Effective June 16, 2006

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

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NUNAVUT IMALIRIYIN KATIMAYINGI
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

WATER LICENCE
APPLICATION FORM

C.H.

Application for: (check one)

☒ **New** ☐ **Renewal** ☐ **Amendment** ☐ **Assignment** ☐ **Cancellation**

LICENCE NO: (for NWB use only) 4

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE

Qikiqtaaluk Corporation
PO Box 1228, Iqaluit, Nunavut, X0A 0H0

Phone: 867-979-8400
Fax: 867-979-8433
e-mail: hflaherty@qcorp.ca

2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)

Qikiqtaaluk Corporation
PO Box 1228, Iqaluit, Nunavut, X0A 0H0

Phone: 867-979-8400
Fax: 867-979-8433
e-mail: hflaherty@qcorp.ca

3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)

Latitude: (70°28'59" N) Longitude: (68°17'44" W)
NTS Map Sheet No. 27F8&27F9 Scale: 40000

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

see attached

5. TYPE OF PRIMARY UNDERTAKING (A supplementary questionnaire **must** be submitted with the application for undertakings listed in **"bold"**)

☐ **Industrial**
☐ **Mining and Milling**(includes exploration/drilling)
☐ **Municipal** (includes camps/lodges)
☐ Power
☐ Agricultural
☐ **Conservation**
☐ Recreational
☒ **Miscellaneous** (describe below):
road repair, bridge construction and culvert installation

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

6. WATER USE

- ☐ To obtain water
- ☒ To cross a watercourse
- ☐ To modify the bed or bank of a watercourse
- ☐ Flood control
- ☐ To divert a watercourse
- ☐ To alter the flow of , or store, water
- ☐ Other (describe):

7. QUANTITY OF WATER INVOLVED (cubic metres per day including both quantity to be used and quality to be returned to source)

Water use
- ☒ 100m^3/day or less
- ☐ Greater than 100m^3/day; if greater, indicate quantities to be used for each purpose (camp, drilling, etc.)

Water returned to source

_____ m^3/day

8. WASTE (for each type of waste describe: composition, quantity (cubic metres per day), methods of treatment and disposal, etc.)

- ☐ Sewage
- ☐ Solid Waste
- ☐ Hazardous
- ☐ Bulky Items/Scrap Metal
- ☐ Waste oil
- ☐ Greywater
- ☐ Sludges
- ☐ Other describe):See description of the Undertaking for waste

9. OTHER PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary)

Land Use Permit

DIAND	☐ Yes	☐ No	If no, date expected _____
Regional Inuit Association	☐ Yes	☐ No	If no, date expected _____
Commissioner	☐ Yes	☒ No	If no, date expected June 1, 2008

10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)

NIRB Screening ☐ Yes ☒ No If no, date expected June 2008

11. INUIT WATER RIGHTS

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement?
No

If yes, has the applicant entered into an agreement with the Designated Inuit organization to pay compensation for any loss or damage that may be caused by the alteration. If no compensation agreement has been made, how will compensation be determined?

12. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)

Qikiqtaaluk Corporation: main contractors, supply of heavy equipment and labour
Jivko Engineering (PO Box 1341, Yellowknife, NT, X1A 2N9): bridge design and supervision of installation

13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

None

14. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) ☒ Yes ☐ No If no, date expected _____

Inuktitut and/or Inuinnaqtun/English Summary of Project ☒ Yes ☐ No If no, date expected _____

Application fee of $30.00 (Payee Receiver General for Canada) ☐ Yes ☒ No If no, date expected May 1, 2008

Water Use fee of $30.00 (unless otherwise indicated in Section 9 of the *NWT Waters Regulations*: Payee Receiver General for Canada)

☐ Yes ☒ No If no, date expected May 2008

15. PROPOSED TIME SCHEDULE (unless otherwise indicated, the NWB will consider the application for a five (5) year term)

☒ one year or less (or) ☐ Multi Year

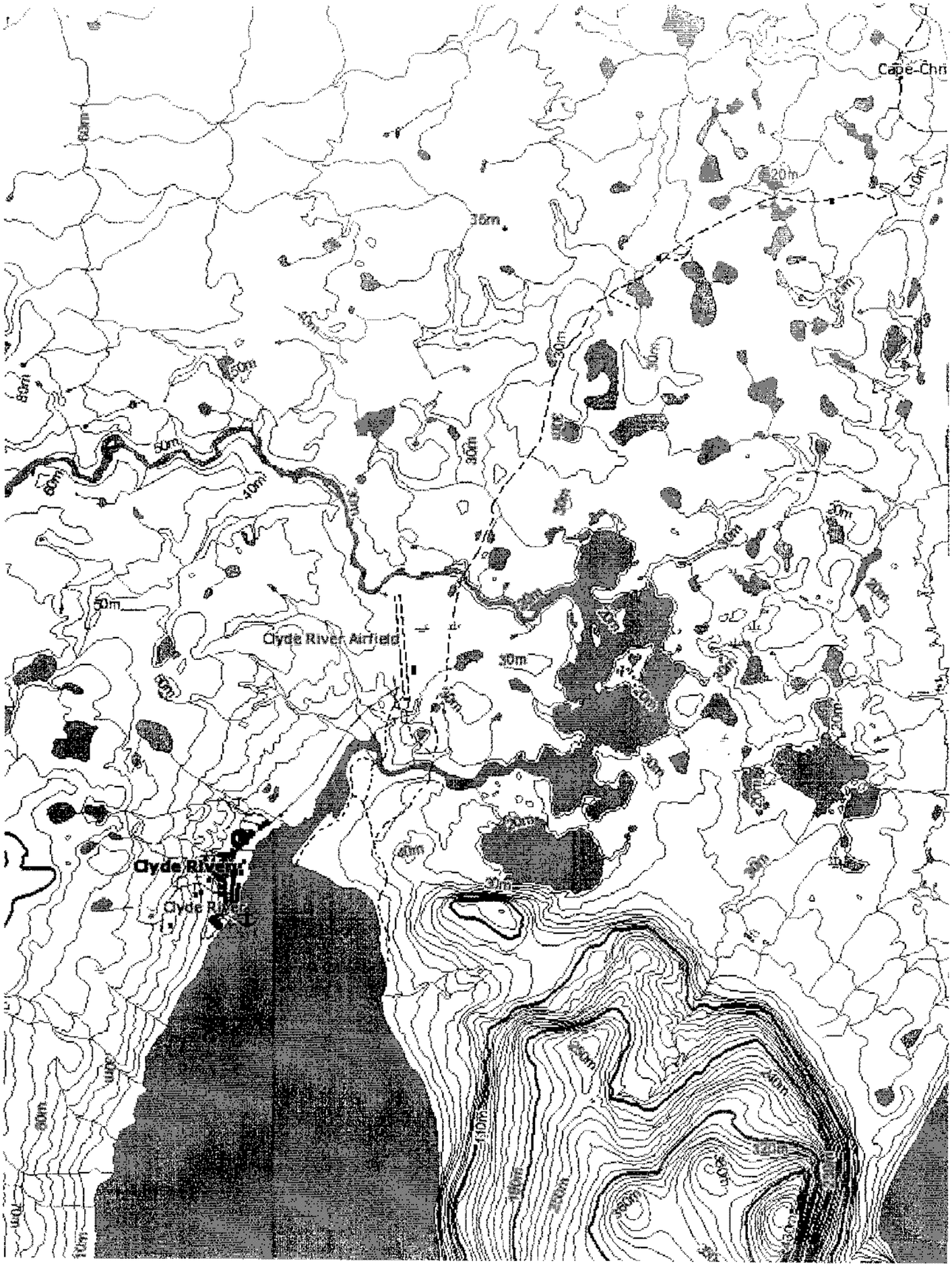
Start Date: September 1, 2008 Completion Date: June 1, 2009

