	NO3 - N
Precipiation + Runoff - Evaporation	94340	un	un	un	un	un	un	un	un	nc	nc	nc	nc	nc	nc	nc
Slurry + Grey Water from Plant Area	271429	un	un	un	un	un	un	un	un	nc	nc	nc	nc	nc	nc	nc
Pump from Mine Pit to East Sump	61000	un	0.14	un	4.2	24	0.85	18.1	un	nc	8.54	nc	256.2	1464	51.85	1104.1
WWTP Effluent @ 45.4 m^3/day	16571	10	6	20	un	10	un	20	un	165.71	99.426	331.42	nc	165.71	nc	331.42
Permit Requirements for Release to C3 (mg/L)		15	0.2		6	15	2.5	28	3							
Average concentration of Parameters in C3 Discharge (mg/L)		0.37	0.24	0.75	0.58	3.68	0.12	3.24	nc							

Notes:
un = unavailable
nc = not calculated

APPENDIX 5

JERICHO SITE STABILIZATION PROJECT – ENVIRONMENTAL SCREENING REPORT

Matrix Solutions Inc.
ENVIRONMENT & ENGINEERING

ENVIRONMENTAL SCREENING REPORT
JERICHO MINE SITE STABILIZATION PLAN

Report Prepared for:
PUBLIC SERVICE AND PROCUREMENT CANADA

Prepared by:
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August 2016
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ENVIRONMENTAL SCREENING REPORT

JERICHO MINE SITE STABILIZATION PLAN

Report prepared for Public Service and Procurement Canada, August 2016

Elaine Lee-Ho, M.Sc., P.Biol., P.Ag.
Ecologist

reviewed by
Kelly Ostermann, M.Sc., P.Ag.
Principal Environmental Scientist

DISCLAIMER

We certify that this report is accurate and complete and accords with the information available during the site investigation. Information obtained during the site investigation or provided by third parties is believed to be accurate but is not guaranteed. We have exercised reasonable skill, care, and diligence in assessing the information obtained during the preparation of this report.

This report was prepared for Public Service and Procurement Canada. The report may not be relied upon by any other person or entity without our written consent and that of Public Service and Procurement Canada. Any uses of this report by a third party, or any reliance on decisions made based on it, are the responsibility of that party. We are not responsible for damages or injuries incurred by any third party, as a result of decisions made or actions taken based on this report.

EXECUTIVE SUMMARY

Forward

Matrix Solutions Inc. was retained by Public Service and Procurement Canada (PSPC) on behalf of Indigenous and Northern Affairs Canada (INAC) to complete an Environmental Screening Report (ESR) related to the Site Stabilization Plan (SSP) for the Jericho Mine (the Project). The ESR is part of the application process for regulatory permitting and is required as part of the regulatory package needed to complete site stabilization activities at the mine site.

The Project is located approximately 250 km southeast of Kugluktuk, Nunavut. Initially opened in 2006 by Tahera Diamond Corporation (Tahera), the mine went through bankruptcy proceedings and Shear Diamonds took over the mine site in 2010. The mine ceased operation in September 2012 when Shear suspended operations. Since the spring of 2013, INAC has been undertaking basic environmental protection of the site. The Jericho Mine site consists of an open pit, a causeway, processed kimberlite containment area (PKCA), tank farm, pads, roads, contaminated soil, and hazardous and non-hazardous materials from equipment, infrastructure, and fuels. Significant site stabilization efforts include:

- expediting pit filling by re-aligning the current diversion (called the C1 diversion) back to the natural drainage pattern and allowing flow back into the pit
- breaching the West Dam and Divider Dyke A containing the PKCA to allow surface water flow out of the PKCA
- covering the PKCA
- grading pads and borrow areas
- excavating contaminated soil
- building demolition
- landfill construction
- disposal of non-hazardous material
- offsite disposal of hazardous waste
- land treatment for the remediation of hydrocarbon contaminated soils

The SSP will accomplish the following:

- stabilize the site to prevent water accumulation
- restore the site to an environmentally safe condition and
- prevent environmental migration of contaminants into the surrounding ecosystem

Existing and Pre-development Conditions

The current baseline conditions of the Jericho Mine consists of an open pit, causeway, PKCA, tank farm, pads, roads, contaminated soil, and hazardous and non-hazardous materials from equipment, infrastructure, and fuels (Appendix A, Figures 1 to 7). The primary developed areas include the airstrip, a

camp and main processing area (Tetra Tech EBA 2014). Roughly 161 ha have been developed for the Project as summarized below.

Jericho Mine Existing Facilities and Infrastructure

Component	Approximate Area (ha)[1]	Description
Open Pit	16	Current pit is roughly 450 m wide and 80 m deep (Figure 5)
Waste Rock Pile	30	Waste rock generated from open pit (Figure 5)
Low Grade Stockpiles	12	Overburden storage area (Figure 4)
Coarse Kimberlite Stockpile	6	Coarse processed kimberlite (PK) from the process plant (Figure 3)
Roads	16	Includes haul, access, and airport roads (Figures 2 to 7)
Airstrip and Associated Areas	17	Airstrip is 1,374 m long by 30 m wide, terminal, and adjacent disturbed areas (Figure 7)
PKCA	32	Cells A and C, various containment dykes and dams (Figure 2)
Main Processing Area (Main Site)	17	Includes process plant, camp facility, truck stop, waste water treatment, tank farms, helipad, laydown area, shed (Figure 3)
East Sump	2	Sedimentation pond (Figure 3)
Borrow Area A	5	Borrow material used for construction of the airport road (Figure 6)
Other Areas	8	Carat Lake laydown, hazardous waste transfer area, other miscellaneous areas
Total	**161**	

1. Estimated based on Tetra Tech EBA figures (Appendix A).

The Jericho Mine is located within the Takijuq Lake Upland Ecoregion of the Southern Arctic Ecozone (CCEA 2016a). The dominant surface water features in the area include Jericho River, Carat Lake, small watercourses, and shallow, single-basin lakes with low shoreline development. The Jericho River, which drains the Project area, flows north via Kathawachaga Lake and Burnside River before discharging into the Arctic Ocean. Five species of fish were documented in the water bodies and watercourses within the Project area. These included Arctic Char (*Salvelinus alpinus* [Linnaeus]), Burbot (*Lota lota*), Lake Trout (*Salvelinus namaycush* [Walbaum]), Round Whitefish (*Prosopium cylindraceum*), and Slimy Sculpin (*Cottus cognatus*).

The Jericho Mine is located in a region where the permafrost is present everywhere except beneath large lakes, rivers, and some streams that do not freeze to the bottom (EBA 2013). Soils of the Cryosolic order are the dominant permafrost soils in the Southern Arctic Ecozone, with Brunisols and Regosols commonly occurring on sandy eskers and above the permafrost zone. Turbic Cryosolic mineral soils are common in permafrost sites, with Organic Cryosols typical of the lowland soils. Most of the upland surface within this ecoregion is composed of unvegetated rock outcrops that are common on the Canadian Shield. Vegetation cover is generally characterized by shrub tundra, consisting of dwarf birch, willow, northern Labrador tea, avens (*Dryas* spp.), and *Vaccinium* spp. (CCEA 2016a). Depressional sites are dominated by willow, peatmoss (*Spaghnum spp.*), and sedge tussocks. Vegetation communities

identified at the site include sedge community, birch communities, heath tundra community, snowbank community, avens association, lichen-rock communities, ridge complex, and transition associations.

The location of the Project is particularly noteworthy because it is located along the migration path of the Bathurst Caribou Herd. Numerous mammals and birds have been observed at the site or have the potential to be at the site. Species of special concern observed or with potential to be at the site include grizzly bear, wolverine, dolphin, union caribou, peregrine falcon, red-necked phalaropes, and short-eared owls.

The Project site is located in an area where local people have traditionally used the land for hunting and camping. Twenty-five archaeological sites were identified and documented in the Project during the pre-development assessment (including artefact scatters, habitation sites, and quarries; Tahera 2003b). None of the sites were identified as having sufficient significance to require avoidance by development (Tahera 2003a). While the Project site has provided employment during its operation, the remediation of the site is an important land use planning objective for the people of the Kitikmeot region.

Site Stabilization Activities

Summary of the proposed SSP activities is provided in the table below.

Summary of Site Stabilization

Activity	Facility or Waste Stream	Comments
Re-establish the natural drainage pattern by removing the C1 diversion; construct pit overflow channel	Open pit	Re-route water into the open pit to enhance the filling time; pit lake will be created in approximately 15 years; develop outflow for the open pit once it fills with water.
Breaching the West Dam and Divider Dyke A	PKCA	The PKCA consists of two cells (Cells A and C) that are contained by a number of different dams. Breaching the West Dam (located on Cell C) and Divider Dyke A (located between the two cells) will allow surface flow out of the PKCA. Stabilization of Cell A is also required and will be completed using coarse PK.
Cover Cell A	PKCA	Covering Cell A of the PKCA will stabilize the fine PK deposits and limit the movement of PK via wind or by erosion; coarse PK will be used as cover.
Build non-hazardous landfill onsite	Non-hazardous materials	Non-hazardous landfill will be constructed primarily on bedrock-controlled terrain, designed to contain all debris from demolition works, and have an erosion resistant cap.
Grade to meet existing landscape	Berms	There are numerous berms throughout the site; berms will be graded to promote positive drainage and for aesthetics.
Operate land treatment area	Petroleum hydrocarbon (PHC) impacted soil	One or more of the lined bermed areas will be used as a treatment area; methods for treatment will be appropriate for northern conditions

Activity	Facility or Waste Stream	Comments
Remediation of metal-impacted soils	Metal-impacted soil	Metal-impacted soils will be handled as per the *Abandoned Military Site Remediation Protocol* (AMSRP), Tier 1 soils to be land treated, and Tier 2 soils to be removed offsite to a designated licensed disposal facility.
Prevent lead-based paints (LBPs) from entering the environment	LBP on above ground storage tanks (ASTs)	Blue LBP was identified on nine 62,000 L ASTs; remove residual liquids and clean tanks; cut up tanks, and leave staged for future management.
Incinerate or remove organic liquid wastes	Diesel, gasoline, Jet A, Jet B, heating oil, and other organic wastes	Incinerator to meet applicable emissions controls; containers holding organic liquid waste to be cleaned and volumes reduced for disposal; follow the AMSRP Barrel Protocol to determine if organic liquid wastes can be incinerated onsite; waste not meeting AMSRP Barrel Protocol for incineration will be transported offsite.
Depressurize gas cylinders and fire extinguishers	Pressured contents	If the contents are known and suitable for discharge, empty the contents of the cylinder/fire extinguishers into the ambient atmosphere, landfill non-hazardous containers; unknown contents will be removed offsite.
Remove hazardous waste offsite for disposal	Refrigerant, fluorescent lights, batteries, glycol, light ballasts, paint, cement, paraffin wax, and other wastes	Containerize and prepare the materials for offsite transport; ship and dispose all hazardous materials at an offsite designated licensed disposal facility.
Demolition of infrastructure	Non-hazardous materials	All hazardous materials will be removed before demolition; demolition works do not include the truck shop, process plant or facilities on IOL.

Summary

The mitigation strategies outlined for the Jericho Mine Site Stabilization Project are predicted to result in no negative residual impacts and overall the site stabilization activities of the Project will have a positive effect on the environment by restoring the site to an environmentally safe condition, preventing environmental migration of contaminants into the surrounding ecosystem, and removing the majority of the physical hazards for the protection of human health and safety.

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1 INTRODUCTION

Indigenous and Northern Affairs Canada (INAC) is the custodian of most federal lands in northern Canada and has responsibility, through the Contaminated Sites Program, of managing a number of contaminated properties that are no longer maintained by the original occupant. INAC's portfolio of contaminated sites in Nunavut originated from private sector mining, oil and gas activities, and government military activity dating back over half a century, many years before the environmental impacts of such activities were adequately understood.

The INAC Nunavut Regional Office is managing the site stabilization of the Jericho Mine site (the Project). Since 1999, the Treasury Board of Canada Secretariat has approved a management framework of policies and best practices including the *Policy on Management of Real Property* (TBS 2013. Under this policy, INAC is responsible for managing the contaminated sites within their jurisdiction. Public Works Government Services Canada (PWGSC), Northern Contaminated Sites Office is managing this Project on behalf of INAC.

Matrix Solutions Inc. was retained by PWGSC on behalf of INAC to complete an Environmental Screening Report (ESR) related to site stabilization at the Project.

The Project is located approximately 250 km southeast of Kugluktuk, Nunavut (Appendix A, Figure 1). Initially opened in 2006 by Tahera Diamond Corporation (Tahera), the mine went through bankruptcy proceedings and Shear Diamonds took over the mine site in 2010. Shear did not actively mine, but reprocessed kimberlite stockpiles to recover diamonds from existing stockpiles established during Tahera's tenure. The mine ceased operation in September 2012 when Shear suspended operations. Since the spring of 2013, INAC has been undertaking basic environmental protection of the site.

The ESR is part of the application process for regulatory permitting and is required as part of the regulatory package needed to complete site stabilization activities at the mine site.

2 PROJECT DESCRIPTION

The project description section provides the objectives for the Project, and a scope and description of activities that will be completed during the Project. It provides a summary of the work that will be completed onsite that is sufficient to understand the interactions, mitigations, and impacts that will occur due to project activities. The summary of work to be completed is based on the Jericho Mine SSP (PSPC 2016) and the *Remedial Options Analysis Rev 02* report (Tetra Tech EBA 2015).

2.1 Scope of the Jericho Site Stabilization Project

The objectives of the Project are to reduce environmental and financial liabilities, provide benefits to the local community and Inuit, and ensure value to the people of Canada.

More specifically, the SSP will accomplish the following:

- stabilize the site to prevent water accumulation
- restore the site to an environmentally safe condition, and
- prevent environmental migration of contaminants into the surrounding ecosystem

Implementation of the SSP may create economic and social benefits for the Inuit community of Kugluktuk and potentially other communities in Nunavut. The Project could provide direct employment for community members who work on the Project, and spin-off employment and economic benefits for any northern persons or businesses that are directly or indirectly involved in the Project.

The Project site consists of an open pit, causeway, processed kimberlite containment area (PKCA), tank farm, pads, roads, contaminated soil, and hazardous and non-hazardous materials from equipment, infrastructure, and fuels. Significant site stabilization efforts include:

- expediting pit filling by re-aligning the current diversion (called the C1 diversion) back to the natural drainage pattern and allowing water flow back into the pit
- breaching the West Dam and Divider Dyke A containing the PKCA to allow surface water flow out of the PKCA
- covering the PKCA
- grading pads and borrow areas
- excavating contaminated soil
- building demolition
- landfill construction
- disposal of non-hazardous material
- offsite disposal of hazardous waste
- land treatment for the remediation of hydrocarbon contaminated soils

Detailed figures of the onsite facilities from the *Remedial Options Analysis Rev 02* report (Tetra Tech EBA 2015) are provided in Appendix A (Figures 1 to 7).

2.1.1 Mobilization and Site Access

Equipment required for remediation will be mobilized via winter road. The road will be built to Ekati by the Joint Venture Winter Road Group (approximately 400 km) and the Project contractor will be responsible for building the road from Ekati to the Project (approximately 200 km). Of the Ekati to Jericho section, approximately 180 km is ice road and 20 km is on land. There is an existing road network at the site that will be used to complete the SSP.

It is estimated that 20 to 25 truckloads of equipment and supplies will be required for the work and will mobilize on the winter road. Approximately five truckloads of hazardous waste are expected to be transported offsite.

2.1.2 Equipment Needs

The SSP anticipates the following equipment needs for this Project:

- excavators to improve roads, move contaminated soils for treatment, and contour the site
- dozers for landfill construction and road improvements
- front end loaders to consolidate materials and for trail and/or road improvements
- haul trucks to move materials to staging and treatment areas
- water truck to haul water to camp, if required, or for dust suppression
- waste incinerators (both for the camp waste and for incineration of certain materials currently located onsite such as organic liquids)
- aqueous liquid waste treatment system to treat aqueous liquids for onsite disposal
- waste compactor
- drum crusher
- packer to ensure compaction is appropriate with natural terrain, and for landfill construction and operation
- generators
- ATVs with trailers
- other miscellaneous equipment determined necessary by the Contractor

2.1.3 Camp Development

There are camp facilities onsite, but they have started to deteriorate and are not currently considered appropriate for housing work crews. Restoration work on the existing camp will be completed before remediation work starts and work crews will stay in the existing camp facilities.

2.1.4 Site Stabilization Activities

The SSP is broken into three main components of work: earth works, environmental, and demolition. The ESR follows the work descriptions as provided in the SSP. Table 1 contains a summary of the remedial activities proposed for the Project. Section 2.2 provides additional details for the activities and associated waste streams.

Table 1 Summary of Site Stabilization

Activity	Facility or Waste Stream	Comments
Re-establish natural drainage pattern by removing the C1 diversion; construct pit overflow channel	Open pit	Re-route water into the open pit to enhance the filling time; pit lake will be created in approximately 15 years; develop outflow for the open pit once it fills with water.
Breaching the West Dam and Divider Dyke A	PKCA	The PKCA consists of two cells (Cells A and C) that are contained by a number of different dams. Breaching the West Dam (located on Cell C) and Divider Dyke A (located between the two cells) will allow surface flow out of the PKCA. Stabilization of Cell A is also required and will be completed using coarse processed kimberlite (PK).
Cover Cell A	PKCA	Covering Cell A of the PKCA will stabilize the fine PK deposits and limit the movement of PK via wind or by erosion; coarse PK will be used as cover.
Build non-hazardous landfill onsite	Non-hazardous materials	Non-hazardous landfill will be constructed primarily on bedrock-controlled terrain, designed to contain all debris from demolition works, and have an erosion resistant cap.
Grade to meet existing landscape	Berms	There are numerous berms throughout the site; berms will be graded to promote positive drainage and for aesthetics.
Build land treatment area	PHC-impacted soil	One of the lined bermed areas will be used as a treatment area; methods for treatment will be appropriate for northern conditions.
Remediation of metal impacted soils	Metal-impacted soil	Metal-impacted soils will be handled as per the *Abandoned Military Site Remediation Protocol* (AMSRP); Tier 1 soils to be land treated and Tier 2 soils to be removed offsite to a designated licensed disposal facility
Prevent lead based-paint (LBP) from entering the environment	LBP on above ground storage tanks (ASTs)	Blue LBP was identified on nine 62,000 L ASTs; remove residual liquids and clean tanks; cut up tanks and leave staged for future for future management.
Incinerate or remove organic liquid wastes	Diesel, gasoline, Jet A, Jet B, heating oil, and other organic wastes	Incinerator to meet applicable emissions controls; containers holding organic liquid waste to be cleaned and volumes reduced for disposal; follow the AMSRP Barrel Protocol to determine if organic liquid wastes can be incinerated onsite; waste not meeting AMSRP Barrel Protocol for incineration will be transported offsite.
Depressurize gas cylinders and fire extinguishers	Pressured contents	If the contents are known and suitable for discharge, empty the contents of the cylinder/fire extinguishers into the ambient atmosphere, landfill non-hazardous containers; unknown contents will be removed offsite.
Remove hazardous waste offsite for disposal	Refrigerant, fluorescent lights, batteries, glycol, light ballasts, paint, cement, paraffin wax, and other wastes	Containerize and prepare the materials for offsite transport; ship and dispose all hazardous materials at an offsite designated licensed disposal facility.
Demolition of infrastructure	Non-hazardous materials	All hazardous materials will be removed before demolition; works do not include the truck shop or the process plant or facilities on IOL.

2.2 Details of the Site Stabilization Plan

Section 2.2 provides additional detail on the remedial activities that were presented in Section 2.1.4.

2.2.1 Schedule

Equipment will be mobilized to site during February/March 2017. Site stabilization activities will be completed May to October 2017, and then equipment mobilized offsite in February/March of 2018.

2.2.2 Open Pit Remediation

Establishing the natural surface water flow patterns by removing C1 diversion (Appendix A, Figure 5) will expedite pit filling and provide a fresh source of recharge for the pit lake. Diverting the C1 stream back to the pit is a necessary site stabilization measure because it restores the natural flow path through the pit area and provides a consistent source of inflow for the pit lake. It also removes any question about long-term performance of the C1 diversion and significantly reduces pit filling times.

Rerouting the C1 diversion to fill the pit will temporarily suspend concentrated flow downstream of the C1 diversion Reach C. This will not have an impact on Carat Lake, but will impact any potential fish habitat along the flow path. In addition, the pit is expected to need an outflow pathway to Carat Lake that will prevent erosion of the intervening tundra.

Pit lake water quality modelling will be completed as part of a detailed closure design, and regular water quality testing will be completed on pit water to identify loading trends and pit infill rates. The nominal pit lake water elevation of 479 m will leave a portion of the southern pit high wall exposed.

2.2.3 Processed Kimberlite Containment Area

The PKCA consists of two cells (Cells A and C) that are contained by a number of different dams (Appendix A, Figure 2). Breaching the West Dam (located on Cell C) and Divider Dyke A (located between the two cells) will allow surface flow out of the PKCA. Stabilization and capping of Cell A is also required and will be completed using coarse PK.

The long-term closure strategy for the PKCA needs to address two major items:

- surface water management – how to handle the existing water-impounding structures, which include the West Dam, Divider Dyke A, and North Cofferdam
- stability – this includes surface stability of exposed PK as well as long-term stability of the water retention structures

Water quality in the PKCA meets discharge criteria and is not expected to deteriorate in the long-term; therefore, there is no specific requirement to capture and treat contact water as part of reclamation activities.

The chosen site stabilization option for the PKCA is to breach the West Dam and Divider Dyke A to allow surface flow out of the area. The West Dam would be breached near the original lake elevation of 514.4 m to direct water along the original flow path. The dam would be breached along the north abutment exposing the natural contact along the north side of the dam alignment, and sloping the remaining dam structure back at a 3H:1V slope. Armouring would be placed along the channel bottom and sideslopes. Breaching the West Dam will lower the water levels to a point where the North Cofferdam no longer holds water and therefore no stabilization action is required on the North Cofferdam. To promote flow between Cells A and C, Divider Dyke A would be notched at its north. The design section would have a 6H:1V sideslope to discourage snow accumulation and to permit vehicle passage to the West Dam. The channel bottom and sideslopes would be armoured with coarse PK to prevent erosion damage. The coarse PK will also be used as a cover for Cell A. Additional details are provided in Tetra Tech EBA (2015).

2.2.4 Berms

There are numerous berms around pads and laydown areas throughout the site that will be graded to promote positive drainage and to improve aesthetics.

2.2.5 Roads

The road network will be left in place to facilitate long-term monitoring at the site.

2.2.6 Airstrip

The airstrip (Appendix A, Figure 7) is necessary for long-term monitoring at the site so no remediation is planned. In addition, the established northern precedent is to leave airstrips in place. A small amount of supporting infrastructure, such as the terminal building, will be left intact to support future transport at the airstrip, for long-term monitoring needs, and as an emergency shelter. All non-hazardous debris that is located outside the airstrip and terminal building will be landfilled.

2.2.7 Contaminated Soil

Approximately 64 m^3 of metal-impacted soil is onsite in three locations (Table 2). Metal-impacted soil will be excavated and handled as per the *Abandoned Military Site Remediation Protocols* (INAC 2008).

Table 2 Summary of Metal-impacted Soil

Location	Metal Exceedance	Volume (m^3)
Contaminated Soils Storage Area	Chromium, nickel, zinc	2
Truck Shop and Laydown Area	Chromium, molybdenum, nickel	25
Carat Lake Laydown Area	Zinc	37
	Total	**64**

Approximately 7,854 m^3 of PHC-impacted soil is onsite (Table 3). PHC-impacted soils will be landfarmed onsite. The landfarm will be constructed within the existing tank berms. PHC soils are typically landfarmed in 0.3 m lifts and this corresponds to a floor area of 26,000 m^2. The generalized landfarm design consists of a bermed enclosure graded to direct runoff to a sump area at one corner. The area is lined to prevent contaminant migration and the berms are sized to accommodate runoff from a 1:10 24-hour storm event. The liner system comprises a high density polyethylene liner, sandwiched between layers of non-woven geotextile for protection. Contaminated soil is spread in a thin layer over the landfill base and tilled to encourage biodegradation of the hydrocarbon-impacted soils. It is expected that the PHC soils can be remediated even though they contain heavy-end hydrocarbons. However, amendments to the PHC contaminated soil, such as oxidizers, may be required to effectively treat the soil within the Project schedule.

Table 3 Summary of Hydrocarbon-impacted Soil

Location	Metal Exceedance	Area (m^2)	Volume (m^3)
Airstrip	Benzene, ethylbenzene, PHC F2 to F4[1]	415	300
Contaminated Soils Storage Area	PHC F2 to F4, benzo(b+j)fluoranthene, benzo(k)fluoranthene, fluorene, phenanthreene, and pyrene	2,495	3,076
Hazardous Waste Transfer Area (HWTA)	PHC F2 to F3	550	275
Waste Rock Pile	PHC F2 to F3	7	3.5
Phase 2 Tank Farm	PHC F2 to F4	3,376	1,688
Phase 1 Tank Farm	PHC F2 and F3, acenaphthene, fluorene, phenanthrene, and pyrene	2,533	1,267
Genset and Fuel Berm	PHC F1 to F3	277	388
Truck Shop and Laydown Area	PHC F2 to F4	887	546
Carat Lake Laydown Area	PHC F2 to F4	192	155
Process Plant	PHC F2 to F4	130	130
Reclaimed Carat Camp	PHC F1 to F3	10	25
		Total	**7,854**

1. Fraction 2 (F2; $C_{>10}$-C_{16}), fraction 3 (F3; $C_{>16}$-C_{34}), and fraction 4 (F4; $C_{>34}$)

2.2.8 Non-hazardous Materials

Non-hazardous waste includes materials such as wood, metal, ASTs, drums, rubber, concrete, plastic, and other inert items. It also includes major structures such as the truck shop, process plant, and camp facility. The non-hazardous materials have been divided into three waste streams: wood, other non-hazardous waste, and major structures.

A description of the non-hazardous material found onsite is provided in Table 4. This material will be landfilled onsite. Non-hazardous materials will be separated from hazardous materials and all buildings, with the exception of the truck shop and the process plant, will be demolished. Containers containing liquid organic wastes will be emptied and cleaned. Fuels and liquids will be removed from machinery.

Metals, drums, machinery, and other materials will be crushed. The landfill will be built as per details in the *Remedial Options Analysis Rev 02* report (Tetra Tech EBA 2015).

Table 4 Summary of Non-Hazardous Waste Onsite

Material	Units and/or Volume Uncrushed (m^3)	Description[1]	Volume Crushed (m^3)
Wood	980 m^3	This includes all wood buildings	980
Wood Items	702 units	Desks, shelves, beds, and tables	351
Metal	15,722 m^3	This includes trailers and metal buildings	11,791
Metal Items	204 units	Furnaces, washers/dryers, kitchen sinks, kitchen washer, TV's, electrical equipment, filing cabinets, stove, water tanks, computers, and wall heaters	51
Sea Cans	1,174 units	Scattered throughout site	294
Miscellaneous Inert Materials	596 m^3	Canvas, plastic, rubber, empty containers, clean spill pads, tarps, crates, etc.	596
Miscellaneous Inert Materials	494 units	Chairs, porcelain sinks, toilets, smoke detectors, etc.	124
Concrete	154 m^3	Blocks, floors, etc.	154
Vehicles/Machine Items	28 units	Trucks, construction equipment, and machines	280
Drums, Empty	587 m^3	Intact drums throughout site	76
Tarp Tented Shops	6,186 m^3	Three tented shops onsite	619
Major Structures - Camp Facility	18,694 m^3	Exterior dimensions of the structure (5,341 m^2 area and 3.5 m height)	7,477
ASTs	12 units	Four 1,500,000 L and eight 500,000 L ASTs in Tank Farms 1 and 2 (emptied and cleaned before disposal)	6,200
Total			**28,993**

1. Amounts do not include the truck shop, process plant, or the metal from the tanks painted with LBP.

2.2.9 Hazardous Materials

Hazardous materials onsite include fluorescent lights; fire extinguishers; compressed gas, refrigerants, organic liquids, contaminated soil, batteries, and other miscellaneous wastes (Table 5). Waste that cannot be properly identified or classified will be classified as hazardous.

Organic liquid waste in drums, tanks, and pipelines that meet incineration guidelines will be incinerated onsite, otherwise it will be removed and disposed offsite at an approved waste facility. Compressed gas cylinders and fire extinguishers will be depressurized to atmosphere if acceptable, crushed and landfilled. Known or unknown contents that cannot be safely depressurized onsite will be transported offsite for disposal. Miscellaneous hazardous waste (e.g., batteries, mercury vapour in fluorescent lights, paint, oil absorbent, oils, lubricants, glycol, paraffin wax, bentonite, cement, preservatives, biomedical, and pharmaceutical waste) will be packaged and transported to an approved waste facility. Other hazardous materials will be transported offsite. ASTs painted with LBP will be cut and stored onsite for future management.

Table 5 Summary of Hazardous Waste Onsite

Material	Units and/or Volume (m^3) s	Description
LBP on ASTS	28 m^3	Paint only stripped in areas to allow for safe cutting of the tanks; volume includes paint and sand required for stripping
Fluorescent Lights	1,674 units/2 m^3	Mostly located in the major structures
Fire Extinguishers	284 units/1 m^3	Mostly located in the major structures
Compressed Gas Cylinders	380 units/13 m^3	Oxygen, propane, etc.
Refrigerant Items	20 units/10 m^3	Fridges, freezers, air conditioning units, and refrigerant
Soil in Drums and Containers	100 m^3	Unknown contaminants in soil
Organic Content in Drums, ASTs, Tanks, Containers, Pails (Fluid Volume Only)	888 m^3	Eight 50,000 L tanks (#1-8), volumes unknown, some diesel in the bottom observed and some in pipes; includes miscellaneous organic liquids in drums
Materials in ASTs, Tanks, Containers, Flammable Cabinets	270 m^3	Includes glycol, powder, liquid, solid hazardous chemicals, and other materials
Batteries	109 units/3 m^3	Mostly vehicle lead acid batteries
Total	**1,315 m^3**	n/a

3 ENVIRONMENTAL SETTING

3.1 Existing Conditions

The mine ceased operation in September 2012. The current baseline conditions of the Jericho Mine consists of an open pit, causeway, PKCA, tank farm, pads, roads, contaminated soil, and hazardous and non-hazardous materials from equipment, infrastructure, and fuels (Appendix A, Figures 1 to 7).

The primary developed areas include the airstrip, which is located on the north portion of the mine, and a camp and main processing area (main site) that are located in the south portion of the site (Tetra Tech EBA 2014). Roughly 161 ha have been developed for the Project (Table 6).

Table 6 Jericho Mine Existing Facilities and Infrastructure

Component	Approximate Area (ha)[1]	Description
Open Pit	16	Current pit is roughly 450 m wide and 80 m deep (Figure 5)
Waste Rock Pile	30	Waste rock generated from open pit (Figure 5)
Low Grade Stockpiles	12	Overburden storage area (Figure 4)
Coarse Kimberlite Stockpile	6	Coarse PK from the process plant (Figure 3)
Roads	16	Includes haul, access, and airport roads (Figures 2-7)
Airstrip and Associated Areas	17	Airstrip is 1,374 m long by 30 m wide, terminal, and adjacent disturbed areas (Figure 7)
PKCA	32	Cells A and C, various containment dykes and dams (Figure 2)

Component	Approximate Area (ha)[1]	Description
Main Processing Area (Main Site)	17	Includes process plant, camp facility, truck stop, waste water treatment, tank farms, helipad, laydown area, and shed (Figure 3)
East Sump	2	Sedimentation pond (Figure 3)
Borrow Area A	5	Borrow material used for construction of the airport road (Figure 6)
Other Areas	8	Carat Lake laydown, HWTA, other miscellaneous areas
Total	**161**	

1. Estimated based on Tetra Tech EBA figures (Appendix A, Figures 2 to 7)

3.2 Pre-development Conditions

The following sections provide pre-development information for the Project. Much of the pre-development information was taken from the original *Environmental Impact Statement* produced by Tahera (2003a). This pre-development information will aid in the final reclamation plan targeted for the Project; however, the SSP's objective is to restore the site to an environmentally safe condition from the current existing conditions and have positive impact to the site.

3.2.1 Hydrology and Hydrogeology

The summary information provided in this section is mainly based on the environmental baseline studies for the Project (Tahera 2003b). The Project lies within the low Artic region with a climate characterized by short, relatively cool summers and cold winters. The difference between summer and winter mean temperatures is 40°C. The average annual precipitation is approximately 300 mm with almost equal proportions of rain and snow. Evapotranspiration takes place mainly during the four snow-free months of the year resulting in fairly high proportion of precipitation ending up as runoff to lakes and streams. The mean annual runoff is approximately 190 mm.

The dominant surface water features in the area include Jericho River, Carat Lake, small watercourses and shallow, single basin lakes with low shoreline development. The Jericho River, which drains the Project area, has a catchment area of about 227 km^2. The river flows north via Kathawachaga Lake and the Burnside River before discharging into the Arctic Ocean. At its outlet, Carat Lake accounts for approximately 65% of the total area draining to the Jericho River. The other smaller lakes are shallow and interconnected by creeks through low-lying marshlands, all of which typically freeze to the bottom during winter. The hydrologic conditions are governed by coarse esker material on the highland area and permafrost underlying the entire area, except beneath the Jericho River and Carat Lake that do not freeze to the bottom in winter.

Seasonal runoff trends reflect the cold climate of the region and could also be influenced by storage provided by several lakes and marshlands. Prolonged period of sub-zero temperatures during winter causes the flow in smaller creeks to cease completely for a period up to 8 months. Even some of the larger watercourses can completely freeze to the bottom, unless their flows are sustained by releases

from large lake storage or by a significant groundwater discharge. Generally, snowmelt arrives in June and sometimes produces very high peak hydrographs for the small creeks that do not have large upstream storage. However, lake storage tends to attenuate the runoff response in the larger catchments. For some rivers in the region, lake storage is large enough to delay the annual runoff peak into July.

Lakes within the Jericho watershed are oligotrophic with phosphorus as the nutrient limiting primary productivity (Tahera 2003b). The pH is neutral to slightly acidic with very low concentrations of total dissolved solids (<20 mg/L) and little to no suspended solids (<20 mg/L and typically below 6 mg/L). Within the Project area, total suspended solids (TSS) were below 20 mg/L and typically less than 6 mg/L. Water is very soft (hardness <25 mg/L) and very low alkalinity (<25 mg/L). Other physical parameters are also very low in concentration. Water is very close to distilled water and has nearly no buffering or metal absorption capacity. Most total and dissolved metals and nutrient concentrations are below analytical detection limits. Aluminum, calcium, magnesium, silicon, strontium, iron, and zinc as well as nutrient species (ammonia, nitrate, nitrite, and total dissolved phosphorus) that are detectable in some samples are below the Canadian Council of Ministers of the Environment (CCME) freshwater aquatic life guidelines. There are no appreciable spatial trends in water quality within the Jericho watershed; however, temporal trends exist for water temperature and dissolved oxygen concentrations, reflective of open water and ice cover conditions, and seasonal climate variations in air temperature and solar radiation. The deeper lakes in the watershed normally stratify during summer, but no significant change in metal concentrations with depth has been observed. Dissolved oxygen concentrations typically decrease with depth in both stratified and non-stratified lakes due to oxygen demand from bottom sediment. Sediment quality could be variable, and reflect the local geology of the watercourses and water bodies.

Groundwater was not detected in drill holes in the Project area nor in the underground bulk sample collected during the Project baseline study (Tahera 2003b). The presence of permafrost to depths of 540 m is expected to prevent or appreciably limit groundwater flow. The permafrost acts as a barrier to the movement of groundwater and infiltrating surface water would be expected to follow the local contours of any permafrost (and/or bedrock in areas of shallow overburden) toward low-lying areas. Analysis of one ice sample, found to be infilling joints in the rock, during the Project baseline study indicates that aluminum, chromium, copper, iron, lead, nickel, silver, and zinc exceed the CCME freshwater aquatic life guidelines.

3.2.2 Aquatics

The Project is located within the Jericho River watershed that drains into the Queen Maud Gulf. A discussion on the hydrology and drainage patterns is presented in Section 3.2.1 (Hydrology and Hydrogeology). The Project area drains into several small water bodies and watercourses and then into Carat Lake (north of the Project area), Control Lake (west of the Project area), and Contwoyto Lake (east of the Project area). The Jericho River, which drains the Project area, has a catchment area of about

227 km^2. The river flows north via Kathawachaga Lake and the Burnside River before discharging into the Arctic Ocean. At its outlet, Carat Lake accounts for approximately 65% of the total area draining to the Jericho River. The other smaller lakes are shallow and interconnected by creeks through low-lying marshlands, all of which typically freeze to the bottom during winter. The hydrologic conditions are governed by coarse esker material on the highland area and permafrost underlying the entire area, except beneath the Jericho River and Carat Lake that do not freeze to the bottom in winter.

A baseline aquatic ecology study was conducted in the Jericho study area by RL&L Environmental Services Ltd. in 2000 (RL&L 2000). Water bodies sampled included Carat Lake, Control Lake, Contwoyto Lake, and two unnamed water bodies to the east and southwest of the Project area. Four watercourses that drain into these water bodies also had aquatic ecology assessments conducted.

Five species of fish were documented in the water bodies and watercourses within the study area. These included Arctic Char (*Salvelinus alpinus* [Linnaeus]), Burbot (*Lota lota*), Lake Trout (*Salvelinus namaycush* [Walbaum]), Round Whitefish (*Prosopium cylindraceum*), and Slimy Sculpin (*Cottus cognatus*) (Table 7).

A tagging program was conducted from 1995 to 2000 to determine movement of Arctic Char and Lake Trout between water bodies in the Project area (RL&L 2000). Results indicated that movement occurred between Carat Lake and Jericho Lake. Movement between other water bodies in the Project area was determined to be limited to high flow events, as the connections between lakes were shallow and dominated by large boulder substrates that could inhibit fish migration. Results also indicated that Lake Trout remained relatively stationary in each water body, with minimal movement to other systems.

Water bodies in the Project area were assessed for habitat suitability by RL&L (2000). Most shorelines consisted of coarse substrates of cobble and boulder, and varying slopes. These areas were determined to provide suitable spawning habitats for lake dwelling species including Arctic Char, Lake Trout, and Round Whitefish. In contrast, RL&L (2000) found that these same lakes had very limited suitable rearing habitats for these same species. Sampled water bodies were also described as having significantly low annual fish yield due to low nutrient levels, cold water temperature regime, and a short open water period. Although these conclusions indicated that these water bodies had relatively low productive capacity, it could be suggested that these fish populations and fish habitat are highly sensitive to anthropogenic changes to the aquatic ecology. Fish populations with slow growth rates, limited rearing habitat, and low overall productivity could display a greater response and longer recovery time to a negative anthropogenic effect such as an accidental release.

Watercourses draining from the Project area were considered to be ephemeral with limited fish habitat potential for resident fish species (RL&L 2000). All watercourses assessed had nil potential for spawning and adult feeding habitats, while three watercourses had low potential for rearing habitat. All watercourses were observed to freeze to substrate during the winter months with limited flows in open water seasons (RL&L 2000).

Fisheries and Oceans Canada (DFO) describes Nunavut restricted activity timing windows for the protection of fish and fish habitat (DFO 2013a). Restricted activity timing windows have been identified for Nunavut water bodies and watercourses to protect fish during spawning and incubation periods when spawning fish, eggs, and fry are vulnerable to disturbance or sediment (DFO 2013a). Watercourses and water bodies in the Project area are located in Zone 2. Due to the presence of both spring and fall spawning fish species, instream work should be avoided from August 15 to July 15 of every year.

Table 7 Observed Fish Species and Conservation Status

Common Name	Scientific Name	Spawning Season	COSEWIC Status[1]	SARA Status[1]	SARA Schedule[1]
Arctic Char	*Salvelinus alpinus* (Linnaeus)	Fall	Group 3- low priority candidate	n/a	n/a
Burbot	*Lota Lota*	Late fall/winter	Not listed	n/a	n/a
Lake Trout	*Salvelinus namaycush* (Walbaum)	Fall	Group 3- low priority candidate	n/a	n/a
Round Whitefish	*Prosopium cylindraceum*	Fall	Group 3- low priority candidate	n/a	n/a
Slimy Sculpin	*Cottus cognatus*	Spring	Group 2- medium priority candidate	n/a	n/a

1. Based on federal database as of July 2016.

3.2.3 Soils and Terrain

Local topography in the Project area is mainly the result of previous glaciations. The water surface in Carat Lake is approximately 470 m above mean sea level (amsl). The topographic highs in the areas surrounding the project facilities range from approximately 500 to 550 m amsl (SRK 2003). At the central mine facilities and the stockpile areas, the topography is relatively flat and gently slopes to the north. Beyond the Project, the topography is gently rolling to hilly. South and east of the Project includes an increase in elevation of approximately 100 m over a distance of 500 m (AMEC 2007).

Post-glacial processes have caused weathering of glacial deposits and near-surface rock in the tundra. The Project is located in a region where the permafrost is present everywhere except beneath large lakes, rivers, and some streams that do not freeze to the bottom (EBA 2013). Permafrost is nearly continuous and has low to medium ice content (CCEA 2016b). Soils of the Cryosolic order are the dominant permafrost soils in the Southern Arctic Ecozone, with Brunisols and Regosols commonly occurring on sandy eskers and above the permafrost zone. Turbic Cryosolic mineral soils are common in permafrost sites, with Organic Cryosols typical of the lowland soils. The mineral soils exhibit discontinuous or distorted soil horizon development (EBA 2013).

The baseline soils for the Project were not inventoried or described in the environmental impact study (EIS), and impacts of the Project on soils and landforms were not assessed. Although not documented, mineral A horizon topsoil is assumed to have been minimal, where present beneath thin LFH (leaf-litter-

humic) horizons. The LFH (organics) in boreholes advanced north of the HWTA and east of the open pit was reported to have a thickness of less than 2 to 15 cm (Tetra Tech EBA 2014). Thicknesses for other soil horizons were not presented. AMEC (2004) reported surficial deposits were comprised mainly of sand and gravel, with some areas/zones of silt and till, with cobbles and, occasionally, boulders in the overburden. As initially proposed, the majority of the land that was proposed to be disturbed by the Project (Tahera 2003a) was identified as upland including birch community (Moist Birch Meadow ecological zone), heath tundra (Dry Barren Land ecological zone), and Lichen-rock communities (Dry Rocky Tundra ecological zone). The Project was also planned to be developed on a small amount of lowlands sedge community (Wet Grass/Sedge/Birch Meadow ecological zone) and some ridge complex (Esker/Kame Delta ecological zone).

3.2.4 Vegetation

The Project is located within the Takijuq Lake Upland Ecoregion of the Southern Arctic Ecozone (CCEA 2016a). Most of the upland surface within this ecoregion is composed of unvegetated rock outcrops that are common on the Canadian Shield. Vegetation cover is generally characterized by shrub tundra, consisting of dwarf birch, willow, northern Labrador tea, avens (*Dryas* spp.), and *Vaccinium* spp. (CCEA 2016a). Depressional sites are dominated by willow, peatmoss (*Spaghnum* spp.), and sedge tussocks. Scattered stands of spruce also occur along the southern boundary. Plant communities within the Project area are representative of the surrounding tundra biome (CCEA 2016a).

The low areas within the Project area are inhabited by sedge communities, including non-tussock and tussock sedge associations. The major sedge communities occur between open pit and Carat Lake, where a well-defined stream drains down from Carat Lake and other small ponds. In the channels of these larger streams, birches and willows grow together, creating low riparian forests (Tahera 2003b).

Sedge basins blend into hummock communities, which in turn blend into heath tundra, which covers a larger portion of the uplands. Heath tundra crowns most hills, where there are no bedrock outcrops, and occurs on many slopes. Bedrock outcrops, such as those on the hill to the southwest of the open pit, in the proposed plant site, characteristically bear few rooted plants, but are covered by a varied flora of crustose lichens. Boulder fields and felsenmeer form a mosaic across the land, and are occupied mostly by crustose lichens and a web of fruticose and foliose lichens between the boulders. At the edges of many boulder fields, birch seeps indicate reliable sources of water (Tahera 2003b).

A large esker system (or kame delta) extends from the reclaimed Carat Camp north (Appendix A, Figure 6). It exhibits typical esker complex communities; crests with patches of blueberry, bearberry, and prickly saxifrage; windward slopes with heath tundra; and leeward slopes with a fringe of dwarf birches along the slope, ponds, and sedge communities in the low areas (Tahera 2003b).

Snowdrifts collect in the ravines, and last into mid-summer, creating snowbank communities. These include areas with bog laurel, mountain heather, violets, and other species normally found in the

treeline and northern part of the taiga (Tahera 2003b). The valley at the west end of Long Lake and the south-facing slopes on the north side of Long Lake had snowbank communities (Appendix A, Figure 1).

Vegetation surveys were completed in 1995 and 1999 (Burt 1999) to delineate ecological zones. The plant communities identified at the Jericho site include the sedge community, birch community, heath tundra community, snowbank community, avens association, lichen-rock communities, ridge complex, transition associations and disturbed sites. Each vegetation community is described briefly below.

Sedge Community

Sedge communities typically occur in drainage basins, depressions, or at the edges of water bodies such as lakes and ponds. They are typically wetlands, with standing or slowly flowing water during most of the growing season where the soil are saturated with water. Sedges (*Carex* spp.) or arctic cotton, also known as cottongrass (*Eriophorum* spp.), make up the dominant vegetation in these communities (Burt 1999). The sedge communities typically occur in the Wet Grass/Sedge Meadow ecological zone. The sedge community also has three associations including emergent association, sedge association non-tussock, and sedge association tussock.

Birch Community

Birch communities occur where there is a consistent and reliable supply of water throughout the growing season, but where water does not pool or stand on the ground. They are characterized by the fact that the dwarf birch (*Betula glandulosa*) is the dominant species (Burt 1999). They vary in their location due to the amount of water available throughout the growing season. The birch community is also known as the Moist Birch Meadow ecological zone.The birch community has two associates including birch riparian and birch seeps.

Heath Tundra Community

The heath tundra is the climax community in the Contwoyto Lake area and covers most of the upland where the soil is stable or deep enough to support rooted plants. The term “heath” refers to plants of the Ericaceae family and is used as a general term to describe this group of plants, which often grow in association with each other in the Dry Barren Tundra ecological zone. The heath tundra community is characterized by a mixture of heaths, forbs, small xeric sedges, and grasses. The composition of the vegetation of the heath tundra community is governed by the amount of water in the soil, soil amount and type, and exposure to wind (Burt 1999).

Terrain features are the most important cause of variations in the heath tundra community, especially those that affect the amount of water available to plant roots or those that cause the soil to be more exposed to winds in winter than in surrounding areas. Heath tundra community has three associations including upland heath tundra, heath tundra on frost scars, and heath tundra on solifluction slopes.

Snowbank Community

The Snowbank Community is the result of deep snowbanks of south or east facing slopes where the snow does not melt before July, which results in a shortened growing season. Snowbank communities are composed of willow (*Salix herbacea*), Labrador tea, and the white arctic heather. Mountain sorrel (*Oxyria digyna*), saxifrage (*Saxifraga punctata* and *S. nivalis*), and pussytoes (*Antennaria eckmaniana*) are often also present (Burt 1999).

Avens Association

Avens Association is a fairly uncommon plant association occurring in "saddles" and on slopes with little soil cover with gravel ranging in size from 5 mm to 1 cm. This association is dominated by mountain avens (*Dryas integrifolia*) with reticulated willow (*Salix reticulata*), Lapland rosebay, alpine milkvetch (*Astragalus alpinus*), and arctic oxytrope (*Oxytropis arctica*) (Burt 1999). Arctic bluegrass (*Poa arctica*), tufted hari grass (*Deschampsia caespitos*a), and northern single spike sedge (*Carex scirpoidea*) are also present (Burt 1999).

Several species of small willows (*Salix reticulata*, *S. herbacea*, *S. glauca*, and *S. arbusculoides*) *occur here*. Black bearberry (*Arctostaphylos alpina*), purple mountain saxifrage (*Saxifraga oppositifolia*), star chickweed (*Stellaria* sp.), and false asphodel (*Tofieldia pusilla* and *T. coccinea*) are sometimes present in small numbers (Burt 1999). Frost boils are also common in this association and are often found with legumes, small sedges, and Lapland rosebay, heaths, and avens on the surrounding ridges (Burt 1999).