Harry Flaherty	Project Director		April 14, 2008
Name (Print)	Title (Print)	Signature	Date

For Nunavut Water Board office use only

APPLICATION FEE **Amount: $____** **Pay ID No.: ____**

WATER USE DEPOSIT **Amount: $____** **Pay ID No.: ____**


Cape Chi
Clyde River Airfield
Clyde River
Clyde River

APPLICATION FOR WATER LICENSE

Description of the Undertaking

Road between Clyde River and Cape Christian

The objectives of this project is to repair the 16 km abandoned road between Clyde River and Cape Christian in order to use said road for crew rotation and resupply to a construction camp that will be installed at Cape Christian in 2008 to support the clean up activities to be conducted in 2009 and 2010 summer seasons (a separate Land Use Permit and Water License was obtained by INAC for that project). Qikiqtaaluk Logistics, a 100% owned subsidiary of Qikiqtaaluk Corporation was awarded a contract from Public Work and Government Services Canada to clean up the abandoned site at Cape Christian in October 2007.

The road needs to be repaired to allow for a 4 by 4 mini-Van truck to travel back and forth on a daily basis from early July to mid-September in order to carry man-power, food supplies, parts and other miscellaneous supplies required for the clean-up project. The project is supported by the Municipality of Clyde River. Many local residents will benefit from using that road in the spring to bring their boats to Davis Strait. Attached is a letter of support from the Clyde River mayor.

The project involves the placement of gravel as needed on the road surface. Stockpiles of gravel are already available beside the road and if more is needed, granular fill will be obtained from the Municipality. Apart from the road surface, one river crossing (fish habitat) and 8 creek crossings (not fish habitat) will need to be constructed (see below for more details). The project is planned to be conducted from early September to be completed in June or early July 2009. A crew of about 6 operators will conduct the work. The following equipment will be used:

Equipment	Number	Size	Purpose
Bulldozer	2	Cat D6	Push and level gravel
Excavator	1	Cat 320BL	Dig trenches, excavate gravel
Loader	1	Cat 950	Haul culverts, load gravel in dump truck
Dump truck	2	Cat D250	Haul gravel from borrow sources to road and creek crossings

Waste will not be generated by the project because workers will travel back and forth daily to Clyde River (or the construction camp once installed and functional at Cape Christian) and therefore any sewage and/or solid waste will be managed by the Municipal facilities or under the clean up project Land Use Permit and Water License requirements.

1.River crossing over the Clyde River

The coordinates where a span free bridge will need to be constructed are:
70°29'22.67"N
68°29'27.31"W

The design parameters including bridge alignment, span and clearance above the river were established in consultations between Jivko, Qikiqtaaluk and local residents familiar with river behaviour and the topography of the area surrounding the proposed river crossing.

Features and Design Parameters of the New Bridge

Topography and River Condition

- At regular summer water level the river channel is 12 to 15 metres wide and not more than 0.5 metres deep, with occasional boulders protruding above the water surface.
- At high water level during the spring runoff the river channel is 25 to 30 metres wide and 1.2 to 1.5 meters deep. The ice usually rots into place. Significant ice traffic has never been observed at this location of the river.
- The riverbanks are rather low, not very well defined, sloping down to the river with approx. 6:1 estimated grade. The estimated longitudinal grade of the river channel in the vicinity of the proposed crossing is less than 1%.

It is understood that Jivko did not have the opportunity to inspect and assess the proposed bridge site. It is agreed that Jivko will carry out visual on-site inspection during the spring break-up in June 2008. Depending of the results of this inspection Jivko may have to adjust some of the established bridge parameters.

The proposed bridge was designed in accordance with the current Canadian construction practices and standards. The site plan and 2 drawings showing the bridge design are attached to this document.

Bridge Alignment and Approaches

The proposed bridge is located on what appears to be old makeshift bridge crossing, with rubble mound abutments constricting nearly one quarter of the natural riverbed. Prior to commencement of the bridge construction the remains of these abutments will be removed and the riverbed reclaimed to its original condition.

The proposed alignment is approximately 80 meters long straight tangent with 80° skew to the direction of the watercourse. Curves of 30.0 m radius are developed to connect this alignment with the existing trail. At the bridge ends the approaches are 3.5 m high, with slope of 6% down to the access road. The roadway on the approaches is 7.5 m wide to allow for passing of oncoming vehicles.

Bridge Superstructure

The proposed bridge superstructure is 29.3 m long, single lane, twin steel girder structure with 4.2 m wide timber deck. The girders are built of rust resisting bridge steel G40-21M, 350AT, Impact Category 3, which does not require surface treatment. The deck is covered with creosote treated timber planks. The deck is boarded with 0.7 m high hot dip galvanized steel bridge rail.