Lichen-Rock Community

In the Project area, most rocks are about 80% covered with crustose lichens. In areas where there are lots of boulders or fractured bedrock in the substrate, rooted vascular plants are uncommon, and the plant association is made up of lichens growing on and around the rocks in the Dry Rocky Tundra ecological zone. The species of lichen inhabiting the rock usually depends on the chemical composition of the rock, the amount of weathering or fracturing, and the exposure to wind abrasion. The lichen flora of rocks in the Project area is generally a flora typical of acidic rocks rather than calcareous rocks (Burt 1999).

The typical lichen flora found on boulders, felsenmeer, and on bedrock outcrops include rock tripe (*Umbilicaria* sp.), map lichen (*Rhizocarpon geographicum*, *R. geminatum*), sunburst (*Arctoparmelia centrifuga, A. incurvata*), bloodspot (*Haematomma lapponicum*), *Pseudophebe minuscula* and *P. pubescens* (called brush-cut lichens), *Tremolecia atrata* (Halloween lichen), and grey and black crustose lichens.

The orange jewel lichen (*Xanthoria elegans*) occurs where siksiks use the boulders for lookouts; it is characteristic of calcareous rocks and places high in nitrogen, growing on the urine and feces of the ground squirrels. This association also has three associations including boulders in heath tundra, boulder field associations, and bedrock associations.

Ridge Complex

The ridge complex has two associations including ridge crest communities and ridge slope communities. The location on the ridge greatly affects what plants are located in the Esker/Kame Delta ecological zone. The ridge crest community is exposed to high winds and occupies unstable sand or gravel material. The ridge crest community typically consist of mats of blueberry, crowberry, black bearberry, Labrador tea, and mountain avens. There is also the presence of semi-succulent plants (*Antennaria* sp., prickly saxifrage, *Draba glabella* and *D. lactea*), deeply rooted cushion plants like moss campion (*Silene acaulis*), or clumps of grass (*Poa* spp., *Arctagrostis latifolia*, *Festuca brachyphylla*, or *Arctophila* sp.). The tiny sandwort (*Minuartia rubella)* can also be found in some of these very dry, very unstable sites. A few legumes were also found including *Oxytropis arctica* and *Astragalus alpinus* (Burt 1999).

The ridge slope communities can have varying exposure, orientation, and steepness. Slopes facing away from the prevailing winds may support a fringe of dwarf birches with an understory of crowberry, blueberry, Labrador tea, arctic heather, mountain cranberry, and occasionally large-flowered wintergreen and pussytoes (Burt 1999).

Transitional Associations; Hummock Zone

Transitional associations are where two communities meet with a gradual blending of the two communities across a broad area. An example of this is the hummock zone, which occurs in the transition between the sedge community and heath tundra. This association is classified as its own association due to its diverse microclimates, complex mosaic with a high number of plant species (Burt 1999).

Disturbed Sites

Disturbed sites are caused by geological, animal, or human disturbances that affect plant communities.

3.2.5 Wildlife

The Project is located in the Southern Arctic Ecozone, where short growing seasons and long winters create a landscape that is both spatially and temporally variable. Many large mammal and bird species migrate into tundra ecosystems during the growing season when food sources peak, only to leave when conditions deteriorate. Similarly, many resident wildlife species tend to exhibit population cycles. The location of the Project is particularly noteworthy because it is located along the migration path of the Bathurst Caribou Herd.

Wildlife surveys have been conducted in the Project area since the mid-1990s. Wildlife programs associated with the Project have largely concentrated on species that have ecological, cultural, or socio-economic significance. This section focuses on observations made during the following programs:

- Baseline wildlife surveys, historical survey data, and territorial data collected from 1995 to 2000 (Hubert and Associates 2002). This report includes information collected using a combination of

ground reconnaissance surveys, aerial surveys, small mammal trapping, and caribou satellite telemetry data collected as part of the West Kitikmeot/Slave Study.

- Wildlife monitoring conducted in 2005 (Golder 2006). This report includes information collected using a combination of aerial ungulate surveys, falcon nest surveys, bird point counts, and ground reconnaissance surveys.

- Wildlife monitoring conducted in 2006 (Golder 2007). This report includes information collected using a combination of aerial ungulate surveys, raptor nest surveys, bird point counts, grizzly bear activity surveys, aerial waterfowl surveys, and wolverine snow track counts.

- Wildlife monitoring conducted in 2007 (Golder 2008). This report includes information collected using a combination of aerial ungulate surveys, raptor nest surveys, bird point counts, grizzly bear activity surveys, aerial waterfowl surveys, wolverine snow track counts and hair-snagging, and shorebird monitoring conducted in cooperation with Environment Canada.

Birds and mammal species that were observed during the wildlife surveys listed above or have special conservation status and may occur in the area are listed in Table 8.

Table 8 Observed Wildlife Species and Conservation Status

Common Name	Scientific Name	Observed	COSEWIC Status[1]	SARA Status[1]	SARA Schedule[1]
Mammals					
Masked shrew	*Sorex cinereus*	a	-	-	-
Arctic hare	*Lepus arcticus*	a,b,d	-	-	-
Arctic ground squirrel	*Urocitellus parryii*	a,d	-	-	-
Northern redback vole	*Myodes rutilus*	a	-	-	-
Nearctic collared lemming	*Dicrostonyx groenlandicus*	a	-	-	-
Muskrat	*Ondatra zibethicus*	d	-	-	-
Grey wolf	*Canis lupus*	a,b,d	-	-	-
Arctic fox	*Vulpes lagopus*	a	-	-	-
Red fox	*Vulpes vulpes*	a,b	-	-	-
Grizzly bear	*Ursus arctos*	a,b,c,d	Special Concern	-	-
Ermine	*Mustela erminea*	d	-	-	-
Wolverine	*Gulo gulo*	a,b,c,d	Special Concern	-	-
Barren-ground caribou	*Rangifer tarandus*	a,b,c,d	-	-	-
Dolphin and Union caribou	*Rangifer tarandus*	[3]	Special Concern	Special Concern	Schedule 1
Muskox	*Ovibos moschatus*	a,b,c,d	-	-	-

Common Name	Scientific Name	Observed	COSEWIC Status[1]	SARA Status[1]	SARA Schedule[1]
Birds					
Red-throated loon	*Gavia stellata*	a,c	-	-	-
Arctic loon	*Gavia pacifica*	a	-	-	-
Yellow-billed loon	*Gavia adamsii*	a,c	Not at Risk	-	-
White-fronted goose	*Anser albifrons*	a,d	-	-	-
Snow goose	*Chen caerulescens*	d	-	-	-
Canada goose	*Branta canadensis*	a,c,d	-	-	-
Tundra swan	*Cygnus columbianus*	a,d	-	-	-
Mallard	*Anas platyrhynchos*	a,d	-	-	-
Pintail	*Anas acuta*	a,d	-	-	-
Green-winged teal	*Anas crecca*	a	-	-	-
Greater scaup[2]	*Aythya marila*	a	-	-	-
White-winged scoter	*Melanitta fusca*	a,d	-	-	-
Black scoter	*Melanitta Americana*	a	-	-	-
Long-tailed duck	*Clangula hyemalis*	a,c	-	-	-
Red-breasted merganser	*Mergus serrator*	a,c	-	-	-
Common merganser	*Mergus merganser*	a,c	-	-	-
Golden eagle	*Aquila chrysaetos*	a,d	Not at Risk	-	-
Bald eagle[2]	*Haliaeetus leucocephalus*	a	Not at Risk	-	-
Northern harrier[2]	*Circus cyaneus*	a	Not at Risk	-	-
Gyrfalcon	*Falco rusticolus*	a,d	Not at Risk	-	-
Peregrine falcon	*Falco peregrinus*	a,b,c,d	Special Concern	Special Concern	Schedule 1
Rough-legged hawk	*Buteo lagopus*	a,b,c,d	Not at Risk	-	-
Willow ptarmigan	*Lagopus lagopus*	a	-	-	-
Rock ptarmigan	*Lagopus muta*	a	-	-	-
Sandhill crane	*Grus canadensis*	d	-	-	-
Golden plover	*Pluvialis dominica*	a,c,d	-	-	-
Semipalmated plover	*Charadrius semipalmatus*	a,d	-	-	-
Semipalmated sandpiper	*Calidris pusilla*	a	-	-	-
White-rumped sandpiper	*Calidris fuscicollis*	a	-	-	-
Baird's sandpiper	*Calidris bairdii*	a	-	-	-
Least sandpiper	*Calidris minutilla*	a,d	-	-	-
Red-necked phalarope	*Phalaropus lobatus*	a,d	Special Concern	-	-
Parasitic jaeger	*Stercorarius parasiticus*	a	-	-	-
Long-tailed jaeger	*Stercorarius longicaudus*	a	-	-	-
Herring gull	*Larus argentatus*	a	-	-	-
Arctic tern	*Sterna paradisaea*	a	-	-	-
Short-eared owl	*Asio flammeus*	[4]	Special Concern	Special Concern	Schedule 1

Common Name	Scientific Name	Observed	COSEWIC Status[1]	SARA Status[1]	SARA Schedule[1]
Snowy owl	*Bubo scandiacus*	a,d	Not at Risk	-	-
Horned lark	*Eremophila alpestris*	a,b,c,d	-	-	-
Cliff swallow	*Petrochelidon pyrrhonota*	a[5]	-	-	-
Common raven	*Corvus corax*	a,b,c,d	-	-	-
Gray-cheeked thrush	*Catharus minimus*	a,c,d	-	-	-
American robin	*Turdus migratorius*	a,b,c,d	-	-	-
American pipit	*Anthus rubescens*	a,b,c,d	-	-	-
Yellow warbler	*Setophaga petechia*	a	-	-	-
American tree sparrow	*Spizelloides arborea*	a,b,c,d	-	-	-
Savannah sparrow	*Passerculus sandwichensis*	a,b,c,d	-	-	-
Harris's sparrow	*Zonotrichia querula*	a,b,c,d	-	-	-
White-crowned sparrow	*Zonotrichia leucophrys*	a,b,c,d	-	-	-
Lapland longspur	*Calcarius lapponicus*	a,b,c,d	-	-	-
Snow bunting	*Plectrophenax nivalis*	a,d	-	-	-
Common redpoll	*Acanthis flammea*	a,b,c,d	-	-	-

1. Based on federal database as of July 2016.
2. These species were identified as transients as observations occurred outside their known breeding range (Hubert and Associates 2002).
3. Golder (2008) reported that Dolphin and Union caribou have been observed in the Project area; occurrences are rare.
4. Not observed but may occur based on range and habitat conditions.
5. Hubert and Associates (2002) reports several sightings near the airport; however, the Project area is outside its typical range.

a = Hubert and Associates 2002, b = Golder 2006, c = Golder 2007, d = Golder 2008

Relevant wildlife information and traditional ecological knowledge from the West Kitikmeot region were reviewed to provide additional context on wide-ranging wildlife species (SENES 2008; Thorpe et al. 2001). A synthesis of wildlife conditions around the Project are provided in the following sections.

Mammals

Vegetation communities provide mammals with different habitats. Eskers and kame deltas have been identified as the primary denning habitat for large and small mammals, including bears, wolves, foxes, and ground squirrels (Hubert and Associates 2002). Carnivore dens have been observed across much of the Project area, but appear to be concentrated along a major esker over 4 km north of the Mine. Grizzly bear dens are primarily concentrated along this esker, whereas wolf dens have been observed to the north and east of the mine (Hubert and Associates 2002). Cliffs along the snowbank vegetation community have been observed providing arctic hares and ptarmigans with shelter during harsh weather (Burt 1999).

Small mammals provide foraging opportunities for several predator species within the area including raptors, foxes, and grizzly bears. Hubert and Associates (2002) reported that ground squirrels were the most commonly observed mammal within the Project area. They occurred wherever ground conditions permitted burrowing and were common in birch-heath communities, rocky uplands, and sandy plans. Red-backed voles and lemmings were less common than ground squirrels during 2 years of study;

however, the relative abundance of these three species likely changes across time as lemming and vole populations cycle over time.

The Project area supports two ungulate species: muskox and barren-ground caribou. Muskoxen have been observed in low numbers within 10 km of the Project during all years where wildlife monitoring data were reported. Regional studies suggest that muskoxen tend to be distributed closer to the coast and that the abundance around the Project area has declined since 1991 (Dumond 2007a). In contrast, barren-ground caribou are seasonally common within the Project area.

The Project is located within the center of the Bathurst caribou range and along the western edge of the Beverly caribou range (Nagy et al. 2011). Most caribou that use the Project area have been linked to the Bathurst Caribou Herd, which migrates from wintering grounds near Great Slave Lake to summer calving grounds near Bathurst Inlet (Thorpe et al. 2001). The Beverly herd primarily located to the east of the region but individuals may occasionally use the Project area during post-calving, winter and spring. The Dolphin and Union caribou population of barren-ground caribou have been reported in the area (Golder 2008) but primarily occur well north of the Project (Gunn et al. 1997). Hubert and Associates (2002) and Gunn et al. (2001) summarized Bathurst caribou telemetry data collected as part of the West Kitikmeot/Slave Study from 1996 to 2000. This summary showed that:

- in winter caribou were spread across the boreal forest north and east of Great Slave Lake
- caribou moved north around Contwoyto Lake during migration
- calving primarily occurred north of the Project between the Burnside and Hood rivers
- caribou spread out between Hood River and Aylmer (overlapping the Project area) during post-calving
- caribou started to shift south toward the boreal forest in late summer
- caribou primarily occurred between Lac de Gras and the boreal forest during the rut

The mine intersects an identified migration corridor and associated late summer range (Nunavut Planning Commission 2016a). Historical data show that caribou use of the Project area was fairly low from the rut to April. Caribou use peaked in late-April and May during the spring migration, and then declined when the herd calved close to Bathurst Inlet. Survey data indicates there is a network of trails throughout Project area, indicating that large concentrations of caribou have pass through area before wildlife monitoring programs (Hubert and Associates 2002). Caribou use around the Project area increased again when cows and calves moved south in the summer foraging grounds. Use during the summer months remained variable as caribou were spread across a wider area during this post-calving foraging period (Hubert and Associates 2002). Caribou use immediately around the Project can vary across years. Historically, caribou moved through the area in a steady stream of small herds (i.e., hundreds of animals per herd; Hubert and Associates 2002); however, there was one report of 50,000 animals spending 12 to 18 hours in the area during post-calving (Tahera 2003a). Bathurst caribou have declined from in recent decades (Adamczewski et al. 2009; Boulanger et al. 2011; Vors and Boyce 2009)

during which time the late summer distribution of the herd has contracted toward the calving ground (Klaczek et al. 2016). It is unknown to what extend this may increase or decrease caribou use of the Project area in the future.

Caribou have cultural and socio-economic significance to the residents of the Kitikmeot region (Thorpe et al. 2001), and are ecologically significant for predator populations. Wolf abundance within the Bathurst Caribou Herd area has declined concomitant with the caribou herd (Klaczek et al. 2016) due to lower reproduction (Frame et al. 2008). Wolf use of Project area is somewhat limited and may be variable as caribou migrations change over time. Dens have been observed to the north and east of the mine site (Hubert and Associates 2002).

Caribou are also important to wolverines, which have been observed throughout the Project area (Golder 2007, 2008). Caribou remains have been found in 62% of stomachs of winter-trapped wolverines in the Kitikmeot region (Mulders 2000). Wolverine locations in the southern arctic tend to be associated with caribou, wolves, and grizzly bears (Mulders 2000); perhaps because of the availability of ungulate prey or because other carnivores provide ungulate carrion. Wolverines will also consume muskox, ground squirrels, voles, and lemmings. As a result of these variable associations, the distribution of wolverines within the Project area is likely variable in both space and time.

Grizzly bears are wide-ranging omnivores within the southern arctic (McLoughlin et al. 1999). Research conducted south of the Project area near Lac de Gras indicates that grizzly bears primarily foraged on green vegetation (i.e., *Carex, Equisetum, Eriophorum*) in early summer but focused on caribou and ericaceous berries during the spring, mid-summer, and fall (Gau et al. 2002). The importance of ground squirrels appears to be variable within the Kitikmoet Region. In the Lac de Gras area, ground squirrels represented a small portion of bears' diet. In contrast, grizzly bear sign in the Project area was strongly associated with ground squirrels. A total of 69% of observed bear sign were digs associated with ground squirrel dens on esker (Golder 2008).

Birds

Waterfowl are reportedly uncommon in the Project area (Hubert and Associates 2002, Golder 2008). Aquatic habitats are abundant both regionally and within the Project area. These habitats provide breeding habitat for waterfowl and other water birds and, in spring and fall, are used as staging areas by migratory birds. Shorelines of these aquatic habitats also provide shorebirds with summer breeding and foraging areas. Most waterfowl and shorebird surveys conducted within the Project area focused on breeding populations and may therefore underestimate the value of aquatic habitats and shorelines for migrating birds.

The presence of ground squirrels and other small mammals provides foraging opportunities for several ground- and cliff-nesting raptor species. Hubert and Associates (2002) identified that the Willingham Hills and the Peacock Hills to the east of Contwoyto Lake provided more nesting habitat than the rolling topography adjacent to most of Contwoyto Lake and the area west toward Rockinghorse Lake.

Nevertheless, several raptor territories have been identified near the Project. Raptor surveys indicate that rough-legged hawks are the most common raptor species to nest within the area (Hubert and Associates 2002; Golder 2007, 2008). During the 2007 raptor survey 45% of identified territories were held by rough-legged hawks (Golder 2008). Other species that nest in the area include peregrine falcons, golden eagles, and gyrfalcons.

Songbird diversity is fairly low within the Project area. A summary of 451 point count survey locations indicates that five passerine species make up 89% of all songbird observations within about 2 km of the mine (Golder 2008):

- lapland longspur (18.1%)
- savannah sparrow (22.4%)
- horned lark (20.5%)
- common redpoll (14.7%)

Birch and heath communities provide nesting habitat for songbirds and shelter for roosting ptarmigans (Burt 1999). Vegetation communities that contain graminoid and shrub cover are expected to support more songbirds by providing a combination of foraging and nesting opportunities; however, monitoring data have not revealed any obvious patterns in songbird species richness or diversity across habitat types (Golder 2008).

Species of Conservation Concern

Some wildlife species located in the Project area require special attention due to their conservation status designated by the Committee on the Status of Endangered Wildlife in Canada, and the *Species At Risk Act*. Of the bird and mammals species within the Project area (Table 3), there are six wildlife species of conservation concern.

- Grizzly bears have been observed within the Project area during all years where wildlife monitoring data were reported. Within Nunavut, there is evidence that populations are increasing and expanding north into the arctic (COSEWIC 2012). The primary threat to grizzlies is an increase in the number of human-bear conflicts.

- Wolverines have been observed within the Project area during all years where wildlife monitoring data were reported. Populations within Nunavut occur at low density and there is some evidence that populations are stable or increasing (COSEWIC 2014a). Threats to this species can include over-harvesting, loss of spring snow due to climate change, loss of prey/carrion, and increases in predators.

- Dolphin and Union caribou have occasionally been observed in the Project area (Golder 2008). This barren-ground caribou population summers on Victoria Island and winters north of Bathurst Inlet (Gunn et al. 1997). There is concern that changing sea-ice formations and other effects of climate

change may threaten this population; harvesting pressure, predation, and industrial development may also threaten the population (COSEWIC 2004; Species at Risk Committee 2013). Given the location of the Project relative to the Dolphin and Union caribou population, it is unlikely that the Project has a significant interaction with this caribou population.

- Peregrine falcons have been observed within the Project area during all years where wildlife monitoring data were reported. Falcons tend to nest on rocky bluffs or cliff ledges (Court et al. 1988; COSEWIC 2007). Wildlife monitoring data indicate that there are several raptor territories within the Project area that may be occupied by peregrine falcons or other raptor species in any given year (Hubert and Associates 2002; Golder 2008).

- Red-necked phalaropes breed across much of the arctic and have been observed within the Project area. This species tends to nest in tufts of grasses or shrubs in communities dominated by grasses, sedges, or emergent aquatic vegetation (COSEWIC 2014b). As a result of their breeding and foraging behaviour, they mostly likely occur in wetlands and shorelines within the Project area.

- Short-eared owls have not been observed within the Project area, but their breeding range extends across much of Nunavut including the West Kitikmeot region (COSEWIC 2008). This species nests in open tundra habitats such as those vegetation communities found within the Project area. Habitat conversion is believed to be the primary threat to short-eared owls in the southern portion of their range (COSEWIC 2008); small mammal populations may be important further north where habitat is more abundant.

In addition, most bird species observed within the area (Table 3) are protected under the *Migratory Birds Convention Act*. The act and associated regulations prohibit harming a migratory bird, its nest, or eggs unless authorized by the federal government.

3.2.6 Culture

The Project site is located in an area where local people have traditionally used the land for hunting and camping. While the Project site has provided employment during its operation, the remediation of the site is an important land use planning objective for the people of the Kitikmeot region, as detailed in the following sections.

Historical Land Use

An inventory and preliminary impact assessment of the archaeological and historical resources was conducted in 1996 and 1999 before the mine construction. Twenty-five archaeological sites were identified and documented in the Project during the field study (including artefact scatters, habitation sites, and quarries) identifying historical and traditional use of the area (Tahera 2003b). None of the sites were identified as having sufficient significance to require avoidance by development (Tahera 2003b).

Current Land Use

The Project is located in the administrative region of Kitikmeot, one of three regions in Nunavut. The Nunavut Planning Commission is undertaking land use planning for the territory of Nunavut. The project is located in an area that is designated as a special management area for high mineral potential (Nunavut Planning Commission 2016b). In this management area the development of incompatible land uses (i.e., tourism facilities, parks and conservation areas) are prohibited (Nunavut Planning Commission 2016a); however, community values and priorities identified in this management area during the land use planning process include (Nunavut Planning Commission 2016b):

- Jericho diamond mine site remediation
- artefacts
- fishing and camping areas
- caribou migration

There are no parks or conservation sites that overlap with the Project area.

Traditional Land Use and Knowledge

The Project lies within or near the traditional use areas of three native groups: Kitikmeot, Dogrib, and Yellowknife Dene (Tahera 2003b). The Project also lies within the southern boundary of the area of influence of the communities of Bathurst Inlet, Umingmaktok, and Kugluktuk implying that hunters and fishers from these communities travel to this region to conduct traditional activities (Tahera 2003b).

The land is important to people of the communities with approximately 68% of residents active in hunting and fishing, and 13% of residents active in trapping (Tahera 2003b). Hunting is generally a part-time activity for residents, combining income from traditional pursuits with other sources of income; however, the average hunting production is high with approximately 1,000 to 1,500 kg (estimated at a value of $10,000 to $15,000 in 2003) of meat and fish annually (Tahera 2003b). There is a heavy reliance on the traditional economy for clothes and food; however, traditional activities also contribute to cultural well-being (GoN 2013; Tahera 2003a). There is an important connection between health and well-being of individuals and communities, and reliable sources of country food (Tahera 2003a).

Traditional knowledge was obtained for the Project from Inuit elder site visits, elder comments from community meetings and published regional studies (Tahera 2003a). The focus of traditional use from each of these sources was on caribou and water quality (Tahera 2003a). Traditional knowledge information, particularly with respect to caribou, was intended to be used in the management approach for the Project to prevent impacts to caribou herds (Tahera 2003a).

3.2.7 Socio-economics

The population in the Kitikmeot region in 2011 was 6,012, an increase of approximately 650 people from 2006 (Statistics Canada 2011). The closest permanent community to the Project is the hamlet of Kulgluktuk, located 250 km northwest of the Project. Kugluktuk has a population of approximately 1,450 people, an increase of approximately 150 people from 2006 (Statistics Canada 2011). Other nearby communities in the Kitikmeot region include the hamlet of Cambridge Bay with a population of 1,585 and the unincorporated settlements of Umingmaktok and Bathurst Inlet. Both unincorporated settlements have populations with five or less people (Statistics Canada 2011).

The median age of the population of the Kitikmeot region is 23 with 34% of the population under the age of 15 (Statistics Canada 2011). The population is primarily Inuit (Statistics Canada 2011). There are 1,710 private dwellings in the region, with 448 located in the hamlet of Kugluktuk (Statistics Canada 2011).

Communities in the region are accessed primarily by air and snowmobile, with boat access during the summer. Daily flights are available from the Kugluktuk Airport to Yellowknife and other Nunavut communities. There are no rail or road connections between Nunavut communities, nor are they connected to any southern Canadian cities.

Tourism and recreation activities are based on outdoor pursuits including canoeing, kayaking and rafting, hiking, fishing, hunting and photography and wildlife viewing (GoN 2013). The Coppermine River and Bloody Falls Territorial Historic Park are primary tourism and recreation attractions to the region (GoN 2013).

Economy and Employment

The Kitikmeot economy is comprised of the wage economy, traditional activities, and government transfer payments (Tahera 2003b). Many residents combine these sources to contribute to their income and each of these elements is important to the regional economy at different times due to seasonal harvesting activities and the availability of wage employment (Tahera 2003b). There is a heavy reliance on the economic benefit from hunting, trapping, and fishing to provide clothes and food, particularly reducing the need for expensive store-bought foods (GoN 2013; Tahera 2003b). There is optimism by community residents that the tourism and mining sectors will contribute to economic growth and increase economic development of Kuglutuk, alongside the traditional economy (GoN 2013).

Mining and mineral exploration, particularly gold, silver, and diamonds is an important contributor to the Nunavut economy (GoN 2014). The Kitikmeot region in particular is likely to see continual economic benefit from mineral exploration and extraction as approximately half of all mineral projects in Nunavut are located in the region (Tahera 2003a). Increasingly, tourism and non-resident hunting are contributing to the economy of Nunavut (Tahera 2003a).

In 2001, the labour force of Kugluktuk was 615 people with a 64% participation rate (Statistics Canada 2011). The employment rate in Kugluktuk was 44% and the unemployment rate was 31% (Statistics Canada 2011). The primary industry in Kugluktuk is public administration, employing 30% of the labour force. Other significant industries include retail trade (11%); educational services (9%); construction (8%); health care and social assistance; transportation and warehousing; and mining, quarrying, and oil and gas extraction each employing 7% of the labour force (Statistics Canada 2011).

The community has residents with experience working on the Project, as well as other resource developments including oil and gas development and mining projects. In Nunavut, there is an emphasis to hire first from the local labour force with impact benefit agreements often including employment targets negotiated with the community (GoN 2014). However, a fly-in/fly-out strategy is still used to meet the labour needs for many large projects (GoN 2014). The community is also familiar with fly-in/fly-out employment, and although there are concerns about the stress that it puts on families, community leaders identified that economic benefit is important (Tahera 2003a). Employment opportunities have been identified as beneficial to the overall well-being of the community and community members have identified the advantages of relying on more than one source of income (Tahera 2003a).

Census data identifies that approximately 32% of residents have received some post-secondary education and approximately 10% have completed high school education (Statistics Canada 2011). Based on this information, a number of Kugluktuk people may be suited to work on this project.

Businesses in Kugluktuk include accommodation and restaurants, retail stores, transportation and shipping services, contracting and equipment supply, outfitting, and artists (GoN 2013). Kugluktuk opened the Kulguktuk Visitor Heritage Centre in 2014 including a museum, conference rooms, and an art gallery.

Kugluktuk Community Services

The hamlet of Kugluktuk contains a variety of community services. The community has two schools providing education from kindergarten to grade 12 for approximately 420 students. Early childhood education includes preschool and a day care (GoN 2013). Post-secondary education is available through the Kitikmeot campus of Nunavut Arctic College, which offers a number of programs including employment readiness, high school upgrading, apprenticeship programs, environmental technology, and other specialty courses (Nunavut Arctic College 2016). Training, related to industrial activity, has often been provided by employers and outside agencies in the areas of geological sciences and kimberlite processing, construction trades and heavy equipment mechanics, and Inuit culture and language.

Infrastructure and services in the hamlet include electrical power generation, internet, cable and radio services, post office, and library. Community facilities include a recreation centre, youth centre, and community library. Emergency response services are provided through the Kugluktuk Royal Canadian Mounted Police detachment, and fire and emergency response. Health and wellness services include a

health centre staffed with nurses and social services personnel, the Awareness Centre offering a wide range of counselling services, Brighter Futures offering a community-based health promotion program, and a pre-natal centre. There are no doctors or dentists located in the community, but traveling doctors visit the community to provide services on a regular basis. Cultural services include a hunter and trapper's organization, the Kulguktuk Visitor Heritage Centre, and an Elder's Centre.

4 PROJECT/ENVIRONMENTAL INTERACTIONS

To determine project and environment interactions, it is necessary to identify relevant ecosystem components, both natural and man-made, determine potential impacts based on the scope of work, and the possible mitigation strategies to reduce or eliminate those impacts. The sections below outline the process to identify and determine the interactions, the possible mitigation strategies, and potential residual impacts.

4.1 Identification of Valued Environmental and Socio-economic Components

The Nunavut Impact Review Board (NIRB) defines valued ecosystem components (VECs) as "those aspects of the environment considered to be of vital importance to a particular region or community, including resources that are legally, politically, publicly, or professionally recognized as important, such as parks, land selections, and historical sites; resources that have ecological importance; and resources that have social importance."

Valued Socio-economic Components (VSECs) are defined by the NIRB (NIRB 2007) as "those aspects of the socio-economic environment considered to be of vital importance to a particular region or community, including components relating to the local economy, health, demographics, traditional way of life, cultural well-being, social life, archaeological resources, existing services and infrastructure, and community and local government organizations."

Potential VECs and VSECs were identified in a three-stage process. Initially, a review of the regulatory responsibilities of applicable Nunavut and other government agencies was completed, including the NIRB. Also, VECs and VSECs identified in other projects in Nunavut such as remediation of the Hope Lake mineral exploration sites, the Contwoyto Lake former weather station, and the Ennadai Lake weather station. Once these VECs and VSECs are identified, they are confirmed during the field work and public consultation process and in discussions with local government. Finally, based on the activities in the proposed SSP, professional judgment of environmental practitioners and remediation specialists identified any potential gaps in the VECs and VSECs previously identified. Matrix reviewed historical and existing information on the Project to familiarize ourselves with the Project. As a result of this process, a comprehensive list and selection rationale was developed and is outlined below in Table 9.

Table 9 List of the Selection Rationale for VEC and VSEC

VEC or VSEC	VEC/VSEC Selection Process			
	Regulatory Requirement	Identified in Other ESRs	Public/Inuit Input	Professional Judgment
Climate and Air Quality	√	√		
Terrain		√		√
Hydrology and Hydrogeology	√	√		√
Soils	√	√		√
Vegetation	√	√		√
Wildlife (Terrestrial)	√	√	√	√
Wildlife (Aquatic)	√	√		√
Cultural Features and Special Places	√	√	√	√
Job Opportunities	√	√		√
Traditional Land Use	√	√	√	√
Community Impacts	√	√		√
Aesthetics	√	√		

4.2 Identification of Project Impacts and Mitigations

To determine the potential impacts to the various VECs or VSECs, baseline information along with specific project activities outlined in the SSP were reviewed. Using professional judgment, project activities that would impact/interact with a specific VEC or VSEC were identified. As recommended by the *NIRB Screening Part 2 Form Project Specific Information Requirements (PSIR)* (NIRB 2010) this process was completed using a matrix of project activities versus VECs and VSECs. This matrix and the results of the process are included in Table 10 and the impact ranking criteria is provided in Table 11.

Table 10 Identification of Interaction between Project Remedial Activities and VECs or VSECs

VEC or VSEC	Project Activities													
	Site Preparation and Camp Operations		Site Stabilization									Closure		
	Winter Construction, Mobilization, Transportation of Equipment	Camp Operation Including Water Use, Waste Water Treatment, Waste Incineration	Open Pit Infilling and Stabilization	PKCA Management	Structure Demolition and Debris Handling	Onsite Construction of Non-hazardous Landfill	Onsite Incineration of Liquid Organic Waste	Onsite Handling and Consolidation of Hazardous Waste	Excavation of Impacted Soils	Landfarm Area Operation	Offsite Removal of Hazardous Waste and Tier 2 Metal-impacted Soil	Site Contouring	Demobilization and Transportation of Equipment on Winter Road	Long-term Monitoring
Climate and Air Quality	√	√			√	√	√		√	√	√	√	√	
Terrain			√	√	√	√				√		√		
Hydrology and Hydrogeology	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Soils	√	√				√	√	√	√	√	√	√	√	
Vegetation		√			√	√	√	√		√		√		
Wildlife (Terrestrial)	√	√	√	√	√	√		√	√	√	√	√	√	√
Wildlife (Aquatic)	√	√	√	√				√	√		√	√	√	√
Cultural Features and Special Places														
Job Opportunities	√	√		√	√	√	√	√	√	√	√	√	√	√
Traditional Land Use	√										√	√	√	
Community Impacts	√	√											√	
Aesthetics			√		√		√			√		√		

Table 11 Impact Rating Criteria

Term	Rating	Criteria
Direction	Positive	Net benefit or gain to resource or indicator
	Neutral	No net benefit or gain, or benefits and losses are balanced
	Negative	Net loss to the resource or indicator
Extent	Local	Effect confined to the area directly disturbed by Project facilities
	Regional	Effect extends beyond area of direct disturbance but is limited to 14 km from Project activities*
	Territorial	Effect extends several kilometers beyond the Project and associated activities
Duration	Short Term	Less than 1 year
	Medium Term	1 to 10 years
	Long Term	Greater than 10 years
Frequency	Once	Occurs only once
	Intermittent	Occurs occasionally at irregular intervals
	Continuous	Occurs on a regular basis and regular intervals
Magnitude	Negligible	There will be no detectable change to the resource from background conditions expected after mitigation. If parameter remains than the parameter will be less than the standard, guideline, or objective
	Low	Impact within acceptable protective standards and/or causes no detectable change to the resource
	Medium	Impact within acceptable protective standards and/or causes a detectable change to the resource
	High	Impact exceeds protective standards and/or causes a detectable change to the resource beyond the range of tolerance
Probability	Low	The impact is unlikely to occur
	Medium	The impact is fairly likely to occur
	High	There is a high probability that the impact will occur
Significance	Insignificant	Minimal or no measurable change from background conditions that may last less than 10 years or for one generation
	Significant	Measurable change from background conditions that may last greater than 10 years or for more than one generation
	Unknown	Insufficient data available to make a professional judgment, more study required.

* Based on Boulanger et al. (2012) who found that space of caribou within the Bathurst Caribou Herd was directly influenced by diamond mining up to 14 km away.

4.3 Potential Impacts and Mitigations

Certain project activities have similar impacts and mitigation strategies, and therefore similar impact ratings. In the following sections, project activities with analogous impacts, mitigation, and impact ratings have been grouped together for each of the VECs. The following tables provide an assessment of project interactions, potential impacts mitigation strategies, and subsequent residual ratings. A brief summary for each VEC is also included. A discussion, rather than a table format, is provided for VSECs and project interactions later in the report.

Only residual impacts, those impacts that cannot be mitigated and that are also considered significant, are discussed later in the ESR.

4.3.1 Air Quality

Table 12 Assessment of Impacts on Air Quality

Project Activity	Potential Impact	Impact Rating	Mitigation
Site Preparation			
• Mobilization and transportation of equipment on winter road • Camp operation including waste incineration	• Greenhouse gas (GHG) emissions from equipment operation, camp waste incineration, and transportation events	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: High Significance: Insignificant	• Proper use of equipment meeting regulatory and transportation standards • Training of staff in proper use of equipment
Site Stabilization			
• Structure demolition and debris handling • Onsite construction of non-hazardous landfill • Onsite incineration of liquid organic waste • Excavation of impacted soils • Landfarm area operation • Offsite removal of hazardous waste and Tier 2 metal-impacted soil	• GHG emissions from equipment operation • Gas emissions from organic liquid incineration	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: High Significance: Insignificant	• Proper use of equipment meeting regulatory standards • Training of staff in proper use of equipment
Closure			
• Site contouring • Demobilization and transportation of equipment on winter road	• GHG emissions from equipment operation, and transportation events	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: High Significance: Insignificant	• Proper use of equipment meeting regulatory and transportation standards • Training of staff in proper use of equipment
Summary			
• Adverse potential impacts to air quality are expected with all phases of this Project. Emissions of GHGs, nitrogen oxides, sulphur dioxide particulate matter, and carbon monoxide due to combustion of aviation fuel, diesel fuel, and gasoline are expected during Project work. Emissions; however, will be short term and intermittent, and will not have a significant residual effect on the climate within the local study area, regionally or nationally.			

4.3.2 Hydrology and Hydrogeology

Table 13 Assessment of Impacts on Hydrology and Hydrogeology

Project Activity	Potential Impact	Impact Rating	Mitigation
Site Preparation and Camp Operations			
• Mobilization and transportation of equipment on winter road	• Potential impact of surface water and groundwater from spills when refuelling servicing equipment and during transportation events	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency best management practices (BMP) will be developed and implemented, and be available onsite for all workers • Contain spill as close to release point as possible • Proper containment and removal of fuels from any water bodies • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier and allow for easy removal in case of a leak or spill • Hazardous waste and fuel storage areas (including drums) will be inspected daily • Fuel storage, hazardous material storage and refuelling of equipment will occur at the greatest reasonable distance from water bodies • Transportation procedures onsite and offsite will be in accordance with the *Transportation of Dangerous Goods Act, 1992* (S.C. 1992, c. 34) and regulations
• Camp operation including water use and waste water treatment	• The operation of the work camp will include disposal of camp sewage, grey water, garbage, and other non-hazardous wastes that could impact water quality	Direction: Negative Extent: Local Duration: Short Term Frequency: intermittent Magnitude: Negligible Probability: High Significance: Insignificant	• Camp sewage and grey water will be treated onsite and disposed of in a manner in accordance with land use inspector and permits/license • Treatment facilities and discharge sumps/areas will be closed off at the end of remediation activities • Sumps will be closed off at the end of remediation activities • All other camp waste will be disposed of offsite on completion of the remediation activities
Site Stabilization			
• Open pit filling • PKCA management • Structure demolition and debris handling • Onsite construction of non-hazardous landfill • Onsite incineration of liquid organic waste • Onsite handling and consolidation of hazardous waste • Excavation of impacted soils • Landfarm operation • Offsite removal of hazardous waste and Tier 2 metal-impacted soil	• Potential impact of surface water and groundwater from spills when refuelling and servicing equipment • Potential surface water and groundwater impact while removing, transporting, burning, or incinerating waste materials and landfarm operation	Direction: Negative (positive once hazardous and non-hazardous materials, and contaminated soils have been treated or removed from the site) Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers • Contain spill as close to release point as possible • Water quality of the pit water will be monitored as the water level increases to see if water quality will be acceptable for release before it overtops; appropriate treatment or water management will be implemented, if necessary, to ensure pit lake outflow does not negatively impact Carat Lake • Proper containment and removal of fuels from any water bodies • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier and allow for easy removal in case of a leak or spill • Fuel storage, hazardous material storage and refuelling of equipment will occur at the greatest reasonable distance from water bodies and in accordance with the land use inspector and permits/license • Hazardous waste and fuel storage areas (including drums) will be inspected daily • Hazardous materials and contaminated soil will be exposed for as short time as possible • All workers will be trained in proper handling of non-hazardous and hazardous materials and contaminated soil • Proper lining and operation of landfarm to ensure leachate will not impact the surrounding environment
• Open pit filling • Structure demolition and debris handling • Onsite construction of non-hazardous landfill • Excavation of impacted soils • Landfarm operation	• Erosion, sedimentation, or damage to riparian areas can occur during remediation activities that disturb the land surface	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Moderate Significance: Insignificant	• A spill contingency best management practices (BMP) will be developed and implemented, and be available onsite for all workers • Placement of temporary (during remediation or landfill construction) erosion control measures (i.e., berms, silt fences); limit disturbance of any new areas • Disturbed areas near or adjacent to watercourses and water bodies will be stabilized quickly • Remedial excavations and landfill design should provide for proper drainage and soil stability • Environmental monitoring will occur during SSP activities to ensure erosion control measures are implemented and adequate
Closure			
• Site contouring	• Sedimentation or damage to riparian areas can occur during site recontouring	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Moderate Significance: Insignificant	• A spill contingency best management practices (BMP) will be developed and implemented, and be available onsite for all workers • Disturbed areas near or adjacent to watercourses and water bodies will be stabilized quickly • Recontouring site to match natural terrain after infrastructure, hazardous and non-hazardous waste, and contaminated soil removal

Project Activity	Potential Impact	Impact Rating	Mitigation
• Pit Lake water releases	• Potential impact of surface water quality and thermal regimes from very deep pit lake	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: low Significance: Insignificant	• Outflow from pit lake will be routed through shallow ponds and wetlands, if necessary, to provide further treatment and ensure water temperatures reach levels typical of the shallower water bodies and creeks that drain into Carat Lake
• Demobilization and transportation of equipment on winter road	• Potential impact of surface water and groundwater from spills when refuelling and servicing equipment	Direction: Negative (positive once hazardous and non-hazardous materials, and contaminated soils have been treated or removed from the site) Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers • Contain spill as close to release point as possible • Proper containment and removal of fuels from any water bodies • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier and allow for easy removal in case of a leak or spill • Hazardous waste and fuel storage areas (including drums) will be inspected daily • Fuel storage, hazardous material storage and refuelling of equipment will occur at the greatest reasonable distance from water bodies and in accordance with the land use inspector and permits/license • Transportation procedures onsite and offsite will be in accordance with the Transportation of Dangerous • Goods Act and Regulations (Government of Canada 1992)
• Long-term monitoring	• Potential impacts on surface water quality via disturbance of steam bed or banks, or introduction of deleterious substances during field sampling	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Negligible Probability: Low Significance: Insignificant	• Minimize disturbance of stream beds and banks during sampling • Use acceptable sampling protocols to prevent or minimize introduction of sample preservatives and other deleterious substances into surface waters or on land
Summary			
• Potential pathways exist between proposed remedial activities, facilities, materials, or structures and surface water quantity and quality, and groundwater receptors at the Project site as summarized in Table 7. Linkages between the Project and groundwater impacts are relatively weaker due to the presence of permafrost from near ground surface to great depths up to 540 m in most areas of the Project site. • Impacts of the Project to surface water and groundwater quality are predicted to be low to negligible due to absence of large sources of pollution and appropriate mitigations measures that will be implemented. Disturbed and reclaimed Project areas form a small fraction of the entire Jericho River watershed; therefore, current stream flows and water levels will not generally be affected by the Project.		

4.3.3 Aquatic Ecology

Table 14 Assessment of Impacts on Aquatic Ecology

Project Activity	Potential Impact	Impact Rating	Mitigation
Site Preparation and Camp Operations			
• Mobilization and transportation of equipment on winter road and winter road construction	• Potential spills from transport vehicles	Direction: Negative Extent: Regional Duration: Medium Term Frequency: Once Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers • Contain spill as close to release point as possible • Proper containment and removal of fuels from any water bodies • Stream discharge should be measured upstream and downstream of ice bridges to determine if flow restrictions occur • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier and allow for easy removal in case of a leak or spill • Hazardous waste and fuel storage areas (including drums) will be inspected daily • Fuel storage, hazardous material storage and refuelling of equipment will occur at the greatest reasonable distance from water bodies • Transportation procedures onsite and offsite will be in accordance with the *Transportation of Dangerous Goods Act* and regulations • All machinery working near water will be cleaned, and free of debris and organic matter before entering the construction site
• Camp operation including water use and waste water treatment	• Change in water quality (temperature, nutrients, dissolved oxygen concentrations) and water levels	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Waste water will be treated and tested before release into the Project area • Water that is released into the surrounding environment should not exceed the temperature of the environment into which it is released • Source water intakes should have appropriately-sized fish screens to avoid entrainment of fish
Site Stabilization			
• Open pit filling	• Removing the C1 division and re-establishing the natural drainage could change access to habitats and habitat structure until habitat is restored along the natural drainage	Direction: Positive Extent: Local Duration: Long Term Frequency: Continuous Magnitude: High Probability: High Significance: Significant	• Habitat along the pathway will be restored through natural ecological processes and no net loss of drainage/channel habitat is expected • Provided that access to the pit is suitable and contaminants not a concern, the pit may provide suitable overwintering habitats for resident fish species
	• Sediment loading from materials in the pit being transported to downstream habitats	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Installing erosion and sediment control measures around areas that have the potential to drain into surrounding water bodies and watercourses • Monitor water quality (turbidity and TSS) during construction and initial release stages
• PKCA	• Breaching containment areas could result in increased runoff and surface erosion contributing to sediment loading of the watercourses and water bodies	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Installing erosion and sediment control measures around areas that have the potential to drain into surrounding water bodies and watercourses
• Onsite handling and consolidation of hazardous waste	• Spills of hazardous waste and metal-impacted soil during transportation; change in contaminant concentrations	Direction: Negative Extent: Regional Duration: Medium Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers • Contain spill as close to release point as possible • Proper containment and removal of fuels from any water bodies • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier and allow for easy removal in case of a leak or spill • Hazardous waste and fuel storage areas (including drums) will be inspected daily • Fuel storage, hazardous material storage and refuelling of equipment will occur at the greatest reasonable distance from water bodies • Transportation procedures onsite and offsite will be in accordance with the *Transportation of Dangerous Goods Act* and regulations • All machinery working near water will be cleaned, and free of debris and organic matter before entering the construction site

Project Activity	Potential Impact	Impact Rating	Mitigation
• Excavation of impacted soils	• Surface runoff of sediment into watercourses and water bodies leading to sediment loading	Direction: Negative Extent: Local Duration: Medium Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Installing erosion and sediment control measures around areas that have the potential to drain into surrounding water bodies and watercourses
• Offsite removal of hazardous waste and Tier 2 metal-impacted soil	• Spills of hazardous waste and metal-impacted soil during transportation; change in contaminant concentrations	Direction: Negative Extent: Regional Duration: Medium Term Frequency: Once Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers • Contain spill as close to release point as possible • Proper containment and removal of fuels from any water bodies • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier and allow for easy removal in case of a leak or spill • Hazardous waste and fuel storage areas (including drums) will be inspected daily • Fuel storage, hazardous material storage and refuelling of equipment will occur at the greatest reasonable distance from water bodies • Transportation procedures onsite and offsite will be in accordance with the *Transportation of Dangerous Goods Act* and regulations • All machinery working near water will be cleaned, and free of debris and organic matter before entering the construction site
Closure			
• Site contouring	• Surface runoff of sediment into watercourses and water bodies leading to sediment loading	Direction: Negative Extent: Local Duration: Medium Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Installing erosion and sediment control measures around areas that have the potential to draining into surround water bodies and watercourses
• Demobilization and transportation of equipment on winter road	• Potential spills from transport vehicles	Direction: Negative Extent: Regional Duration: Medium Term Frequency: Once Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers. • Contain spill as close to release point as possible • Proper containment and removal of fuels from any water bodies • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier and allow for easy removal in case of a leak or spill • Hazardous waste and fuel storage areas (including drums) will be inspected daily • Fuel storage, hazardous material storage and refuelling of equipment will occur at the greatest reasonable distance from water bodies • Transportation procedures onsite and offsite will be in accordance with the *Transportation of Dangerous Goods Act* and regulations • All machinery working near water will be cleaned, and free of debris and organic matter before entering the construction site
Summary			
• Potential adverse impacts to the aquatic ecology are associated with vehicle transportation, earth works (e.g., regrading), water use (source water and waste water discharge), movement of contaminated and non-contaminated waste, and soil treatment and/or removal. The aquatic environment in the Project area was identified as having low primary productivity and low annual fish yield. Any adverse anthropogenic effects to such communities could illicit a greater negative response and recovery time from the aquatic ecology. Provided that industry standard BMPs are implemented, DFOs *Measures to Avoid Causing Harm to Fish and Fish Habitat* (DFO 2013b) are followed, and a qualified environmental specialist is onsite to monitor the effectiveness of mitigation measures; no significant negative impacts are expected. • The causeway into Carat Lake resulted in a loss of fish habitat, which was meant to be offset as per the DFO Authorization (DFO File No. NU-00-0068). However, the causeway was also predicted to result in indirect loss of habitat due to alteration in water movement patterns in the southeast corner of Carat Lake. The causeway is not being removed during the scope of this work. However, the INAC is proposing to re-establish drainage into the open pit. If appropriate designs are implemented to ensure habitat suitability of resident fish species, the drainage and open pit should result in a net gain of fish habitat.		