The adopted design vehicle is MS-250-77 of CSA S6-M78. This is 8.5 m long, three axle group vehicle of 45,000 kg Gross Vehicle Weight (GVW). A 30% dynamic allowance and another 60% safety factor are incorporated in the design. As designed the bridge can support safely 75,000 kg overload vehicle and would show signs of collapsing under not less than 94,000 kg vehicle.

The horizontal clearance under the bridge is 26.5 m. The vertical clearance is close to 2.0 m at Low Water Level and close to 1.0 m at High Water Level.

Bridge Abutments

The Bridge Abutments consist of galvanized steel Bin Boxes in-filled with structural backfill. In order to guarantee better erosion protection, a layer of Geotextile membrane is installed at the

abutment base. Well-graded Rip Rap of size 0.2 to 0.9 m is placed around the abutments and along the bridge approaches to elevation exceeding the High Water mark. The road approaches on the transition to the bridge are supported with galvanised wire-mesh baskets (Gabion Baskets) in-filled with 4" to 8" size rock.

Materials

The **Steel Superstructure** will be fabricated in Montreal or Quebec City areas, in recognised bridge fabrication shop certified for fabrication of bridge structures. Prior to commencement of fabrication mill certificates for the material and shop drawings produced by the fabricator will be presented to Jivko for approval. The fabrication work will be inspected and tested by independent agency, specialised in welding inspections. Upon completion of fabrication the Welding Inspector will present to Jivko short report including the test results of the fabrication. Prior to shipping, the entire bridge superstructure will be pre-assembled in the premises of the fabricator and inspected by Jivko and a representative of the Client, if he so desire.

The material for **Bin Wall Abutments** is off-the-shelf product fabricated in two similar varieties by Armtec of Guelph, ON and Atlantic Industries of Armstrong, BC respectively. Both suppliers will be invited to submit quotations for the supply. Prior to shipping the material will be inspected independently for completeness.

The material for **Structural Timber Deck** is a Douglas fir grade 2 or better, creosote pressure treated to the current CN standards. The treatment plants Stella Jones of Montreal, QC and TOLKO of Ashcroft, BC will be invited to submit quotations. Prior to shipping the material will be inspected independently for completeness.

Bridge Construction On-Site **Sep – Oct, 2008**

The work on site will consist of Construction of Bin-Wall Abutments, Assembly and Installation of Steel Superstructure, Installation of Timber Deck and Earthworks on the Bridge Approaches.

All bridge material will be delivered from the barge landing area in Clyde River to the bridge site by wheel loader. The total weight of material is approximately 65,000 kg. The weight of individual elements does not exceed 7,000 kg.

The work on site will be completed within 20 productive working days by a local crew of 8 to 10 assisted by an excavator and/or loader as required.

Construction of Bin-Wall Abutments

The abutments footprint area will be cleaned from organics, levelled to the design elevation and stabilised by placing selected size rock if required. The Bin-wall panels will be pre-assembled on levelled area alongside of the bridge approaches and will be transported and erected on top of the Geotextile membrane covering the abutment footprints.

Structural backfill will be placed and thoroughly compacted in layers of 200 mm, in the Bin-boxes. The Structural backfill consists of 150 cu m crushed gravel or similar material. This material could be obtained from the municipal stockpile.

Rip-Rap armour rock will be placed in front and on both sides of the abutments.

Assembly and Installation of Steel Superstructure

The superstructure will be pre-assembled on the west approach, on the centre line of the bridge alignment. The work includes assembly of four main-girder bolted splices and installation of cross and lateral bracing. After assembly, and when the river is frozen in April 2009 (for not disturbing the fish habitat) the superstructure will be launched into place using an excavator to pull the structure over the span and a loader to push or hold on the back end.

Installation of Timber Deck and Bridge Rail June 2009

Timber stringers of approximate 150 kg individual weight will be carried and placed into position one at a time by 6 men. Running boards (3"x12" planks) will be arranged on top and fastened to the stringers with 6" nails. Individual sections of the bridge rail will be carried to position by a loader travelling on the installed timber deck.

Earthworks on the Bridge Approaches

The work includes supply and placing of approximately 900 cu m backfill material suitable for road embankment construction. It is recommendable the new road approaches to be covered with a layer of 50 mm (total of 50 cu m) crushed gravel from the municipal stockpile.

The work involves loading hauling and placing of approximately 100 truckloads of material, if hauled with dump trucks of 10 cu m box.

2. Creek crossings

The design parameters for none fish bearing water courses were established in consultations between Qikiqtaaluk and local residents and the Land officer familiar with those drainage channels behaviour and the topography of the area surrounding the crossings.

The coordinates of the creek crossings that will require culverts are:

Culvert number	Latitude	Longitude	Elevation (m)	Nb of culverts	Culvert Diameter (inches)
1	70°29'06.73"	68°30'29.96"	78	1	12
2	70°29'42.94"	68°28'28.33"	102	1	48
3	70°30'32.04"	68°24'39.53"	17	1	36
4	70°30'32.78"	68°23'47.98"	17	1	36
5	70°30'32.29"	68°23'39.36"	17	1	36
6	70°30'37.52"	68°21'51.25"	27	1	36
7	70°30'27.00"	68°20'22.22"	11	1	24
8	70°30'13.34"	68°19'35.94"	2	1	24

All culverts to be installed will be made of corrugated steel and will have a length of about 6 meters (19.5 feet). The slope of the culverts will be less than 4 %. These little creeks do not support any fish habitat according to the Clyde River Land Use officer and the HTO. Maps of the locations of the 8 required culverts is attached. Also attached is a typical culvert installation detail. Those creeks have all smooth bank slopes. The banks are rather low, not very well defined, sloping down to those draining channels with approx. 6:1 grade. At summer time, the water level on those creeks is less than 0.3 meters. Note that this road is frequently used during the summer by ATVs and 4 by 4 pick up trucks that easily cross the river and all of these 8 creeks with vehicles.