4.3.4 Soils and Terrain

Table 15 Assessment of Impacts on Terrain

Project Activity	Potential Impact	Impact Rating	Mitigation
Site Stabilization			
• Open pit filling	• Erosion due to infilling of open pit	Direction: Neutral Extent: Local Duration: Medium Term Frequency: Once Magnitude: Low Probability: High Significance: Insignificant	• Monitor for signs of erosion, and alter rate and location of filling if required
• PKCA	• After breaching the West Dam and Divider Dyke A to direct water along the original flow path, impact to terrain is expected from stabilization of Cell A using coarse PK	Direction: Positive Extent: Local Duration: Long Term Frequency: Once Magnitude: Low Probability: High Significance: Significant	• Use of coarse PK will be spread as cover to stabilize Cell A dry tailings from water and wind erosion • Cap the PK cover with some waste rock or till to provide erosion protection and a more varied reclamation surface
• Structure demolition and debris handling	• Structure demolition and debris handling could disturb terrain and potentially impact permafrost	Direction: Negative Extent: Local Duration: Short Term Frequency: Once Magnitude: Low Probability: High Significance: Insignificant	• Minimize disturbance to terrain and use existing disturbed areas where possible • Re-contour disturbed areas to conditions that are consistent with the landforms in the surrounding undisturbed areas, to the extent possible
• Onsite construction of non-hazardous landfill	• Construction of the landfill will impact an area of undisturbed soil and terrain west of the tank farms and may impact permafrost		
• Landfarm operation	• Impact to permafrost may occur as a result of activities	Direction: Negative Extent: Local Duration: Medium Term Frequency: Once Magnitude: Low Probability: High Significance: Insignificant	• Landfarm will use an existing bermed area with a proper liner and leachate collection system • Proper operation of the landfarm to ensure impacted soil is contained and managed within the landfarm
Closure			
• Site contouring	• Activities could disturb the terrain and potentially impact permafrost	Direction: Negative Extent: Local Duration: Medium Term Frequency: Once Magnitude: Low Probability: Moderate Significance: Insignificant	• Grading of the coarse PK piles and recontouring disturbed surfaces (berms, pads) to conditions that are similar to landforms in the surrounding undisturbed areas, to the extent possible • Restore drainage to connect with and not impede drainage in the surrounding areas
Summary			
• Potential impacts to terrain and geology, and underlying permafrost or bedrock are associated with the construction of a landfill and operation of a landfarm. Construction of the proposed non-hazardous waste landfill west of the tank farms and north of the main camp would newly disturb approximately 2.5 ha of rocky tundra, which includes a small ephemeral pond (EBA 2013). Provided that proper construction and maintenance activities are implemented, no significant impacts are expected. The landfill and landfarm are not expected to contribute to any cumulative effects on terrain and soils. It is expected that the site stabilization activities of the Project will have beneficial effects on the terrain onsite because grading of piles and other reclamation will return the surface disturbance to conditions that will be more consistent with the surrounding areas.			

Table 16 Assessment of Impacts on Soils

Project Activity	Potential Impact	Impact Rating	Mitigation
Site Preparation			
• Mobilization and transportation of equipment on winter road	• Spills of PHCs onto soil when refuelling and servicing equipment, potentially producing new areas of contaminated soil	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers • Clean up spill promptly, and remove and containerize contaminated waste for proper disposal • Transportation procedures will be in accordance with the *Transportation of Dangerous Goods Act* and regulations
• Camp operation including water use and waste water treatment	• Potential impact of a release or releases of untreated waste water on soil	Direction: Negative Extent: Local Duration: Short Term Frequency: Once Magnitude: Low Probability: Low Significance: Insignificant	• Follow best practices to ensure untreated waste water is not discharged before it is treated and meets applicable guidelines • If untreated waste water is discharged, remove soil impacted by untreated waste water and treat the soil in the landfarm area
Site Stabilization			
• Onsite construction of non-hazardous landfill	• Construction of the landfill will disturb an area of undisturbed soil and terrain west of the tank farms and may impact permafrost • Potential degradation of topsoil from admixing • Potential soil degradation by erosion and compaction under adverse conditions	Direction: Negative Extent: Local Duration: Short Term Frequency: Once Magnitude: Low Probability: High Significance: Insignificant	• Minimize disturbance and use existing disturbances where possible • Salvage and stockpile organics, plants and topsoil, where present, as one lift for later use during reclamation • Avoid stripping or handling topsoil during wet or very windy conditions
• Onsite incineration of liquid organic waste • Onsite handling and consolidation of hazardous waste	• Spills of PHCs onto soil when refuelling and servicing equipment • Possible impact to soil from a spill while removing, consolidating, transporting, or incinerating waste materials	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Use best practices and care to prevent spills when storing and handling liquid organic waste and hazardous wastes • Train all workers in proper handling of non-hazardous and hazardous wastes and impacted soil • Store fuel and hazardous material in easily accessible and bermed areas, which will provide containment and allow removal in case of a leak or spill • Inspect fuel and hazardous waste storage areas daily
• Excavation of impacted soils	• Removal of impacted soils from areas affected by historical spills of PHCs may impact non-impacted soil while removing and/or transporting contaminated soil to landfarm • Potential soil degradation by erosion and compaction	Direction: Neutral Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: High Significance: Insignificant	• Use best practices and care to prevent spills when excavating and handling impacted soils • Train all workers in proper handling of non-hazardous and hazardous wastes and impacted soil • Avoid stripping or handling topsoil during wet or very windy conditions • Re-contour disturbed areas to conditions that are consistent with the landforms in the surrounding undisturbed areas, to the extent possible
• Landfarm operation	• Soil and gravel underlying the landfarm area may be impacted during operation of the landfarm	Direction: Negative Extent: Local Duration: Medium Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Landfarm will use an existing berm area and a liner containment • Operation of the landfarm to ensure impacted soil material and leachate is contained and managed within the landfarm
• Offsite removal of hazardous waste and Tier 2 metal-impacted soil	• Possible impact to soil offsite from a spill while transporting hazardous waste and metal-impacted soil	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Have a spill contingency plan ready and available to all workers • Clean up spill promptly and remove and containerize waste materials for proper disposal • Transportation procedures will be in accordance with the *Transportation of Dangerous Goods Act* and regulations

Project Activity	Potential Impact	Impact Rating	Mitigation
Closure			
• Site contouring	• Potential soil degradation by wind or water erosion and compaction during contouring • Impact to soil from pooling of water in undesired areas	Direction: Negative Extent: Local Duration: Medium Term Frequency: Intermittent Magnitude: Low Probability: Moderate Significance: Insignificant	• Restore drainage to connect with and not impede drainage in the surrounding areas • Spread any available salvaged surface soil and foster natural revegetation • Avoid handling and spreading topsoil during wet or very windy conditions
• Demobilization and transportation of equipment on winter road	• Spills of PHCs onto soil when refuelling and servicing equipment, potentially producing new areas of contaminated soil	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Use the same winter road route used during the Project construction and operation phases • Have a spill contingency plan ready and available to all workers • Clean up spill promptly, and remove and containerize contaminated waste for proper disposal • Transportation procedures will be in accordance with the *Transportation of Dangerous Goods Act* and regulations
Summary			
• Mitigation measures presented above will help prevent and manage spills. Spills will be cleaned up promptly, and in the case of soils impacted by PHCs, remediated by land farming in the onsite landfarm. Other potential adverse effects may include soil degradation from compaction, erosion and/or admixing of topsoil and subsoil. The mitigation measures presented above will help prevent the occurrence of soil degradation. Impacts to soils are considered insignificant if mitigation measures are implemented.			

4.3.5 Vegetation

Table 17 Assessment of Impacts on Vegetation

Project Activity	Potential Impact	Impact Rating	Mitigation
Site Preparation and Camp Operations			
• Camp operation including water use and waste water treatment	• Potential impact to vegetation from water and waste water release	Direction: Neutral Extent: Local Duration: Medium term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• Contain water as close to release point as possible
Site Stabilization			
• Structure demolition and debris handling	• Dust from remediation activities could impact vegetation	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Low Probability: Medium Significance: Insignificant	• Development and implementation of a dust control BMP, such as using water for controlling dust and limiting remediation activities during high wind periods
• Onsite construction of non-hazardous landfill	• Physical disturbance to vegetation • Loss or alteration of vegetation cover will occur when constructing landfill	Direction: Negative Extent: Local Duration: Long Term Frequency: Intermittent Magnitude: Medium Probability: Medium Significance: Insignificant	• Use existing roads, pathways, and previously disturbed areas to the fullest extent possible • Ensure natural drainages are recreated to limit water ponding and foster natural revegetation • Limit creation of new disturbed areas while completing remediation • Use equipment with low pressure tires • Proper landfarm design and operation to ensure leachate will not impact the surrounding environment
• Landfarm operation	• Physical disturbance to vegetation		
• Onsite handling and consolidation of hazardous waste • Onsite incineration of liquid organic waste • Onsite burning of liquid organic waste	• Potential impact to vegetation from wastes while moving, transporting, burning, and incinerating waste materials	Direction: Negative Extent: Local Duration: Medium term Frequency: Intermittent Magnitude: Low Probability: Low Significance: Insignificant	• A spill contingency BMP will be developed and implemented, and be available onsite for all workers • Contain spill as close to release point as possible • Fuel and hazardous material will be stored in an easily accessible bermed area, which will act as a spill barrier • Allow for easy removal in case of a leak or spill • Hazardous waste and fuel storage areas (including drums) will be inspected daily • All workers will be trained in proper handling of non-hazardous and hazardous materials and contaminated soil • Hazardous materials and contaminated soil will be exposed for as short time as possible
Closure			
• Site contouring	• Loss or alteration of surrounding undisturbed vegetation cover can occur when completing site contouring activities	Direction: Negative Extent: Local Duration: Long Term Frequency: Once Magnitude: Low Probability: Medium Significance: Insignificant	• Use existing roads, pathways, and previously disturbed areas to the fullest extent possible • Ensure natural drainages are recreated to limit water ponding and foster natural revegetation • Land surface will be contoured in to match pre-disturbance conditions to the fullest extent possible but with the minimal equipment use to foster natural revegetation • Utilize stockpiled surface soil for revegetation • Use equipment with low pressure tires
Summary			
• Adverse potential impacts to vegetation are associated with the structure demolition and debris handling, construction of a landfill, operation of a landfarm, and site contouring. Provided that proper construction and maintenance activities are implemented, no significant impacts are expected. Overall, the removal of abandoned site infrastructure and remediation of contaminated soils from the Project will improve vegetation.			

4.3.6 Wildlife

Table 18 Assessment of Impacts on Wildlife

Project Activity	Potential Impact	Impact Rating	Mitigation
Site Preparation			
• Mobilization and transportation of equipment on winter road • Camp operation including water use and waste water treatment	• Human activity changing animal use patterns (i.e., avoidance) or animal movement patterns	Direction: Negative Extent: Regional Duration: Short Term Frequency: Continuous Magnitude: Low Probability: High Significance: Insignificant	• Suspend activities if large numbers (>100) of caribou are observed onsite • Suspend activities if cows are present during caribou calving and post-calving (late-April to August) • Maintain equipment in good working condition, turn equipment off when not in use, and use mufflers to reduce noise • Restrict wildlife access to contaminated areas • Bear safety training and associated deterrents will be provided, as will information on other wildlife encounters • Limit traffic speed and give wildlife the right-of-way on roads • Proper containment and disposal of waste, garbage, fuel, and hazardous materials • Storage areas will be inspected regularly and transportation procedures will be in accordance with the *Transportation of Dangerous Goods Act* • Implement spill prevention and response plans
	• Traffic collisions with wildlife • Indirect mortality from wildlife-human interactions • Interaction with camp waste and refuelling spills resulting in compromised health or animal mortality	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Negligible Probability: Low Significance: Insignificant	
Site Stabilization			
• Open Pit filling • PKCA • Structure demolition and debris handling • Onsite construction of non-hazardous landfill • Onsite handling and consolidation of hazardous waste • Excavation of impacted soils • Landfarm area operation • Offsite removal of hazardous waste and Tier 2 metal-impacted soil	• Human activity changing animal use patterns (i.e., avoidance) or animal movement patterns	Direction: Negative Extent: Regional Duration: Short Term Frequency: Continuous Magnitude: Low Probability: High Significance: Insignificant	• Suspend activities if large numbers (>100) of caribou are observed onsite • Suspend activities if cows are present during caribou calving and post-calving (late-April to August) • Maintain equipment in good working condition, turn equipment off when not in use, and use mufflers to reduce noise • Restrict wildlife access to contaminated areas • Bear safety training and associated deterrents will be provided, as will information on other wildlife encounters • Limit traffic speed and give wildlife the right-of-way on roads • Proper containment and disposal of waste, garbage, fuel, and hazardous materials • Storage areas will be inspected regularly and transportation procedures will be in accordance with the *Transportation of Dangerous Goods Act* • Implement spill prevention and response plans • Inspect infrastructure and associated areas for wildlife before initiating project activities; develop a site-specific plan in cooperation with government agencies if wildlife are present • Adhere to the *Migratory Birds Convention Act* and associated regulations
	• Traffic collisions with wildlife • Indirect mortality from wildlife-human interactions • Interaction with contaminants, hazardous materials, and refuelling spills resulting in compromised health or animal mortality • Direct mortality arising from demolishing structures, removing infrastructure, and excavating soils	Direction: Negative Extent: Local Duration: Short Term Frequency: Intermittent Magnitude: Negligible Probability: Low Significance: Insignificant	
Closure			
• Site contouring • Demobilization and transportation of equipment on winter road • Long-term monitoring	• Human activity changing animal use patterns (i.e., avoidance) or animal movement patterns	Direction: Negative Extent: Regional Duration: Short Term Frequency: Continuous Magnitude: Low Probability: High Significance: Insignificant	• Suspend activities if large numbers (>100) of caribou are observed onsite • Suspend activities if cows are present during caribou calving and post-calving (late-April to August) • Maintain equipment in good working condition, turn equipment off when not in use, and use mufflers to reduce noise • Bear safety training and associated deterrents will be provided, as will information on other wildlife encounters • Limit traffic speed and give wildlife the right-of-way on roads • Proper containment and disposal of waste, garbage, fuel, and hazardous materials • Storage areas will be inspected regularly and transportation procedures will be in accordance with the *Transportation of Dangerous Goods Act* • Implement spill prevention and response plans • Inspect infrastructure and associated areas for wildlife before initiating project activities; develop a site-specific plan in cooperation with government agencies if wildlife are present • Adhere to the *Migratory Birds Convention Act* and associated regulations
	• Traffic collisions with wildlife • Indirect mortality from wildlife-human interactions • Interaction with refuelling spills resulting in compromised health or animal mortality • Direct mortality arising from soil contouring actions	Direction: Negative Extent: Local Duration: Short-Term Frequency: Intermittent Magnitude: Negligible Probability: Low Significance: Insignificant	

Project Activity	Potential Impact	Impact Rating	Mitigation
• Site contouring	• Loss or alteration of vegetation cover can occur when completing site contouring activities	Direction: Neutral Extent: Local Duration: Long Term Frequency: Continuous Magnitude: Negligible Probability: Medium Significance: insignificant	• Use existing roads, pathways and previously disturbed areas to the fullest extent possible • Ensure natural drainages are recreated to limit water ponding and foster natural revegetation • Land surface will be contoured in to match pre-disturbance conditions to the fullest extent possible but with the minimal equipment use to foster natural revegetation • Use equipment with low pressure tires

Summary

Based on the baseline wildlife information (Section 3.5), Project activities outlined in the SSP have the potential to impact wildlife use, movement, health, and mortality. Table 12 summarizes potential impacts, impact ratings, and associated mitigations relevant to wildlife that could interact with the Project. Wildlife has the potential to be adversely effected by all four phases of the Project. Adverse effects could include changes to wildlife use, movement, health, and mortality. A summary of these issues and key mitigations aimed at protecting wildlife follows:

- Human activity will likely alter the spatial distribution of some wildlife species and could change movement between Contwoyto and Carat Lakes. There is evidence that human activity associated with mines has increased movement rates and displaced caribou in the Bathurst Caribou Herd (Boulanger et al. 2004, 2012). The degree to which caribou are displaced by human activity is related to the amount of traffic and surrounding habitat conditions (Wasser et al. 2011). Temporarily suspending activities if caribou cows are present during the calving and post-calving season (late-April to July) will decrease impacts to caribou.
- Nests and dens could be disturbed during remediation and closure activities. Infrastructure and associated areas will be checked for wildlife species before initiating project activities. If activities cannot be completed without harming animals, their nests, or dens, a wildlife biologist from Environment Canada (for migratory birds) or the Government of Nunavut (for species managed by the Territory) will be contacted for guidance or to request a permit authorizing the disturbance.
- Wildlife-human interactions could occur during Project activities, particularly at the camp and where waste materials are stored. Proper containment and disposal of waste/garbage, such as removal or incineration, and training workers in wildlife safety will reduce the probability of adverse wildlife encounters. Vehicle-wildlife interactions could also result in occasional wildlife mortalities. Activities will be suspended for caribou, traffic speed limited, and wildlife will be given the right-of-way by vehicles. With implementation of mitigation measures, encounters are expected to be infrequent and insignificant.
- Wildlife-contaminant interactions are possible and could impact wildlife health and mortality. Western Kitikmeot residents have prioritized managing contamination for caribou within the region (Dumond 2007b). Wildlife access to contaminated areas will be restricted, and spill prevention and response will be implemented during Project activities. All soil treatment will be completed during the summer of 2017 so wildlife-contaminant interactions are not expected following closure. With implementation of mitigation measures, adverse effects are expected to be local, short term, and insignificant.
- Overall, the removal of abandoned site infrastructure and remediation of contaminated soils will improve habitat quality and therefore have long-term benefits for wildlife. Remediation has the potential to negatively affect wildlife, but with mitigations, is expected to have a net benefit on wildlife in the Project area.

4.3.7 Culture

Historical Land Use

None of the 25 heritage sites identified during the Project EIS were determined to be of sufficient potential of significance to require avoidance by development (Tahera 2003a). It is not expected that remediation of the Project will contribute to further impact to cultural sites as most of the work will be completed within the existing footprint. The landfill will be located outside the existing footprint, but not located in areas of historical significance. If previously identified cultural features remain at the Project site, the locations will be identified and marked while remediation activities are taking place to ensure they are not further affected. If any new cultural features are discovered before or during the remediation, the location will be marked and the area avoided and the discovery will be reported to the Government of Nunavut. It is anticipated that effects to previously identified cultural features or the discovery of new cultural features can be appropriately mitigated and no adverse cumulative effects are expected.

Current Land Use

The Site Stabilization Project is in line with current draft land use planning and is consistent with the community values and priorities for the area (Nunavut Planning Commission 2016a; 2016c).

The site stabilization activities will improve the aesthetics of areas as buildings will be demolished (with the exception of the truck shop and process plant), water flow into the area of the open pit will be re-established, pads and borrow areas will be graded, and hazardous and non-hazardous waste will be disposed of or removed.

Traditional Use

The remediation activities will only affect traditional land use in the Project area during the project work. When finalized, a schedule will be provided to the Kitikmeot Hunters and Trappers Association and the Kitikmeot Inuit Association. The development of the winter road to mobilize and demobilize equipment to the site may also allow traditional users to access the area during the winters of 2017 and 2018, but will not provide permanent access. Positive residual impacts are expected with the remediation activities, which may increase opportunity for traditional land use activities.

Residual Impacts

The Project is not expected to result in any negative residual cultural impacts. The remediation will be short term and will likely provide positive benefits to land use and traditional use opportunities through improved aesthetics and clean up of equipment, and hazardous and non-hazardous waste.

4.3.8 Socio-economics

The Project will result in positive socio-economic benefits to the community of Kugluktuk. Employment and procurement opportunities will benefit local individuals and businesses, and related economic benefits will occur in the region. Employment opportunities could also provide additional socio-economic benefit of skill development, training, and work experience. Potential employment opportunities on the Project may include trades and labourers, equipment operators, environmental monitors, and camp staff.

Employment statistics indicate that there are skilled employees available in the local community and the region. Statistics also indicate that there is available workforce in Kugluktuk (Statistics Canada 2011). It is expected that a portion of the workforce will come from Kugluktuk or other local communities in the region. Employment opportunities from the Project will provide short-term positive impact to the community.

While a portion of the workforce will come from local communities, it is also expected that there will be a short-term temporary mobile workforce for positions where the skills are not available locally. The increase in temporary workers in the community will be mitigated by the use of an onsite camp, which will not have road access to the local communities. It is anticipated that most workers will mobilize directly from Yellowknife to site; however, any workers that do stay temporarily in the community of Kugluktuk will likely be accommodated by available hotel and motel accommodations. No impacts to the community of Kugluktuk are anticipated as it is expected that any demand on community infrastructure will be accommodated by existing capacity.

Residual Impacts

The Project is not expected to result in any negative residual socio-economic impacts. The remediation will contribute to short-term economic growth and employment, and will not exceed the existing capacity of the local community.

5 MONITORING PROGRAM RECOMMENDATIONS

Project monitoring has the following objectives:

- to confirm compliance with the site stabilization objectives
- determine accuracy of impact predictions
- measuring environmental conditions against triggers and thresholds that would initiate adaptive management and contingency plans

The Project will require both short-term and long-term monitoring. Below is a list of possible monitoring requirements:

- Annual geotechnical monitoring of remaining water and building infrastructure for the first 2 years then determination of long-term geotechnical monitoring.
- Monitor water quality (including uranium), thermal regimes, and stratification potential of the pit lake during the filling period.
- Monitor effect of runoff diversion to fill the pit lake on Carat Lake levels.
- Water quality monitoring in the coarse PK and the kimberlite piles should be continued at the east sump post-closure to establish trends.
- Monitor water quality and sediment loading during any instream work (i.e., causeway works).
- Field inspections of erosion and sediment control measures to ensure surface runoff is not contributing to sediment loading of watercourses and water bodies. Discharging water onto permafrost will lead to runoff into low points of the Project area (i.e., drainages and watercourses).
- Monitoring for signs of erosion near reclaimed lands where surface soil was replaced or till was graded during contouring.
- Soil sampling may be required to assess soil conditions if stressed vegetation is identified.

6 KNOWLEDGE DEFICIENCIES

Information on the environmental conditions at the site was collected during previous field studies. While this information is adequate for the scope of this work, there are some knowledge deficiencies with respect to remediation work in the arctic that are not specific to this Project.

- The thermal regime, water quality, and meromixis potential of the relatively deep pit lake requires further investigation, especially if it is to be used as fish habitat compensation.
- No information was encountered describing the pre-disturbance, site-specific terrain and soil conditions, which were not documented in the EIS or the supplemental reports. Limited information on soils in the area was interpreted from six borehole logs documented during the environmental site assessment (Tetra Tech EBA 2014). Other published reports and a broad scale regional map were reviewed to develop an understanding of the soils and the soil parent materials for the general area of the Project location.

- Western Kitikmeot residents have prioritized managing contamination for caribou within the region (Dumond 2007b). It is unclear to what extent soil and water contamination influence can vector into caribou, and if it can vector into caribou, how it does so.

- Migratory routes of caribou can change from year to year. It is unknown whether Bathurst caribou will use the area around the Project a lot, little, or none when the Project is scheduled in 2017. Therefore, it is difficult to assess the potential short-term impacts of the Project on caribou behaviour (and what that might mean for the population).

- Unclear to what extent revegetation will support wildlife in the future due to the slow establishment of vegetation in arctic climates.

7 PUBLIC CONCERNS

During public consultation for the Project, the local communities expressed an interest in employment, particularly by young residents (Tahera 2003a). General concerns for the Project area included protection of water and wildlife, particularly caribou (Tahera 2003a). During a community meeting held in Kugluktuk in August 2016, no major concerns with the SSP were raised. The community expressed interest in employment opportunities during the implementation of the SSP.

8 CONCLUSION

The mitigation strategies outlined for the remediation of the Project are predicted to result in no negative residual impacts. Overall the site stabilization of the Project will have a positive effect on the environment by restoring the site to an environmentally safe condition, preventing environmental migration of contaminants into the surrounding ecosystem, and removing some physical hazards for the protection of human health and safety. The Project will also have overall positive benefits to local economic growth, employment, land use, and traditional use opportunities through improved aesthetics from remediation.

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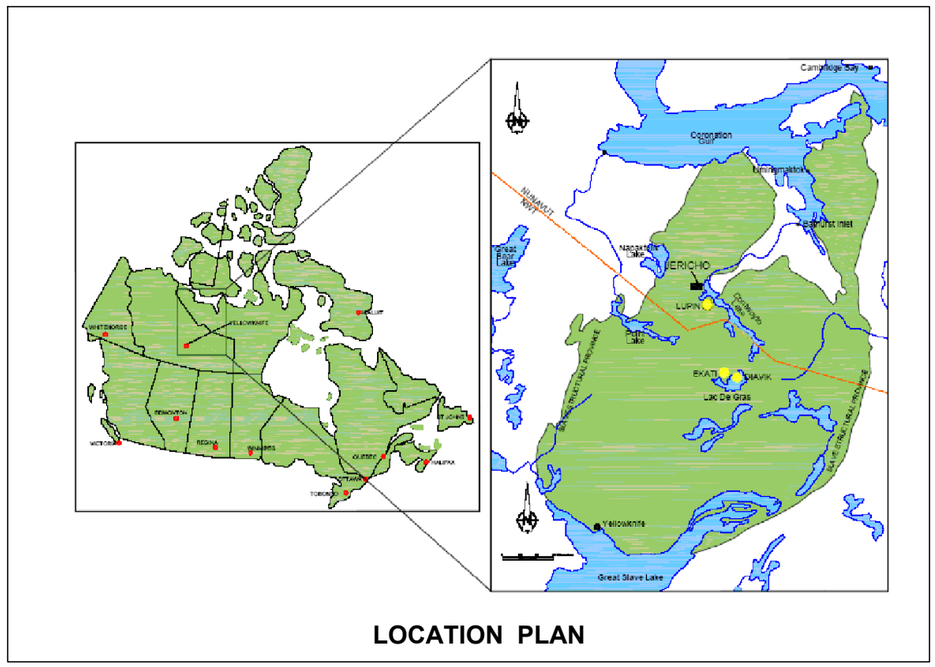
APPENDIX A
Figures Completed by Tetra Tech EBA



LOCATION PLAN

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NOTE:
BASE AIRPHOTOS PROVIDED BY
OLLERHEAD & ASSOCIATES LTD., AUGUST 2014

STATUS
ISSUED FOR USE

CLIENT

Aboriginal Affairs and Northern Development Canada

Closure Assessment
Jericho Diamond Mine, Nunavut

OVERALL SITE PLAN

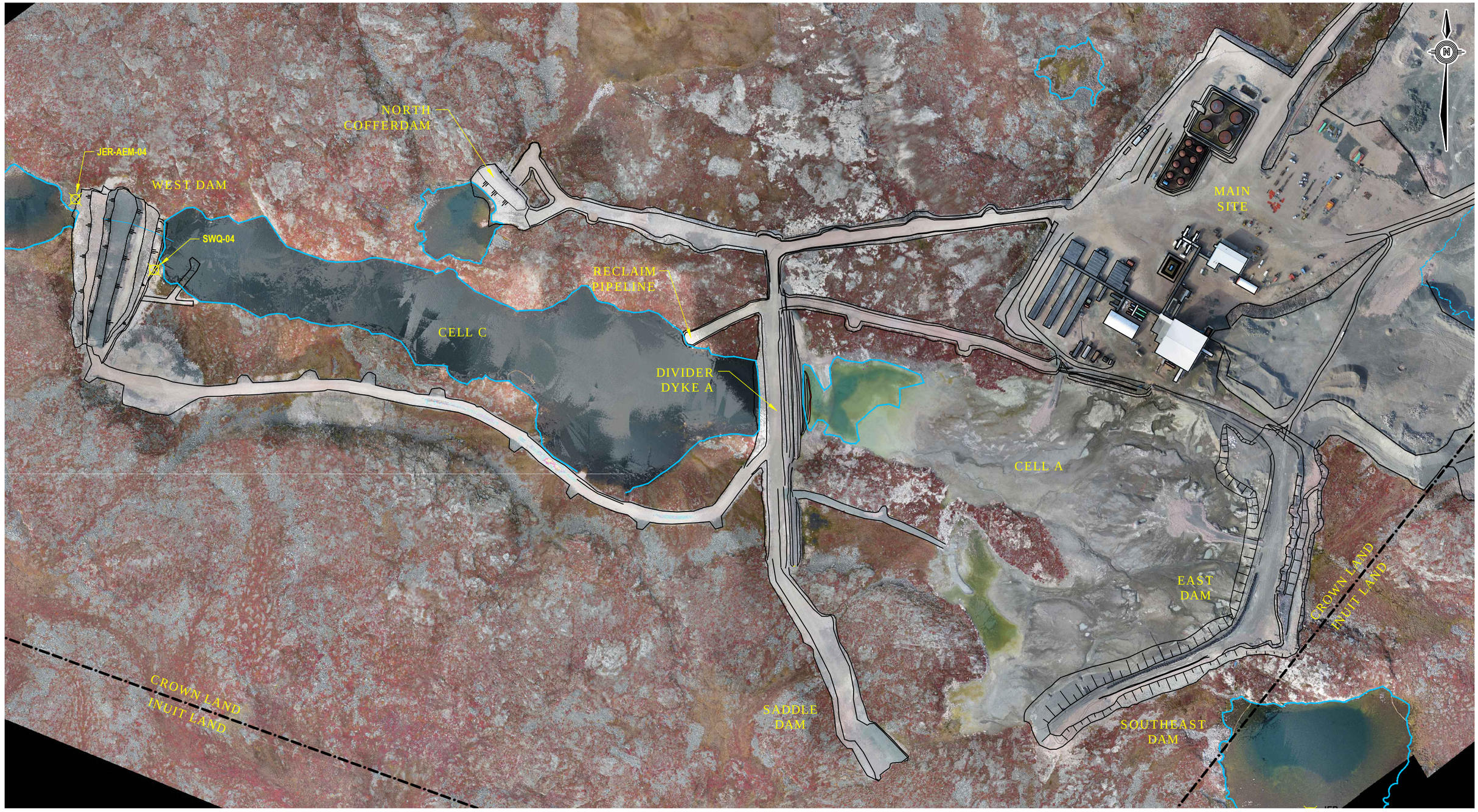
TETRA TECH EBA

PROJECT NO.	DWN	CKD	REV
E14103202	GDK/DBD	WTH	0

OFFICE: EDM

DATE: December 2014

Figure 1



LEGEND:

- JERICHO SURFACE SAMPLE LOCATION

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Scale: 1:4,000 @ 11"x17"

NOTE:
BASE AIRPHOTOS PROVIDED BY
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STATUS
ISSUED FOR USE

CLIENT

Aboriginal Affairs and Northern Development Canada

Closure Assessment
Jericho Diamond Mine, Nunavut

PROCESSED KIMBERLITE CONTAINMENT AREA

TETRA TECH EBA

PROJECT NO.	DWN	CKD	REV
E14103202	GDK/DBD	WTH	0

OFFICE	DATE
EDM	December 2014

Figure 2

LEGEND:

- JERICHO SURFACE SAMPLE LOCATION

0 100m

Scale: 1:2,500 @ 11"x17"

NOTE:
BASE AIRPHOTOS PROVIDED BY OLLERHEAD & ASSOCIATES LTD., AUGUST 2014

STATUS
ISSUED FOR USE

CLIENT

Aboriginal Affairs and Northern Development Canada

Closure Assessment
Jericho Diamond Mine, Nunavut

MAIN SITE AND COARSE PK PILE

TETRA TECH EBA

PROJECT NO.	DWN	CKD	REV
E14103202	GDK/DBD	WTH	0

OFFICE: EDM

DATE: December 2014

Figure 3

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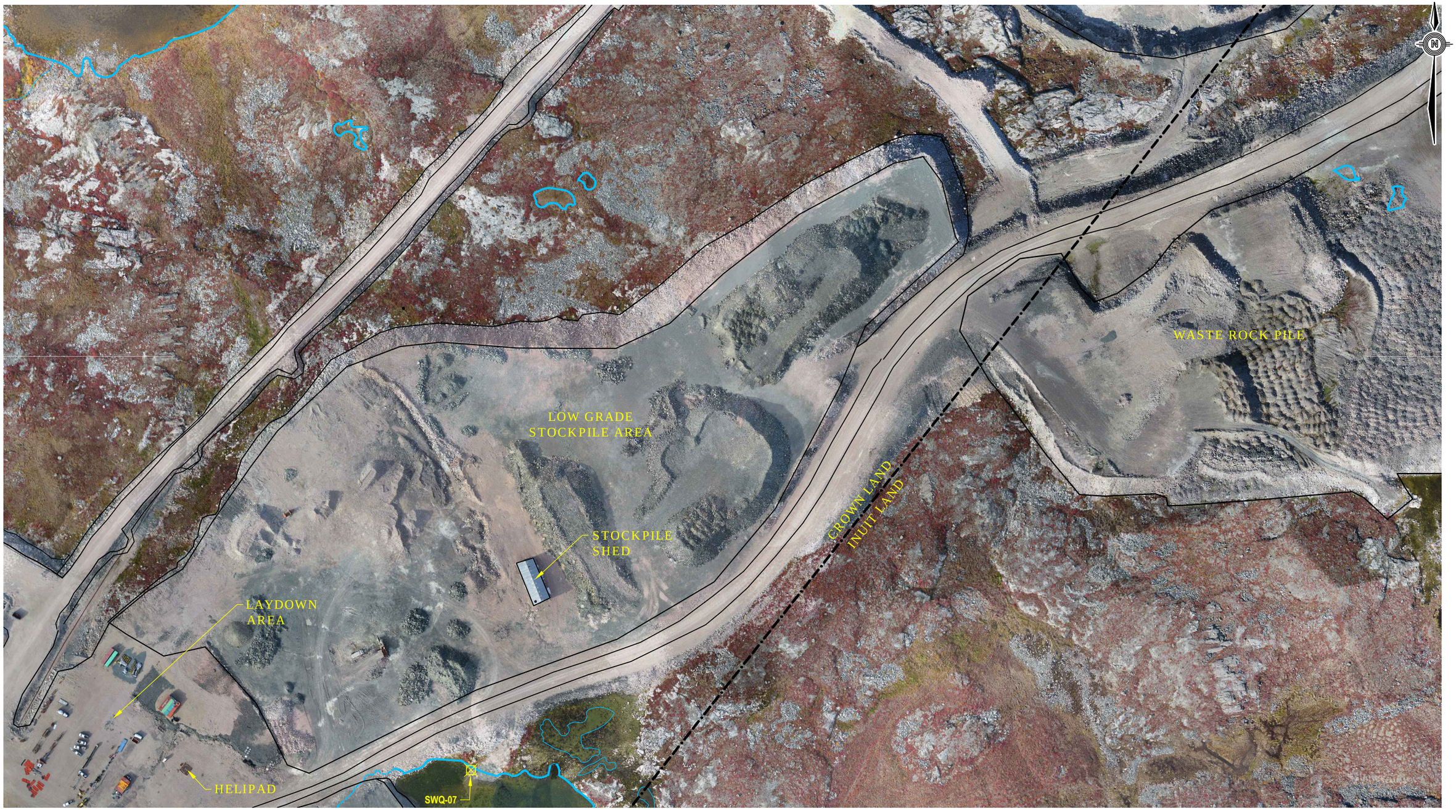

LEGEND:

- JERICHO SURFACE SAMPLE LOCATION

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Scale: 1:2,500 @ 11"x17"

NOTE:
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STATUS
ISSUED FOR USE

CLIENT

Aboriginal Affairs and Northern Development Canada

Closure Assessment
Jericho Diamond Mine, Nunavut

LOW GRADE STOCKPILE

TETRA TECH EBA

PROJECT NO.	DWN	CKD	REV
E14103202	GDK.DBD	WTH	0

OFFICE	DATE
EDM	December 2014

Figure 4

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LEGEND:

- JERICHO SURFACE SAMPLE LOCATION

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Scale: 1:5,000 @ 11"x17"

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STATUS
ISSUED FOR USE

CLIENT

Aboriginal Affairs and Northern Development Canada

Closure Assessment
Jericho Diamond Mine, Nunavut

PIT AND WASTE ROCK PILES

TETRA TECH EBA

PROJECT NO.	DWN	CKD	REV
E14103202	GDK/DBD	WTH	0

OFFICE: EDM

DATE: December 2014

Figure 5

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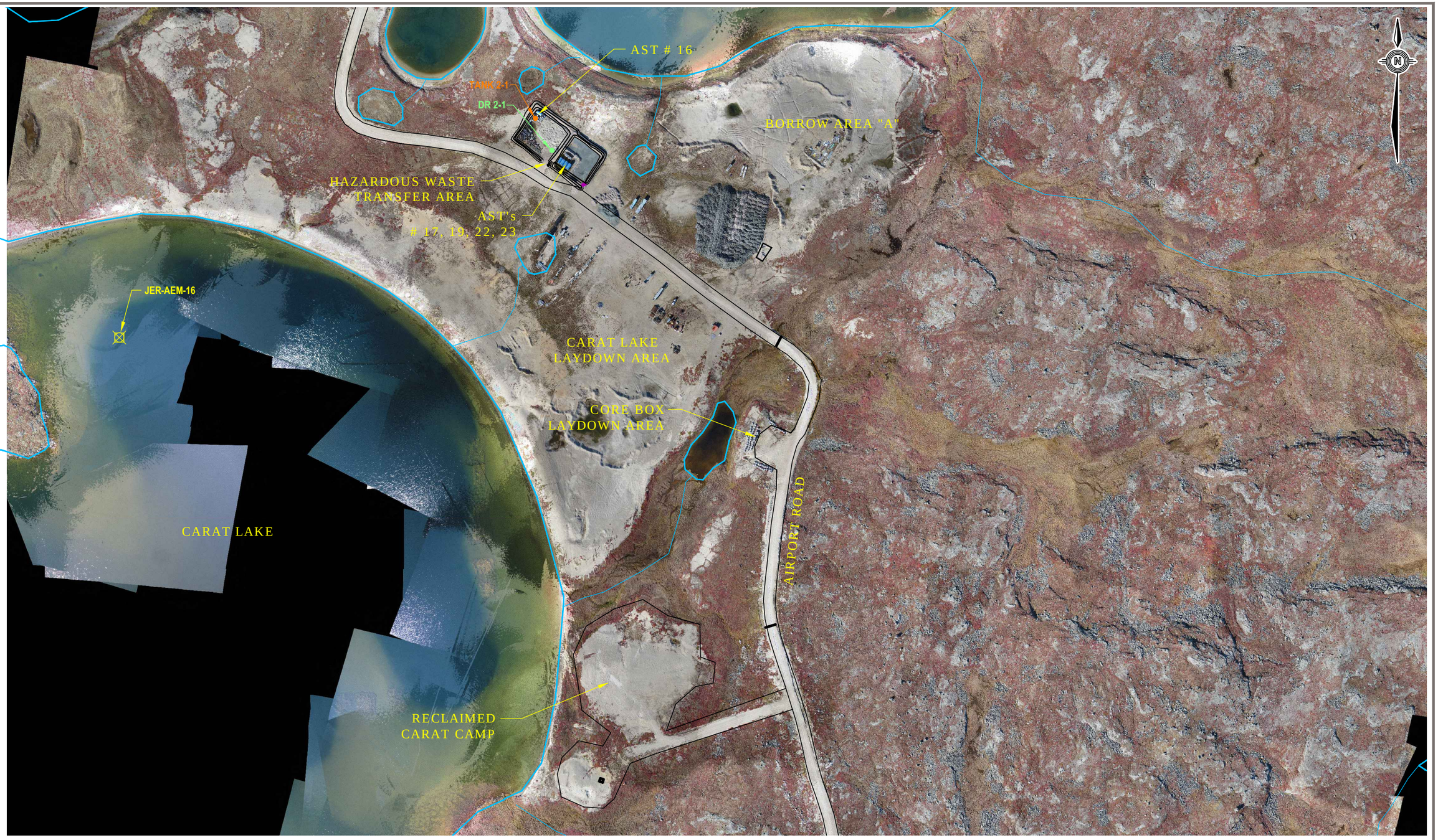

LEGEND:

- JERICHO SURFACE SAMPLE LOCATION
- AST CONTENT SAMPLE LOCATION
- DRUM CONTENT SAMPLE LOCATION

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Scale: 1:4,000 @ 11"x17"

NOTE:
BASE AIRPHOTOS PROVIDED BY
OLLERHEAD & ASSOCIATES LTD., AUGUST 2014

STATUS
ISSUED FOR USE

CLIENT

Aboriginal Affairs and Northern Development Canada

Closure Assessment
Jericho Diamond Mine, Nunavut

CARAT LAKE INFRASTRUCTURE

TETRA TECH EBA

PROJECT NO.	DWN	CKD	REV
E14103202	GDK/DBD	WTH	0

OFFICE: EDM

DATE: December 2014

Figure 6

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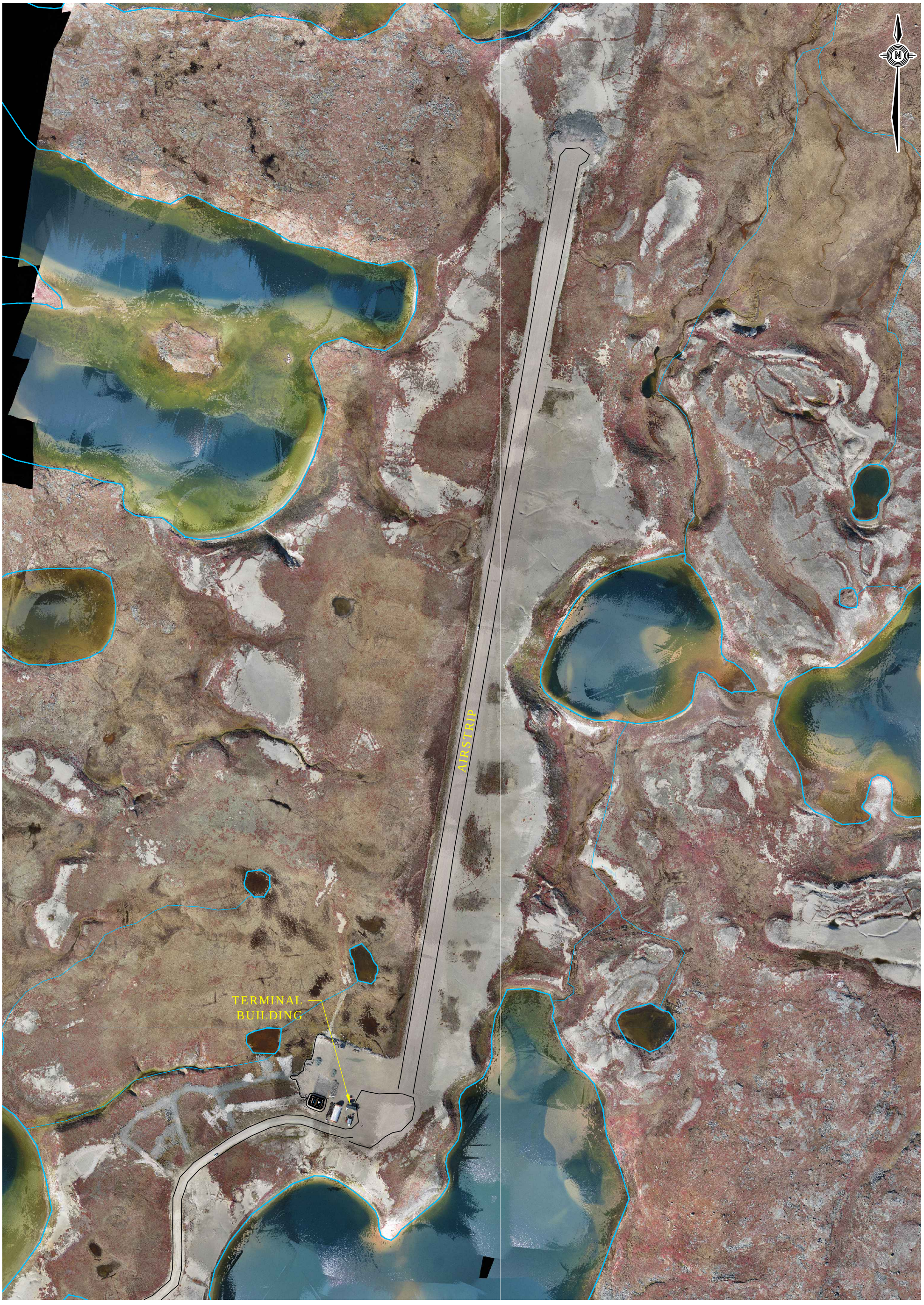

NOTE:
BASE AIRPHOTOS PROVIDED BY
OLLERHEAD & ASSOCIATES LTD., AUGUST 2014

0 250m
Scale: 1:5,000 @ 11"x17"

STATUS
ISSUED FOR USE

CLIENT
Aboriginal Affairs and Northern Development Canada

TETRA TECH EBA

Closure Assessment
Jericho Diamond Mine, Nunavut

AIRSTRIP AREA

PROJECT NO.	DWN	CKD	REV
E14103202	DBD	WTH	0

OFFICE	DATE
EDM	December, 2014

Figure 7

APPENDIX B
Nunavut Impact Review Board Project-specific Information Requirement Forms

THE NUNAVUT IMPACT REVIEW BOARD
PROJECT SPECIFIC INFORMATION REQUIREMENT - PART 2 FORM

TABLE 1 - IDENTIFICATION OF ENVIRONMENTAL IMPACTS

		ENVIRONMENTAL COMPONENTS	PHYSICAL	designated environmental areas (ie. Parks, Wildlife Protected areas)	ground stability	permafrost	hydrology/ limnology	water quality	climate conditions	eskers and other unique or fragile landscapes	surface and bedrock geology	sediment and soil quality	tidal processes and bathymetry	air quality	noise levels	other VEC:	other VEC:	other VEC:	BIOLOGICAL	vegetation	wildlife, including habitat and migration patterns	birds, including habitat and migration patterns	aquatic species, incl. habitat and migration/spawning	wildlife protected areas	other VEC:	other VEC:	other VEC:	SOCIO-ECONOMIC	archaeological and cultural historic sites	employment	community wellness	community infrastructure	human health	other VSEC: aesthetics
	PROJECT COMPONENTS/ACTIVITIES																																	
CONSTRUCTION	Winter road construction, mobilization, transportation of equipment						M				M	M		M							M	M	M							P	P	P		
OPERATION	Camp Operation Including Water Use, Waste Water Treatment, Waste Incineration						M					M		M						M	M	M	M							P	P			
DECOMMISSIONING	Open Pit Infilling and Stabilization				M		M	M				M										M	M	P							P				P
	Processed Kimberlite Containment Area Management				P		P	P				P										M	M	M							P				P
	Structure Demolition and Debris Handling				M		M					M		M						M		M	M	M							P				P
	Onsite Construction of Non-hazardous Landfill				M		M					M		M						M		M	M	M							P				M
	Onsite Incineration of Liquid Organic Waste						P	P				M		M						P		P	P	P							P				P
	Onsite Handling and Consolidation of Hazardous Waste						M	P				M								M		M	M	M							P				P
	Excavation of Impacted soils						M	P				M										M	M	M							P				
	Landfarm Area Operation				M		M					M		M						M		M	M								P				
	Offsite Removal of Hazardous Waste and Tier 2 Metal Impacted Soil						P	P				M		M								P	P	P							P				P
	Site Contouring				M		P					M		M						M		M	M	M							P				P
	Demobilization, Transportation of Equipment on Winter Road						M					M		M								M	M	M									P		
	Long-term Monitoring						M	M														M	M	M							P				

Notes: Please indicate in the matrix cells whether the interaction causes an impact and whether the impact is:

P *Positive*
N *Negative and non-mitigatable*
M *Negative and mitigatable*
U *Unknown*
If no impact is expected then please leave the cell blank

THE NUNAVUT IMPACT REVIEW BOARD
SCREENING PART 2 FORMS

TABLE 2 - MITIGATION AND MONITORING

	PROPOSED MITIGATION MEASURE	IMPLEMENTATION SCHEDULE	RESIDUAL IMPACTS	PROPOSED MONITORING SCHEDULE	REPORTING SCHEDULE
IMPACTS (IDENTIFIED IN TABLE 1)					
Winter Construction, Mobilization, Transportation of Equipment	Proper use of equipment; meeting regulatory and transportation standards	March 2017	none	March 2017	March 31, 2018
Camp Operation Including Water Use, Waste Water Treatment, Waste Incineration	Training of staff in proper use of equipment	May - October 2017	none	Ongoing May to October 2017 for the duration of the stabilization project	March 31, 2018
Open Pit Filling	Development and implementation best management practices	May 2017 and until pit meets desired water elevation	none	Ongoing May to October 2017 during stabilization project and then as required until the pit is filled with water	March 2018 and then as required based on monitoring schedule
Processed Kimberlite Containment Area Management	Development and implementation best management practices	May - October 2017	none	Ongoing May to October 2017 during stabilization project and then as required until the PKCA is stable	March 2018 and then as required based on monitoring schedule
Structure Demolition and Debris Handling	Proper use of equipment meeting regulatory standards	May - October 2017	none	Ongoing May to October 2017	March 31, 2018
Onsite Construction of Non-hazardous Landfill	Proper design, construction and implementation best management practices	May 2017	none	Ongoing May to October 2017 during stabilization project and then as required	March 31, 2018 and then as required based on monitoring schedule
Onsite Incineration of Liquid Organic Waste	Proper identification of liquids; training of staff in proper use of equipment	May - October 2017	none	Ongoing May to October 2017	March 31, 2018
Onsite Handling and Consolidation of Hazardous Waste	Hazardous waste and fuel storage areas (including drums) will be inspected daily; proper training of staff; implementation of best management practices	May - October 2017	none	Ongoing May to October 2017	March 31, 2018
Excavation of Impacted soils	Impacted soil will be exposed for as short time as possible; sedimentation control measures in place; monitoring of exposed soil; timely recontouring of exposed areas	May - July 2017	none	Ongoing May to October 2017	March 31, 2018
Landfarm Area Operation	Training of staff in proper use of equipment and materials	May - October 2017	none	Ongoing May to October 2017	March 31, 2018
Offsite Removal of Hazardous Waste and Tier 2 Metal Impacted Soil	Training of staff in proper packaging of hazardous materials, use of equipment and following TDG regulations	March 2018	none	March 2018	March 31, 2018
Site Contouring	Installing erosion and sediment control measures around sensitive areas; proper of equipment; minimizing exposed soils	May - October 2017	none	Ongoing May to October 2017	March 31, 2018
Demobilization, Transportation of Equipment on Winter Road	Proper use of equipment meeting regulatory and transportation standards	March 2018	none	March 2018	March 31, 2018
Long-term Monitoring	Best management practises for accessing long term monitoring sites	TBD at the end of the SSP program	none	TBD at the end of the SSP program	TBD at the end of the SSP program

Note: Residual impacts refers to those impacts that remain after mitigation has been implemented.