In 2007, a permit was acquired from DFO to do a fish assessment study on all those creeks including the Clyde River to proof they do not support any fish habitat. The permit was obtained last summer and unfortunately the study could not be conducted because the clean up contract was finally awarded to Qikiqtaaluk too late in the fall to allow for the study to be done. Attached to this document is the permit application, a letter of support from HTO and the permit obtained.

Qikiqtaaluk will obtain a similar permit in 2008 and will conduct the study. Results will be provided to DFO as soon as available and work on the drainage channels will not be conducted prior to results being available.

Nonetheless, Qikiqtaaluk would like obtaining all Permit and Licences (conditional to the results of the fish bearing stream assessment study) in advance to August 2008 because of all the positive impact that project will bring to the community of Clyde River. The project will generate some employment to the resident of the Municipality but more importantly, it will results in more employment and training opportunities related to the Cape Christian clean up project. Furthermore, it has been a long desire of the Municipality of Clyde River to have that road fixed and have a bridge installed for local resident to have a direct access to the Davis Strait. With that project, Qikiqtaaluk is contributing financially to the long-term development and the benefits of the North Baffin Nunavummiut.

MUNICIPALITY OF CLYDE RIVER
P.O. Box 89
CLYDE RIVER, NUNAVUT
X0A 0E0

Tel: (867) 924-6220
Fax.: (867) 924-6293

VIA FAX

979-8433

Harry Flaherty

Qikiqtaaluk Logistics Inc

P.O. Box 1228

Iqaluit, NU, X0A 0H0

February 22, 2008

RE: LETTER OF SUPPORT – MUNICIPALITY OF CLYDE RIVER

The Municipality of Clyde River at it's Regular Council Meeting held on February 20, 2008 passed the following motion:

"To approve the letter of support to Qikiqtaaluk Logistics Inc on the project for road repair and bridge construction for the Cape Christian project."

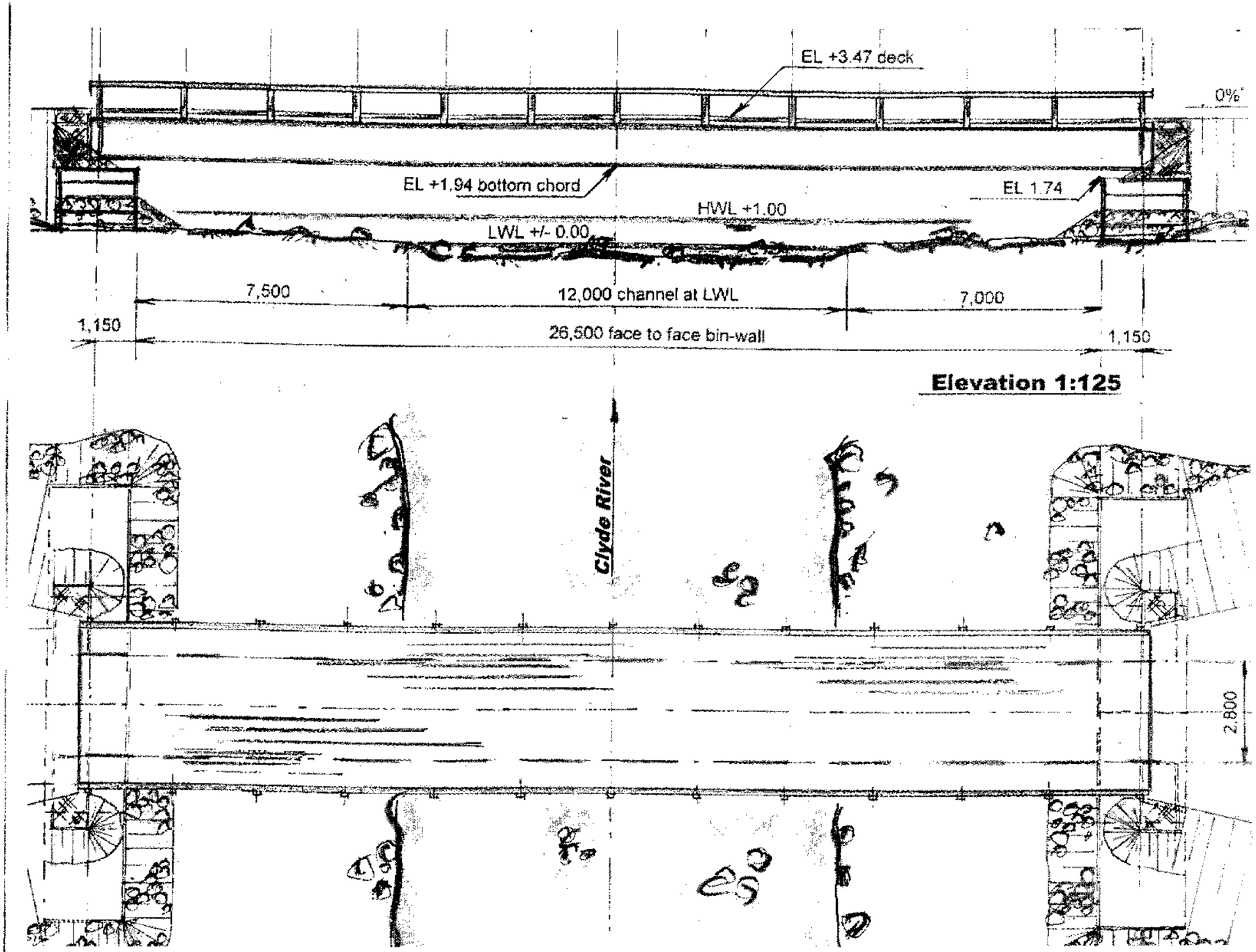
The Hamlet considered the potential benefits of this project to the community of Clyde River and support Qikiqtaaluk Logistics Inc. in their efforts to obtain the necessary permits and approvals for this project to proceed. We look forward to joint co-operation in a number of areas related to this project.

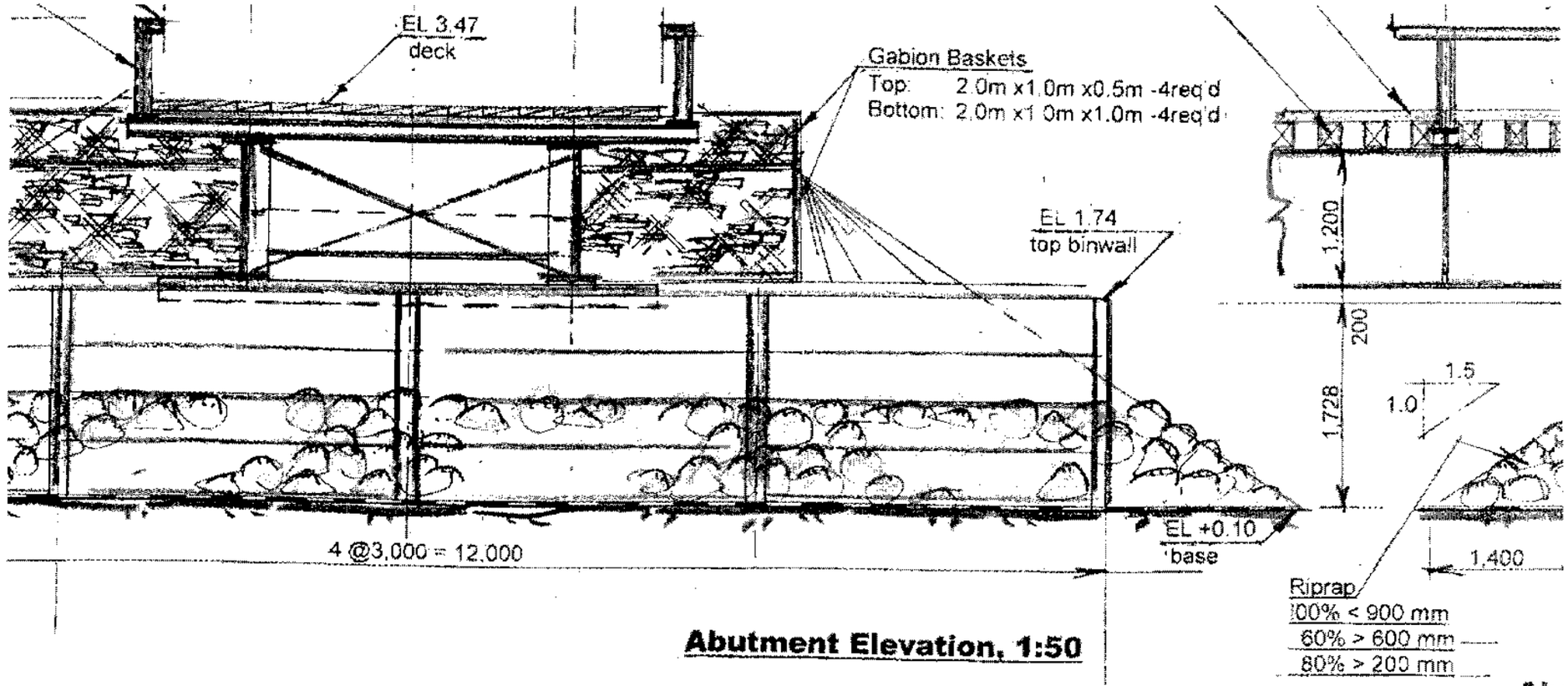
Qujannamiik

Andrew Iqalukjuak

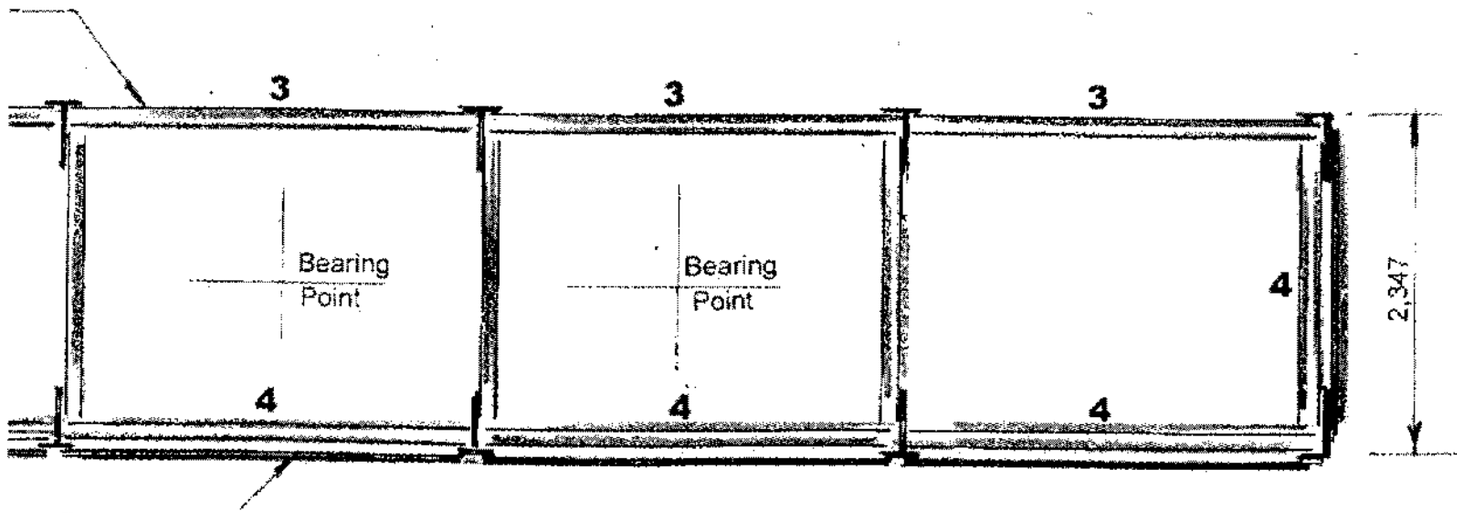
Mayor

Jivko Engineering
Yellowknife, NT

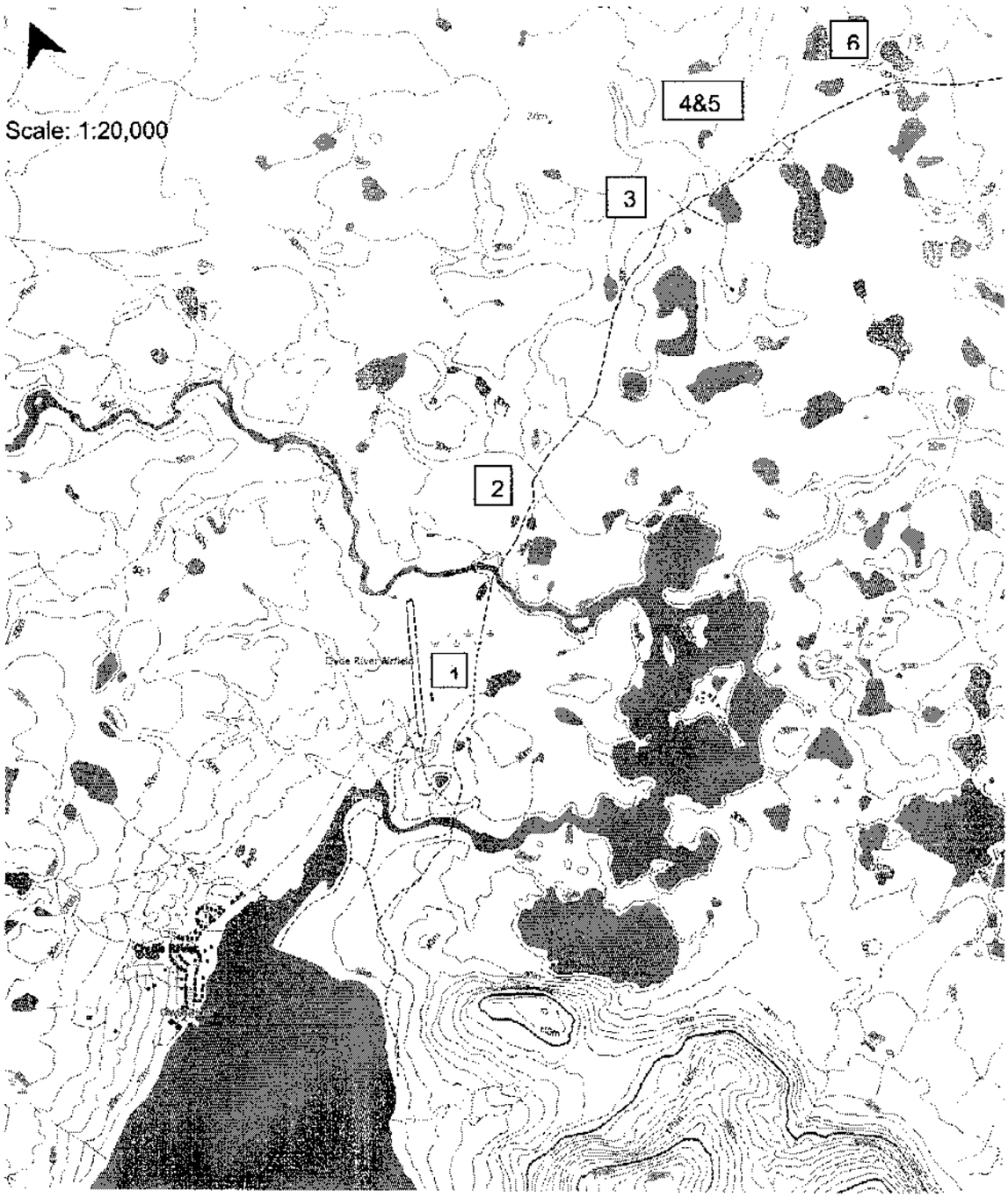

EL +3.47 deck
0%
EL +1.94 bottom chord
EL 1.74
HWL +1.00
LWL +/- 0.00
7,500
12,000 channel at LWL
7,000
1,150
26,500 face to face bin-wall
1,150
Elevation 1:125
Clyde River
2,800