APPENDIX 6

AMEC WINTER ROAD WATER WITHDRAWAL ESTIMATE

4 August 2004
VE51295

Tahera Diamond Corporation
Suite 803, 181 Richmond Street West
Toronto, Ontario M5H 2K1

Attention: Mr. Greg Missal, VP Nunavut Affairs

Re: Environmental Impacts From Winter Road Water Withdrawal

Dear Greg,

Pursuant to a request from Nunavut Water Board (20 July 2004 Guidelines for Applicant, Tahera Corporation Limited – Jericho Diamond Project) Section 4.1.e.iii which states:

1. Impacts to water

a. Provide additional information on the sources, volumes, timing, and duration of water pumping and the associated impacts to water including lake drawdown, drainage changes, monitoring and mitigation, and thresholds to implement mitigation, and/or cessation of water use;

2. Contingency measures for spills

Water Withdrawal

AMEC Earth & Environmental contacted the proposed road contractor, Nuna Logistics, for an estimate of the amount of water that will be withdrawn each winter season when the winter road from Contwoyto Lake to the Jericho site is built. The road will take off from the bay in Contwoyto Lake, follow up Lynne Creek to Lynne Lake, across Lynne Lake and overland again from the end of Lynne Lake to Jericho. Map A from the Jericho Final EIS shows the approximate route and is attached for reference. As you are aware, some details of the mine general arrangement have changed resulting in a shorter Lynne Lake – Jericho segment than shown on Map A principally due to the arrangement of minesite all weather roads. AMEC understands that the final alignment will be field fit, but that physical constraints fairly tightly restrict where the winter road can be placed. AMEC also understands that an identical winter road was constructed for the bulk sample obtained in 1997.

A summary of AMEC's finding is that there will be no measurable effects on either Contwoyto or Lynne Lake water levels from winter road construction. The reasoning behind this conclusion is detailed below.

Nuna Logistics informed AMEC that a total of 5700 m^3 of water would be required to construct and improve the road surface on land portions of the route. Land portions of the route are from Contwoyto Lake to Lynne Lake west shore and from Lynne Lake east shore to the mine site. Most of the water will be required to make snow for the portion of the road up Lynne Creek as the upper segment is in an open swale where snow naturally accumulates. The land segments are the following lengths:

AMEC Earth & Environmental
2227 Douglas Road, Burnaby, BC
Canada V5C 5A9
Tel +1 (604) 294-3811
Fax +1 (604) 294-4664
www.amec.com

Contwoyto Lake to Lynne Lake	1,050 m
Lynne Lake to the minesite roads	750 m

The volume of Contwoyto Lake was not measured but will be tens of millions of cubic metres. The volume of Lynne Lake, based on an unpublished bathymetric survey conducted by Canamera in1996 using a recording echosounder with one metre resolution and a differential GPS is 1,070,000 m^3. Assuming half the water required comes from Contwoyto Lake (conservative since the first segment of the road will require the majority of the water to make snow), results in an estimated 2850 m^3 being required from Contwoyto Lake and an equal amount from Lynne Lake. The effect of this much water withdrawal on Contwoyto Lake would be miniscule. An estimated 0.27% of the volume of Lynne Lake would be withdrawn. From this it can be readily determined that no measurable effects on lake levels would result from water withdrawal for winter road use.

Spill Contingency
Spill response is covered in the Spill and Emergency Response Plan provided as part of the application for the Water Licence (which see).

I trust this information meets your immediate requirements. Please contact me if you have any questions or require additional information.

Yours truly,

Bruce Ott
Senior Environmental Scientist
Direct Tel.: 604-473-5315
E-mail: bruce.ott@amec.com

/bso

476000 mE
478000 mE
480000 mE
7323000 mN
7321000 mN
7319000 mN

Jericho Project
Site Arrangement

Approved By:	**MAP A**
Date:24/6/2000	
Drafted By: M.J.	TAHERA CORPORATION
Scale: 1:10,000	Projection: UTM Zone 12 (NAD 27 for Canada)

0 125 250 500
METRES

CORE AREA CONTOUR LINES REPRESENT 1m
OUTLYING CONTOUR LINES REPRESENT 10m

N
W E
S

CARAT LAKE
LAKE C3
LONG LAKE
KEY LAKE
LYNNE LAKE
CONTWOYTO LAKE
C1
C2
C4

EXTENTION
EXISTING AIRSTRIP
BORROW AREA D
EXISTING BORROW AREA C
EXISTING AIRSTRIP TERMINAL BUILDING
EXISTING AIRSTRIP LAYDOWN
EXISTING TANK FARM
EXISTING BORROW AREA A
EXISTING LAYDOWN AREA
EXISTING AIRSTRIP ROAD
EXISTING CARAT CAMP
CROWN LAND
INUIT SURFACE RIGHTS
OUTFLOW DIFFUSER (OPTIONAL)
INDUSTRIAL LANDFILL
SEDIMENT BERM
WATER INTAKE
SEDIMENT CONTROL POND
CAUSEWAY
PUMP HOUSE
AIRSTRIP ROAD
WASTE DUMP SITE 1 6.9 MT
ENERGY DISSIPATION POND
PIT SEDIMENT COLLECTION POND
CONTWOYTO LAKE ROAD
EXPLOSIVES MAGAZINE
AMMONIUM NITRATE STORAGE
WINTER ACCESS ROAD
C1 DIVERSION
C1 DIKE
OVERBURDEN STOCKPILE 1.6MT
PIT
WATER PIPELINE
SEDIMENT COLLECTION POND
EXPLOSIVES TRUCK WASH
SEDIMENT COLLECTION POND
PIT CAMP ROAD
WATER MANAGEMENT DITCH
WINTER ACCESS ROAD (CONSTRUCTION)
FUEL FARM
POWER STATION
POLISHING POND
PKCA ROAD
CENTRAL LOBE ORE STOCKPILE 500,000T
MINING LAYDOWN
MINING SHOP
PROCESSING PLANT
LOW GRADE STOCKPILE 1.7MT
WASTE DUMP SITE 2 6.0 MT
ACCOMMODATION
NORTHERN LOBE STOCKPILE 500,000T
COARSE PK STOCKPILE 2.2MT
SEDIMENT BERMS AND COLLECTION PONDS
PK CELL 2
PROCESSING LAYDOWN
RECOVERY PK
PK CELL 1
BERM AND COLLECTION POND (PUMPED TO PKCA)
LONG LAKE PKCA

APPENDIX 7

INAC LAND USE PERMIT APPLICATION

APPLICATION FOR LAND USE PERMIT

***Privacy Act* Statement**
The information you provide in this document is collected under the authority of the *Territorial Land Use Regulations* for the purpose of responding to your application for land use permit. Information on individuals is used by Aboriginal Affairs and Northern Development Canada Land Administration employees who need to know the information in order to respond to your request and/or the program requirements. We share the information you give us with First Nations, Aboriginal groups and Inuit, Territorial and Federal Government Expert Agencies and Public Government Institutions. The personal information will be retained 6 years after the last administrative use and then destroyed. Individuals have the right to the protection of and access to their personal information under the *Privacy Act* http://lois.justice.gc.ca/en/P-21/index.html.

For Office Use Only

Application Fee	Land Use Fee	General Receipt No.	Date (YYYYMMDD)	Class	Permit Number

To be completed by all applicants ▶ ● New Application ○ Amendment

1. Applicant's Name and Mailing Address (Full name, no initials)	Facsimile Number
Mark Yetman, Senior Project Officer Indigenous and Northern Affairs Canada	819 934-9229
	Telephone Number 819 934-1188
2. Head Office Address 10th Floor, 25 Eddy Street Gatineau, QC	Facsimile Number
	Telephone Number

Field Supervisor	Radio Telephone	E-Mail Address	Telephone Number

3. Other Personnel (Subcontractor, Contractors, Company Staff, etc.)

Not know until project is tendered and successful bidder is hired.

Total ▶

4. Qualifications
Refer to Section 21 of the *Territorial Land Use Regulations*
a(i) ☐ a(ii) ☐ a(iii) ☐ b ☐ c ☑

Number(s) exploration permit mineral claims (If applicable)
N/A

5. a) Summary of Operation (Describe purpose, nature and location of all activities.)
Refer to Section 22(2)(b) of the *Territorial Land Use Regulations* (Use last page of form if necessary.)

A general overview of the project can be found in the NIRB plain language summary in Appendix 1 while further details on the proposed site stabilization activities for the this project can be found the the Terms of Reference in Appendix 4. In addition to the site stabilization work, an extension of the JV Winter Road will have to be built. (continued on last page).

b) Please indicate if a camp is to be set up (Use last page to provide details.)

It's assumed that existing Jericho Mine camp infrastructure will be used for the site stabilization activities. (continued on last page)

6. Summary of potential environmental and resource impacts
(Describe the effects of the proposed program on land, water, flora and fauna and related socio-economic areas.)
(Use separate pages if necessary.)

The project is not expected to have any negative impacts on land, water, flora and fauna. Please see attached Environmental Screening Report for the proposed Jericho Mine Site Stabilization activities in Appendix 10.

7. Proposed Restoration Plans (Please use last page if required.)

The proposed Site Stabilization Plan will:

- stabilize the site to prevent water accumulation
- restore the site to an environmentally safe condition and
- prevent environmental migration of contaminants into the surrounding ecosystem

(Please see Appendix 4 for details on the proposed site stabilization activities.)

8. Other rights, licences or permits related to this permit application (Mineral claims, Yukon timber permits, water licences, etc.) (Please use last page if required.)

Active:

- Tibbit to Contwoyto Joint Venture Winter Road Group - Right to Use and Occupy Crown Land Permit
Land Permit 75 M/11-1 (Appendix 5). Expiry 2033.

(continued on last page)

Roads ▶ ○ Is this to be a pioneered road? ● Has the route been laid out or ground truthed?

9. Proposed Disposal Methods (Please use last page if required.)

a) Garbage	b) Sewage (Sanitary and Grey Water)
non-hazardous incinerated onsite	Waste Water Treatment Plant (see appendix 14)
c) Brush and Trees	**d) Overburden (Organic soils, waste material, etc.)**
N/A	N/A

10. Equipment (Includes drills, pumps, etc.) (Please use last page if required.)

Type and Number	Size	Proposed Use
• Drum crusher		site stabilization activities
• 3 x excavators		site stabilization activities
• 6 x Rock trucks		site stabilization activities
• 2 x bulldozer		site stabilization activities
• Compactor		site stabilization activities
• Water pump (s)		site stabilization activities
11. Fuels	Number of Containers	Capacity of Containers
☑ Diesel	300,000 L	stored in large tanks
☑ Gasoline	25	205L drums
☐ Aviation Fuel	N/A	N/A
☑ Propane	16	45kg tanks
☐ Other: _____		

12. Containment Fuel Spill Contingency Plans (Please attach separate contingency plan if necessary.)
Please see attached fuel contingency plan in appendix 13

13. Methods of Fuel Transfer (To other tanks, vehicles, etc.)
Please see attached fuel contingency plan in appendix 13

14. Period of Operation (Includes time to cover all phases of project work applied for, including restoration.)

- February/March 2017: JV winter road extension Ekati to Jericho
- March 2017: Mobilization of materials and equipment to Jericho Site
- May-October 2017: Site Stabilization activities
- February/March 2018: JV winter road extension Ekati to Jericho
- March 2018: Demobilization of materials and equipment

15. Period of Permit (Up to two years, with maximum of one year extension.)	Start Date (YYYYMMDD)	Completion Date (YYYYMMDD)
	2017-01-01	2019-01-01

16. Location of activities by map co-ordinates (Attach maps and sketches.)

	Degrees	Minutes	Seconds		Degrees	Minutes	Seconds
Minimum Latitude ▶	65	58	59.92 N	Minimum Longitude ▶	111	25	57.53 W
Maximum Latitude ▶	66	02	00.81 N	Maximum Longitude ▶	111	32	01.93 W

Map Sheet Number
076L04; 076E13, 076L03; 076E14

17. Applicant (Print Full Name)	Signature	Date (YYYYMMDD)
Mark Yetman	Mark Yetman	2016-09-09

18. Fees

○ Class **A** - $150.00 ○ Class **B** - $150.00 ▶		$150.00
Land Use Fees: Less than or equal to 2 hectares ▶	$50.00	$ 50.00
For each additional hectare over 2 hectares or portion of a hectare ▶	X $50.00 =	
Total application and land use fees ▶		

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19. Calculation of area involved (Includes access, staging areas, airstrips, campsites, etc.)

Total Area (Ha)	Less than or equal to 2 hectares	Total (For Fee Calculation)

20. Application Checklist

- ☐ a) Application Signed and Dated
- ☐ b) Fees Attached
- ☐ c) Map Included
- ☐ d) Address and Telephone Number
- ☐ e) Screening Report
- ☐ f) Timber Permit Applied for - Yukon
- ☐ g) Fees Attached
- ☐ h) Lease Applied for

Remarks (Please use last page if additional space is required.)

Accepted by	Date (YYYYMMDD)

21. Additional Information (Attach additional pages if necessary.)

5 a) The supply of equipment to the Jericho Mine to support the site stabilization activities, as well as the transport of equipment and materials out of the site, will take place through the use of the JV Winter road. Currently a "Right to Use and Occupy Crown Land Permit" (appendix 5) exists for the portion of the JV Winter that extends to the Lupin Mine, which is approximately 40 km by winter road from Jericho. Although a permit exists for this road to Lupin Mine, the current plan for JV Winter Road construction has it only being built to the Ekati Mine. As such, the Jericho Site Stabilization Project would be responsible for the construction of the road from Ekati to Jericho and as such seeks approval through a Crown Land Use Permit as well as its Access to Inuit Owned Lands Permit (Appendix 6) for the Lupin to Jericho section of this road.

For your reference and consideration, Appendix 7 contains driving maps for the JV Winter Road to Lupin, Appendix 8 a map showing the proposed route from Lupin to Jericho, and Appendix 9 a past AMEC report detailing proposed water withdrawal for the construction of the road.

5 b) The camp would house a maximum of 50 workers and would be operational predominately during the 2017 field season (may to October). As per our application to the Nunavut Water Board, water withdrawal from Carat Lake would not exceed 10m3 per day during operations.

8) Applications Submitted:
- Nunavut Water Board Water Licence (Appendix 11)
- Kitikmeot Inuit Association (KitIA) Access to Inuit Owned Lands Permit (Appendix 6)
- Nunavut Planning Commission Conformity Review
- Nunavut Impact Review Board- Part 1 and 2 (Appendix 12)

10)
- Incinerator (site stabilization activities)
- Generator(s) (site stabilization activities)
- Loader (site stabilization activities)
- trucks for transportation on site (site stabilization activities)
- ATVs (site stabilization activities)
- aqueous liquid waste treatment system to treat aqueous liquids for onsite disposal
- water truck to haul water to camp, if required, or for dust suppression
- Other equipment as deemed appropriate by the contractor

APPENDIX 8

KITIKMEOT INUIT ASSOCIATION ACCESS TO INUIT OWNED LAND PERMIT APPLICATION

Kitikmeot Inuit Association
Kitikmeot Inuit Katuyikatigit
ᑭᐱᑎᒃᒪᑦ ᐃᓄᐃᑦ ᑲᑐᔾᔨᖏᑦ

KITIKMEOT INUIT ASSOCIATION
LANDS DIVISION
APPLICATION FOR ACCESS TO INUIT OWNED LAND

Office use only

Category	Application No:	Accepted By:	Date Accepted:

To be completed by all applicants

1. Applicant's name and mailing address (Full name, no initials or abbreviations)

Mark Yetman
Indigenous and Northern Affairs Canada
10th Floor, 15 Eddy Street
Gatineau, QC
K1A 0H4

Fax no. 819-934-9229

Telephone no. 819-934-1188

2. Head Office address

Same as above

Fax no.

Telephone no.

3. Field supervisor and address if different from above

Telephone no.

4. Other personnel list (Subcontractors or contractors to be used)

Project will be going to tender in August. Details of who the winning bidder is will not be available until after the process is completed. Details around sub-contractors will follow after.

Total no. of personnel: 50 (max) No. of person days: 9000 days (max)

5. Location of activities by map coordinates. Attach **ORIGINAL** maps and sketches.

MAX Lat Min 02 '	MIN Lat Deg 65 °	MIN Lat Min 58 '	MAX Lat Deg 66 °
MAX Long Min 32 '	MIN Long Deg 111 °	MIN Long Min 25 '	MAX Long Deg 111 °

Map Sheet No: Please see appendix 1 Inuit Land Parcel No:

Coordinate of camp (if applicable) Lat. 65 ° 59 ' 26.25 " N Long. 111 ° 30 ' 08.99 " W

6. Periods of operation including periods of seasonal shut down and periods for restoration.

This application is for permission to build a winter access road across IOL as well as for permission to use existing roads on the Jericho Mine Site which cross IOL. The winter road would be used in February/March 2017 and 2018, and the existing Jericho Mine roads from May-October 2017.

7. Period of access required (up to one or two years for licenses, depending on license level, up to five years for residential/recreational leases and level I and II commercial leases, and up to forty years for level III commercial leases)	Start date	Completion Date
	01 01 2017	01 01 2019

8. Other rights, licenses, permits or leases related to this application. Provide proof of rights or indicate if in the process of applying for rights.

- ☐ NTI Subsurface Right
- ☐ DIAND Subsurface Right
- ☒ NWB Water License
- ☐ NRI Research License
- ☐ RWED Tourism License
- ☐ Explosives Permit
- ☐ CWS Permit
- ☒ Other – Please Specify

INAC Land Use Permit

9. TYPE OF LAND USE ACTIVITY

Check off the appropriate land use activities.

Mining/Oil & Gas
- ☐ staking and prospecting
- ☐ exploration (geophys-grd/air)
- ☐ drilling (diamond/ice, etc.)
- ☐ bulk sampling
- ☐ mine (open pit, undergrd, etc.)
- ☐ bulk fuel storage
- ☐ other: _____

Construction:
- ☐ camp
- ☐ building
- ☒ winter road
- ☐ all-season road
- ☐ quarrying
- ☒ other: use of existing all-season road

Tourism:
- ☐ tourism facility
- ☐ outfitting
- ☐ other: _____

Municipality:
- ☐ bulk storage of fuel
- ☐ residential building
- ☐ commercial building
- ☐ other: _____

Research:
- ☐ wildlife/fish/birds/marine
- ☐ survey (grd/aerial/collars)
- ☐ collection of species
- ☐ research station
- ☐ other: _____

Other:
- ☐ commercial harvest
- ☐ recreational camp
- ☐ _____
- ☐ _____

10. TYPE OF WATER USE

Check off the kind of project for which water will be used and the type of water use.

Undertaking
- ☐ Advanced Exploration
- ☐ Exploration Drilling
- ☐ Industrial
- ☐ Mine Development
- ☐ Power
- ☐ Remote/Tourism
- ☐ Other: _____

Water Use:
- ☐ To obtain water
- ☐ To modify the bed or bank of water course
- ☐ To Alter the flow of, or store water
- ☐ To cross the watercourse
- ☐ To Divert the watercourse
- ☐ Flood control
- ☐ Other: _____

11. QUANTITY OF WATER INVOLVED

Please include the quantity of water to be used during the land use activity.

Quantity of water to be used: 0 m^3/year
Quantity of water to be returned: 0 m^3/year

---

12. On a separate page, provide a NON-TECHNICAL project summary. This should include a non-technical description of the project proposal, no more than 300 words, in English and Inuktituk (Inuinaktun, in the West Kitikmeot). The project description should outline the project activities and their necessity, method of transportation, any structures that will be erected, expected duration of activity and alternatives considered. If the proposed activity fits into any long-term developments, please describe the projected outcome of the development for the area and its timeline.

Please see Appendix 2 and 3.

---

13. Attach a detailed project description as outlined in APPENDIX A. Please see Appendix 1.

---

14. LAND USE APPLICATION FEES:

- ☐ Land use license I -
  Inuit - $ 0
  Non-Inuit - $100 per 1:250,000 NTS Map Sheet
- ☐ Land use license II - $250
- ☐ Land use license III- $500
- ☐ Residential/Recreational Lease — Inuit - $ 0; Non-Inuit - $250
- ☒ Exemption Certificate
- ☐ Commercial Lease I - $500
- ☐ Commercial Lease II - $2000 plus Legal Fees
- ☐ Commercial Lease III - $5000 plus Legal Fees

Land use fees: # of hectares used @ $50.00/hectare = $_____

Note: The land use fee is for the amount of land used on an annual basis.

---

15. WATER USE APPLICATION FEES:

- ☐ Land use license I
  Application fee - $100 per 1:250,000 NTS Map Sheet/year
  Water use fee - $1/1000$m^3$
- ☐ Land use license II
  Application fee - $250/2 years
  Water use fee - $1/1000$m^3$
- ☐ Land use license III
  Application fee - $500/2 years
  Water use fee - $26.35/1000$m^3$
- ☐ Commercial Lease I
  Application fee - $50/year
  Water use fee - $26.35/1000$m^3$
- ☐ Commercial Lease II
  Application fee - $500/year
  Water use fee - $26.35/1000$m^3$
- ☐ Commercial Lease III
  Application fee - $5000/year
  Water use fee - $26.35/1000$m^3$

Water use fees: volume of water used (m^3) * Water use fee = $_____

Note: The water application type is related to the land use application type. A water protection fee will be charged according to the type and stage of the development project.