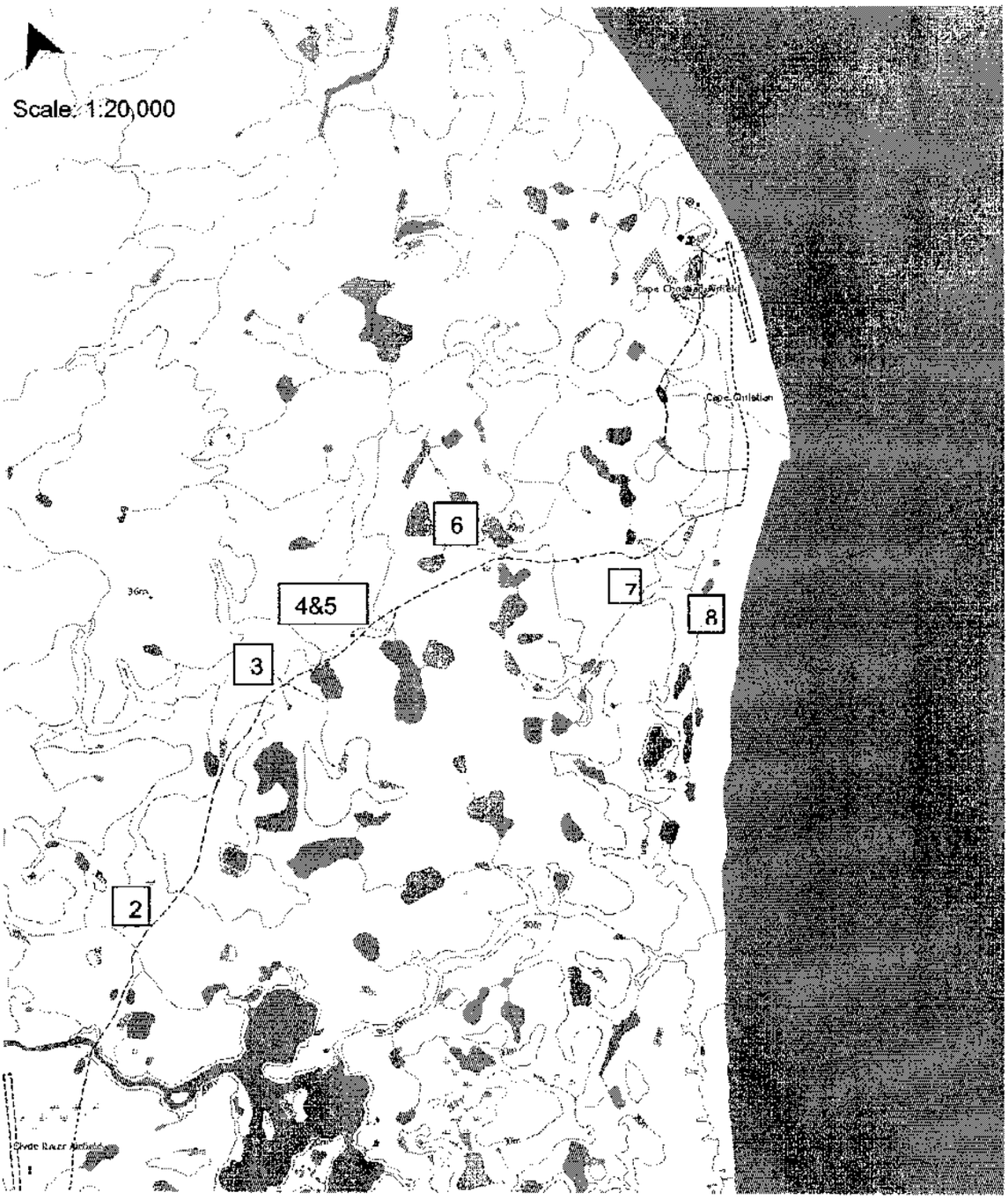
Abutment Elevation, 1:50



Culvert Locations

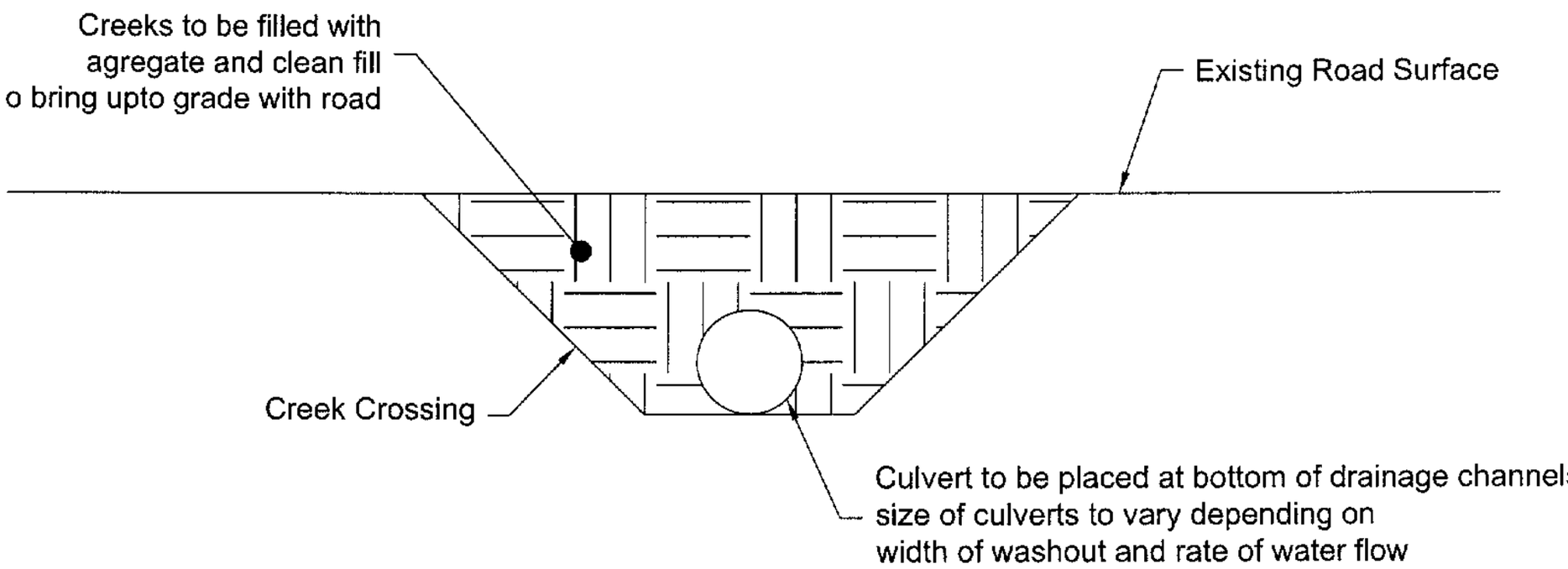


Culvert Locations



TYPICAL CULVERT INSTALLATION DETAILS

(FOR INFORMATION PURPOSES ONLY)



FRESHWATER INSTITUTE ANIMAL CARE COMMITTEE
ANIMAL USE PROTOCOL

Protocol Number (ACC use):
FWI-ACC-2006-2007-069

Last Year's AUP Number: **FWI-ACC-2005-2006-000** **Renewal? Yes** ☐ **No** Y

1. **Project Title: Fish bearing stream assessment between Clyde River and Cape Christian**

2. **Keywords** *Fish presence/absence, trapping/netting, field observations, catch and release*

3. **This Application is the Original** Y **amendment to the original** ☐.
(double click to activate a square)

4. **Location of the Study** *(give geographic name and coordinates)*:
River crossings on the 9 km road between Clyde River and Cape Christian on east coast of Baffin Island. None of the water bodies have names according to the NRC Geonames site. All water bodies are found along a 9 km stretch of road which is located within the following three coordinates which form a triangle:
   1) 70'30 N; 68'16 W
   2) 70'30 N; 68'31 W
   3) 70'28 N; 68'22 W

5. **Proposed Starting Date:** September 1 2007 **Finishing Date:** August 31 2008

6. **Project Authority:** Jennifer Holdner
Affiliation: Qikiqtaaluk Environmental
Affiliation:
Phone number: (514) 940 - 3332
Fax number: (514) 940 - 3435
E-mail: jholdner@qenv.ca

7. **Names, Affiliations and Descriptions of the Qualifications of the project members who will be handling animals** *(list any technical training/relevant experience/courses in ethical use of animals in research)*:

Jennifer Holdner, BES, MSc, Qikiqtaaluk Environmental, Jr. Project Manager

Bachelors of Environmental Studies, University of Waterloo, 2003
Masters in Water Science, Professional, National Science Research Institute (INRS), Quebec, 2007

Training Courses: The Experimental Fish online training program, University of PEI, September 2007

Fish handling experience:

Noranda Inc. 2000 Conducted electro-fishing and fish dissections for a toxicology study.