16. a) The Applicant requests a Certificate of Exemption ☒

OR

b) The Applicant agrees to be bound by terms and conditions to be attached to the Inuit Land Use License or Lease. ☐

Sign name in full: _____ 2016-09-09

Signature Date

APPENDIX A

1. **Outline project activities, their necessity, their expected duration and alternatives considered. If the proposed activity fits into any long-term developments, describe the projected outcome of the development for the area and its timeline.**

The Jericho Mine was opened in 2006 by Tahera Diamond Corporation (Tahera) who went through bankruptcy proceedings in 2008. Shear Diamonds Corp. (Shear) took over the Jericho Mine in 2010 and operated the mine under care and maintenance until September 2012 when Shear suspended operations. Indigenous and Northern Affairs Canada (INAC) has been undertaking basic environmental protection of the Jericho Mine since spring 2013, and assumed control of the Jericho Mine in January 2014.

Through the Government of Canada's 2016 Federal Infrastructure Initiative funding was identified to perform site stabilization activities on the abandoned Jericho site. Such activities are necessary to:

- restore the site to an environmentally safe condition;
- prevent environmental migration of contaminants into the surrounding ecosystem
- stabilize the site to prevent water accumulation

This application is for permission to build a winter access road across IOL (see map in appendix 4) as well as for permission to use existing roads on the Jericho Mine Site (see figure in appendix 5) which cross IOL. Both these project related activities are critical for the supply of equipment to and from the Jericho site as well as for the planned site stabilization activities (see appendix 3 for details surrounding planned site stabilization work).

The supply of equipment to the Jericho Mine to support the site stabilization activities, as well as the transport of equipment and materials out of the site, will take place through the use of the JV Winter road. Currently a "Right to Use and Occupy Crown Land Permit" (appendix 6) exists for the portion of the JV Winter that extends to the Lupin Mine, which is approximately 40 km by winter road from Jericho. Although a permit exists for this road to Lupin Mine, the current plan for JV Winter Road construction has it only being built to the Ekati Mine. As such, the Jericho Site Stabilization Project would be responsible for the construction of the road from Ekati to Jericho and will be applying for as part of this project a Crown Land Use Permit for the Lupin to Jericho section of this road.

For your reference, Appendix 7 contains driving maps for the JV Winter Road to the Lupin Mine. Once a contract is awarded for the Jericho Site Stabilization Plan, detailed road maps for the Lupin to Jericho section will be developed.

Appendix 8 contains a report done by AMEC detailing estimates surrounding water withdrawal necessary for the construction of the winter road when the Jericho Mine was in development and operation. Since we are proposing the construction on the identical road, the same water withdrawal would occur.

The only alternative that was considered was the use of planes, however this alternative was cost prohibitive. The winter road is essential for the mobilization and demobilization of equipment and materials necessary for successful site stabilization activities at Jericho.

2. Schedule of activities including both operations and shutdowns

- February/March 2017: JV winter road extension Ekati to Jericho
- March 2017: Mobilization of materials and equipment to Jericho Site
- May-October 2017: Site Stabilization activities
- February/March 2018: JV winter road extension Ekati to Jericho
- March 2018: Demobilization of materials and equipment

3. Provide a preliminary plan showing the location of the lands proposed to be used and an estimate of their area in hectares. The preliminary plan should show the approximate location of all:

I. existing or new lines, trails, rights-of-way and cleared areas proposed to be used in the exercise of the Right;

- Please see appendix 4 for the proposed route for the construction of the winter road from Lupin to Jericho (estimated at 2 hectares);
- Please see map below showing existing roads on IOL (yellow shading) that will be used during site stabilization activities (roads estimated at 2 hectares).

II. buildings, campsites, air landing strips, air navigation aids, fuel and supply storage sites, waste disposal sites, excavations, ponds, reservoirs and other works and places proposed to be constructed or used during the exercise of the Right;

- There is no other infrastructure on IOL other than the roads which are to be used during site stabilization activities at Jericho.

III. manmade structures and works, including bridges, dams, ditches, highways, roads, transmission lines, pipelines, survey lines and monuments, air landing strips; all topographical and natural features, including eskers, rivers, streams, lakes, inland seas and ponds; and all areas of biological interest, including wildlife and fish habitat, specifically, calving, denning, spawning or nesting areas, identified in consultation with the NWMB, RWO, or HTO, as appropriate, that may be affected by the exercise of the Right; and

- **None**

IV. the accurate location of all carving stone, archaeological sites, and archaeological specimens

- Tahera in their initial permitting application indicated that they did an Archaeological Impact Assessment. Their findings are summarized as such: “None of the 25 heritage sites identified sites during the Project EIS were

determined to be of sufficient potential of significance to require avoidance by development."

- The same circumstances apply to the site stabilization work as it will not go beyond the boundaries set out by the previous mining operations and will be using the same winter road route.

4. **Provide a list of structures that will be erected.**

   - No new structures are being erected as part of this application.

5. **Equipment to be used, indicating type and number, size and ground pressure and proposed use. Include all drills, pumps, vehicles etc.**

   - Nuna Logistics is constructing the Tibbitt to Ekati portion of the winter road and it is likely that similar equipment will be used. The following is an excerpt from Nuna's website which discusses the types of equipment that they use in the construction of the JV Winter road.

   Nuna commences construction of the TCWR January of each year which entails the use of Nuna's specialized early road opening equipment such as Hagglund amphibious track vehicles equipped with ground penetrating radar to determine ice thickness and light plow equipment; both supported by helicopter surveillance to report major ice cracks or pressure ridges ahead. Throughout the road season, Nuna uses plows, graders, water trucks, dozers, snow blowers and other specialized low ground pressure equipment to keep the road clear of snow in order to continually build up ice thickness and keep portages smooth. At various locations along the entire length of the road Nuna measures the lake ice thickness and determines allowable vehicle load weights.

6. **Fuels to be used, capacity of containers and number of litres. Include diesel, gasoline, aviation fuel, propane and other fuel types. Describe method of fuel transfer.**

   - Details surrounding fuels to be used for the construction of the winter road will be provided by the winter road construction contractor once a contracted is awarded.
   - Fuels for the construction of the winter road will not be stored on IOL.

7. **Provide a copy of fuel spill contingency plan**

   - Please see Appendix 8 for the draft site specific fuel contingency plan for the Jericho Site Stabilization work. A spill contingency plan specific for the winter road will be provided once a contract is awarded.

8. **Proposed disposal methods for garbage, sewage, grey water, overburden (organic soil, waste material, tailings etc.), hazardous waste and other waste products. Describe the acid rock drainage potential of waste rock materiel and testing methods, if applicable. List the type, estimated quantities and storage methods of any hazardous materials that are going to be stored on the property.**

- N/A

9. **Describe the methods of transportation.**

- Large trucks hauling heavy equipment and materials on the JV Winter Road will be the predominant method of transport for this element of the project. While on the Jericho site, service vehicles, and equipment necessary for the site stabilization activities will be the primary method of transport.

10. **Indicate the components of the environment that are near the project area, as applicable. Include the type of species, the important habitat area (calving, staging, denning, migratory pathways, spawning, nesting etc.) and the critical time periods (calving, post-calving, spawning, nesting, breeding etc.). Also include information on eskers, communities and historical/archaeological sites.**

- This project is a site stabilization project which will:
    I. restore the site to an environmentally safe condition;
    II. prevent environmental migration of contaminants into the surrounding ecosystem
    III. stabilize the site to prevent water accumulation

- For further details please consult the Environmental Screening Report in appendix 9
- For details in relation to the environment pre-Jericho Mine operations please consult Tahera Corporations “Environmental Baseline Report” which can be found on the Nunavut Water Board’s public registry at: http://www.nwb-oen.ca/public/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AMJER1119%20Shear/1%20APPLICATION/2004%20New%20Application/040826NWB1JER--%20Appendix%20AA%20Final%20EIS%20January%202003/B.1.1.%20Baseline%20Summary%20Report.pdf

11. Summary of potential environmental, wildlife and resource impacts and mitigation measures to be used. Describe the effects of the proposed program on lands, water, flora and fauna.

- This project is a site stabilization project which will:
  - restore the site to an environmentally safe condition;
  - prevent environmental migration of contaminants into the surrounding ecosystem
  - stabilize the site to prevent water accumulation
- For further details please consult the Environmental Screening Report in appendix 9

12. Reclamation cost analysis for advanced exploration activities.

- N/A

13. Proposed reclamation plan, that includes, but is not limited to the proposed methods and procedures for the progressive:

- This application is for the construction of a winter road. The construction of the winter road will use the earth natural elements (snow, water, ice, etc.) and will not have a negative impact on the natural environment therefore does not require a reclamation plan.
- For details on the Jericho Mine Site Stabilization activities please see appendix 10.

14. Provide information on the socio-economic aspects of these activities. In particular, please provide details on:

- This RFP is a design/build project.
- A significant element of the proposal evaluation process for selecting a contractor for this project revolves around aboriginal opportunities for participation in this work.

APPENDIX 9

JERICHO SITE STABILIZATION PROJECT SPILL CONTINGENCY PLAN

JERICHO MINE SITE STABILIZATION

-INTERIM SPILL CONTINGENCY PLAN-

Prepared by: Indigenous and Northern Affairs Canada

July, 2016

Disclaimer

This Interim *Spill Contingency Plan* is being produced by Indigenous and Northern Affairs Canada (INAC) to satisfy the regulatory requirements for the site stabilization of the Jericho Mine. It is the expectations of INAC that once a contractor is hired for this remediation work they will update this plan in whatever way they see fit and submit it to the necessary regulatory bodies as a “Final Plan”.

1. INTRODUCTION/SITE OVERVIEW

Indigenous and Northern Affairs Canada (INAC) has secured funds under the Government of Canada’s 2016 Federal Infrastructure Initiative to conduct site stabilization activities at the abandoned Jericho Mine. The Site is located approximately 260 km southeast of Kugluktuk, NU and 30 km north of the Lupin Mine in the Contwoyto-Itchen Region. The site is accessible by air and the Tibbitt to Contwoyto Winter Road. The winter road was opened to the Jericho Mine during the Tahera operation and construction years. An extension to the winter road will have to be built again to facilitate the proposed site stabilization work. The Jericho Mine is located partially on Crown land and partially on IOL. Figure 1 below shows the division between the two (IOL in yellow).

Figure 1: IOL/Crown Land Division Jericho Mine

The Jericho Mine was opened in 2006 by Tahera Diamond Corporation (Tahera) who went through bankruptcy proceedings in 2008. Shear Diamonds Corp. (Shear) took over the Jericho Mine in 2010 and operated the mine under care and maintenance until September 2012 when Shear suspended operations. INAC has been undertaking basic environmental protection of the Jericho Mine since spring 2013, and assumed control of the Jericho Mine in January 2014.

The original mine plan was to construct a project with an eight-year life and extract the Kimberlite ore by using an open pit and underground mining methods. The mine work did not advance beyond the open pit extraction.

A detailed Environment Site Assessment (ESA) report was prepared by Tetra Tech EBA (EBA) in December 2014. The report presented the results and finding of their August 2014 on-site investigation work, planned following a gap analysis in support of developing of a remedial action plan for the project site. Contaminated soil, water, hazardous and non-hazardous material and infrastructure, and geotechnical information all form part of the ESA document.

In consideration to the overall remediation objectives for the Jericho Mine site, the tight timelines to complete the proposed work and the amount of funding available to the project through the Government of Canada's 2016 Federal Infrastructure Initiative, a Site Stabilization Plan has been developed. Such activities are necessary to:

- restore the site to an environmentally safe condition;

- prevent environmental migration of contaminants into the surrounding ecosystem

These tasks include:

- Breach the C1 Diversion and construct a Pit Overflow;
- Breach the West Dam (figure 2);
- Notch Divider Dyke A (figure 2);
- Construct a Cover over Cell A (figure 2);
- Construct a Non-Hazardous Landfill (NHL);
- Re-grade the Containment Berms;
- Treat the PHC Soils;
- Dismantle Lead Based Paint coated ASTs;
- Consolidate and Incinerate Organic Liquid Wastes or remove off-site for disposal;
- Depressurize Gas Cylinders and Fire Extinguishers;
- Remove All Other Hazardous Waste off-site for disposal;
- Demolish and landfill structures (ex. Main camp, tank farms, etc.);
- Collect and Landfill remaining Non-Hazardous material.

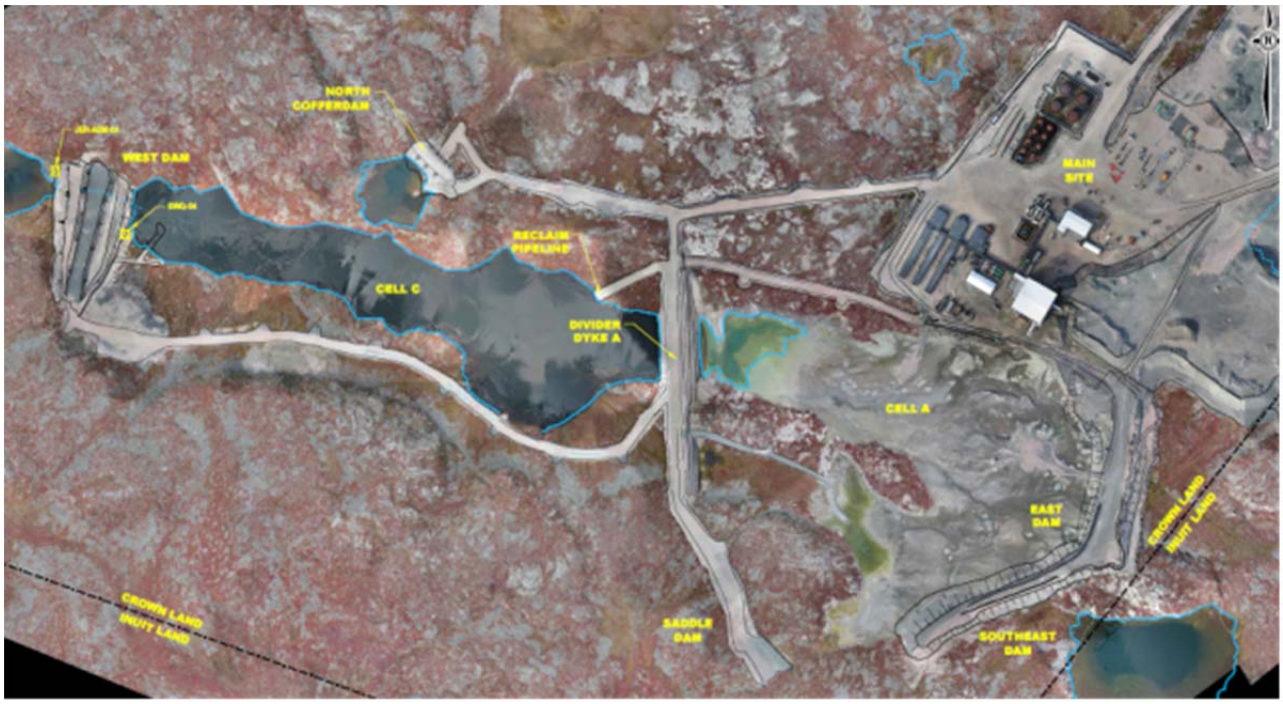

Figure 2

2. FUEL AND HAZARDOUS MATERIAL SPILLS - GENERAL INFORMATION

This Spill Contingency Plan presents the prescribed course of action to be followed in the case of unanticipated *fuel or chemical spills* during the site stabilization of the abandoned Jericho Mine Site, Nunavut. The plan will enable persons in a particular spill emergency situation to maximize the effectiveness of the environmental response and meet all regulatory requirements for reporting to the appropriate authorities. The plan also describes the locations where hydrocarbons (fuel) and spill response equipment will be stored at the site.

This current plan follows the standard procedure adopted by PWGSC / AANDC on Crown lands to address unanticipated spills. The procedure has been customized and made specific to the Jericho Mine Site Stabilization project and made available for regulatory approvals pre-contract award. After the selection of a contractor for the project, the successful contractor will develop a more detailed Spill Contingency Plan which will be included as a component of the Site Specific Health and Safety Plan (SSHSP). The SSHSP is always prepared prior to the commencement of site construction (remediation) activities and it will be posted on-site during the remediation activities. Also, a copy of the SSHSP will be submitted to Nunavut Water Board (NWB) as soon as it is completed. The following information will be included in the SSHSP:

1. A description of pre-emergency planning;
2. Personnel roles, lines of authority and communication;
3. Emergency alerting and response procedures;
4. Evacuation routes and procedures, safe distances and places of refuge;
5. Emergency alerting and response procedures;
6. Directions/methods of getting to the nearest medical facility;
7. Emergency decontamination procedure;
8. Emergency medical treatment and first aid;
9. Emergency equipment and materials;
10. Emergency protective equipment;
11. Procedures for reporting incidents; and
12. Spill response and containment plans for all materials that could potentially be spilled.

3. TYPES AND QUANTITIES OF MATERIALS THAT WILL BE STORED ON-SITE

The types and approximate quantities of fuels that will be stored on-site are based off our experiences in the remediation of similar sites. The actual amount of fuels and their types will be verified by the hired contractor. We approximate these to be:

Gasoline: Approximately 5125 L stored in 205 L barrels;
Diesel: Approximately 300,000 L stored in large fuel tanks;
Oil: Approximately 80 L of hydraulic oil (four 20 L pails) and 80 L of motor oil (four 20 L pails);
Propane: sixteen (16) 45 kg tanks; and
Grease*:* Approximately 20 tubes stored within two 4 kg cases.

Method of Storage & MSDS Sheets:

All liquid fuels will be stored in barrels on pallets or in the case of the diesel, in a large fuel storage tank within a containment area surrounded by a 0.5 m berm and lined with hydrocarbon resistant material. Refueling activities will occur directly from the barrels or large diesel fuel tank into the respective vehicle. The containment area will be located on flat, even ground at a distance of no less than 31 m away from the camp and the “High Water Mark” of any natural drainage area or water body.

Propane will be stored in 45 kg (100 lb) certified tanks near the kitchen trailer. The above quantities are estimates. Upon award of contract, the successful contractor will provide more specific information on the types and actual quantities of all fuels and chemicals on site.

Contractor will comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding employee training, use, handling, storage and disposal of hazardous materials.

Under the Crown’s contracting procedure, the provision of Material Safety Data Sheets (MSDS), as required by WHMIS, is the responsibility of the successful contractor. Upon the award of contract for the site stabilization of the Jericho Mine, the successful contractor will prepare the MSDS sheets for all fuels and chemicals they are bringing to site and include the MSDS sheets in the SSHSP which will be submitted to NWB before work can start on the site.

4. FUEL AND HAZARDOUS MATERIAL SPILLS CONTINGENCY PLAN

The objective of the fuel-related contingency plan is to protect the environment and human health by minimizing the impacts of spill events through clear and concise instructions to all personnel.

A variety of fuels (diesel, gasoline and lubricating oils) will be used during the site stabilization of the Jericho Mine site. Fuels will be stored in either barrels of 205 liters or in double walled tanks. For either storage option, it is anticipated that any spill quantity would likely be small.

Transportation of fuels must comply with the *Transportation of Dangerous Goods Act and Regulations.*

The most common pollution incidents would probably involve spills of diesel or gasoline onto land resulting from: human error during transfer, rupture of barrels from deterioration or damage, seepage from fittings or valves, or equipment failure. Daily checking of equipment and preventative maintenance would identify damage to the fuel system and reduce the risk of spills or leaks.

In the event of a spill, protection of human health and safety is paramount. Contamination of personnel involved in clean up is a real possibility as is contamination of the surrounding workplace and environment. The individual responding to a spill shall:

i. Ensure personnel are appropriately trained.

- All employees working on the Project, including contractors and sub-contractors, will be trained in the safe operation of all machinery and tools, as well as in the handling of materials to help prevent and respond to hazardous material spills in a timely and effective manner. All employees on site will also be trained for initial spill response in the event of a spill. The recommended training for these purposes consists initially of the 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) course offered by various environmental firms and the 8-Hour HAZWOPER refresher course every two (2) years thereafter.

ii. Make use of materials and equipment available for adequate response to fuel spills, such as excavators for creating earthen dykes and hydrocarbon absorbent booms.
iii. Warn people in the immediate vicinity and evacuate the area if necessary.
iv. Wear protective clothing as required for handling spills.
v. Isolate and eliminate all ignition sources.

vi. Identify the spilled material if possible, and take all safety precautions before approaching it.
vii. Attempt to immediately stop the leakage and contain the spill, if safe to do so, by implementing the Spill Response Actions summarized below.
viii. Report to the Field Team Leader on the spill location, type of material, volume and extent, status of spill (direction of movement), and prevailing meteorological conditions.
ix. Follow all applicable federal/territorial regulations and guidelines or the disposal of spill materials.
x. Document all events and actions taken. Include information required by applicable regulations and guidelines.
xi. Notify appropriate government agencies using the contact list below. Report spills immediately on the 24-Hour Spill Report Line (867) 920-8130.

Spill Response Actions on Different Media

On Land:

- Do not flush into ditches or drainage systems.
- Block entry into waterways and contain with earth, snow or other barrier.
- Remove small spills with sorbent pads.
- On tundra use peat moss and leave in place to degrade, if practical.

On Snow & Ice:

- Block entry into waterways and contain with snow or other barrier.
- Remove minor spills with sorbent pads and/or snow.
- Use ice augers and pump to recover diesel under ice.
- Slots in ice can be cut over slow moving water to contain oil.
- Burn accumulated diesel from the surface using Tiger Torches if feasible and safe to do so.

On Muskeg:

- Do not deploy personnel and equipment on marsh or vegetation.
- Remove pooled diesel with pumps and skimmers.
- Flush with low pressure water to herd diesel to collection point.
- Burn only in localized areas, e.g., trenches, piles or windrows.
- Do not burn if root systems can be damaged (low water table).
- Minimize damage caused by equipment and excavation.

On Water:

- Contain spill as close to release point as possible.
- Use spill containment boom to concentrate slicks for recovery.
- On small spills, use sorbent pads to pick up contained oil.
- On larger spills, use skimmer on contained slicks.
- Do not deploy personnel and equipment onto mudflats or into wetlands

Rivers & Streams:

- Prevent entry into water, if possible, by building berm or trench.
- Intercept moving slicks in quiet areas using (sorbent) booms.
- Do not use sorbent booms/pads in fast currents and turbulent water.

Contractor will supply information in regards to the contents of the following:

1) Drum Spill Kits

2) Equipment Spill Kits

5. NOTIFICATION & REPORTING PROCEDURE FOR JERICHO MINE

1. Report to the Project Manager / Site Supervisor, the spill location, type of material, volume and extent of spill, status of spill (direction of movement), and prevailing meteorological conditions.
2. A person shall immediately report the spill, where there is a spill, or where there is areas of likelihood of a spill, in an amount equal to or greater than the amount set out in Schedule B of the NWT / Nunavut *Spill Contingency Planning and Reporting Regulations.*
3. Notify appropriate government agencies using the contact list provided below.
4. When reporting a spill, a person shall give as much of the following information as possible:

   i. date and time of spill;
   ii. location of spill;
   iii. direction spill is moving;
   iv. name and phone number of a contact person close to the location of spill;
   v. type of hazardous product/material spilled and quantity spilled;
   vi. cause of spill;
   vii. whether spill is continuing or has stopped;

viii. description of existing containment;
ix. action taken to contain, recover, clean up and dispose of spilled material;
x. name, address and phone number of person reporting spill; and
xi. name of owner or person in charge, management or control of hazardous materials at the time of the spill.

6. TRAINING

Site personnel will be trained on refueling procedures and on spill response. Spill response training will include:

- site layout and identification of storage areas
- how to initiate the spill response system
- safety concerns related to spills including fire and explosion
- personal exposure risks to potentially hazardous materials
- protocol for handling spills
- environmental risks to both ground and waterways
- approaches and options to containment and cleanup utilizing the various materials and equipment available onsite
- the use of spill kits and their contents including the use of plugs and plugging compounds
- reporting requirements

7. CONTACT NUMBERS

INAC Water Resources Inspector	867-975-4295
NWT/NU Spill Line	867-920-8130 (Fax) 867-873-6924
GN, Environmental Protection	867-975-6000 (Fax) 867-975-6099
Nunavut Water Board	867-360-6338 (Fax) 867-360-6369
INAC Project Manager (Mark Yetman)	(819) 934-1188
INAC Manager of Field Ops	867-975-4295
Kitikmeot Inuit Association	867) 983-2458
DFO	867-979-8000
Environment Canada	867-945-4644

8. NT- NU Spill Report Form

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION	
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION	
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS		

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

9. Site Location Maps

(Please Note: Information surrounding the location of spill response equipment, the location of hazardous materials, as well as any other relevant details, is not know at this point as a contractor has not been hired yet)