8. **Summary Description of the Study** *(the nature of the procedures conducted on the animals in 40 words or less)*:
Fish life stages will be identified by visual observation. Fish will then be handled to measure and sized and may be released into the river. Fish which are seen to be unfit to be released will be euthanized using stunning as an acceptable method recognized by the CCAC or given to locals.

9. **Category of Invasiveness:** A☐ B Y C☐ D☐ E☐
(see 'CCAC Categories of Invasiveness' file)
www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/POLICIES/policy.htm

10. Give an indication of whether the study is acute or chronic:

This study will be acute. Any effects on the fish will be short term.

11. Species to be used:

According to the Clyde River Wildlife as well as the Nunavut Wildlife Study, the following species are expected to be caught in the water bodies:
Arctic Char
Sculpins
Cod
Turbot
Least Cisco
Arctic Cisco
Clams
Mussels
Small crustaceans

12. Supplier or Source: Free ranging wild stock
13. Number of Animals: Maximum of 25-30 per water body

14. Permit for Field Capture *(send a copy if one exists)*: Permit is pending science and AUP reviews

15. **Study Objectives** *(briefly provide background, rationale for study, primary objective(s) and expected contribution to knowledge)*:

Background and Rationale for study: This study aims to determine the presence or absence of fish in various road crossings between Clyde River and Cape Christian in Baffin Island. The presence/absence of fish in these rivers will determine the type of road work which will be permitted by the DFO.

Primary objective(s) The objective of this study is to determine the presence or absence of fish in various waterways which cross the 9 km road between Clyde River and Cape Christian. In this study fish presence, area and habitat description, flow rates, turbidity, and sediment loads will be determined. If the presence of fish is observed, the fish life stage will have to be identified.

Expected contribution to knowledge Currently, Clyde River locals have mentioned that there are no fish in these water bodies. This study will verify these reports and bring new knowledge to the community.

16. Project Summary *(methods, including description of the procedures to be used involving live animals, time frame for procedures, and end points of the procedure(s))*:
www.ccac.ca/en/CCAC_Programs/Guidelines_Policies/GDLINES/ENDPTS/APPOPEN.HTM

In this study, fish presence, area and habitat description, flow rates, turbidity, and sediment loads will be assessed for each waterway. If the presence of fish is observed, the fish life stages will be determined by visual inspection. Depending on the environmental conditions, fish will be caught using ¼"mesh seine nets and/or rod and reels and/or dip nets. The seine nets will be removed once the presence of fish is determined. Fish caught will then be handled to remove them from the net using wet cloves to reduce damage to scales and mucus. Fish length will be measured and the fish will be released into the river. Total air exposure will minimal to prevent injuries. This will be done as quickly as possible using appropriate methods as described in the CCAC Guidelines on the care and use of fishes in research, teaching and testing – provided in the Experimental Fish Training Program from the University of PEI. Non target species caught will be released with minimal handling. Nets will be check every 1 hour to reduce fish mortality for up to 6 hours.

Fish which are seen to be highly stressed (increased heart rate, abnormal behaviour, bleeding) or who have had scales damaged or injuries or do not have a chance of survival will be euthanized using the stunning blow to the head followed by exsanquination by severing the gills, a method recognized by the Canadian Council on Animal Care Guide to the care and use of experimental animals. Dead fish will be given to locals.

17. Describe how animals intended for laboratory work are transported from supplier/source to project/housing site:
There will be no transportation of animals.

18. Describe the capture, restraint, transportation and/or housing of animals used in field studies, as well as any other information pertinent to field studies such as capture of non-target species, and, if relevant, potential mortality or injuries during capture or transportation:

In this study the animals will either be captured in a net or by a fishing rod. The life stage and species of any fish captured will be determined. This will be done as quickly as possible, to minimize fish handling, using appropriate methods as described in the *Experimental Fish Training Program* offered by the University of PEI. Any non target species caught will be released immediately with minimal or no handling.

Potential injuries and mortalities can occur from fish capture in nets, handling and fish hooks. All animals caught will likely suffer acute stress and it is well know that catch-and-release may increase the risk of death. Scale and mucus loss may make fish more vulnerable to disease. Various studies conducted on the effects of catch and release (using rod and reel) have given an average of 16% mortality of fish after they have been released (Casselman, 2005). This is caused by hooks, air exposure, depressurization, scale damage, etc. In nets fish will struggle to get loose which may cause them considerable scale loss which will cause them stress and increased risk of mortality due to damaged scales. The risk of mortality will also depend on the age and size of the fish.

To reduce risk of injuries fish will be handled carefully following described in *Experimental Fish Training Program*. The fish will not be exposed to air for more than 2 minutes, and fish that are bleeding or have had been damaged will be euthanized using the stunning method. Fishing hooks and bait will be selected in order to reduce risk of injury to fish.

Casselman, S. 2005. Catch-and-release angling: A review with guidelines for proper fish handling practices. Ontario MNR. Fish & Wildlife Branch. Pp. 26

19. Justification:

a. Why Is it necessary to use vertebrates in this study?

The objective of this study is to determine the presence or absence of fish. The presence or absence of fish will determine the kind of activities which can take place in the watercourse, according to DFO regulations.

b. What is the rationale for using this particular species?

No particular fish species is targeted; Clyde River locals have stated that the main fish present in the Rivers is Arctic Char.

c. What is the rationale for the number of animals used?

Since the number of animals which will be caught is unknown, this is an estimation of the number that will likely be caught in the time which the nets are in place. As soon as the fish presence is determined, the study for that water body will stop. The aim is not to measure fish populations.

d. Have the CCAC's "Three R Principles" of REDUCTION of number of animals required, REFINEMENT of procedures so as to minimize the stress placed on animals and REPLACEMENT of animals with alternatives been considered whenever possible in the design of this project?

YES y **NO** ☐ **If NO, explain why not.**

20. Source of Funding: Department of Public Works Canada

21. Provide evidence that the research project involving animals has been subjected to peer review for scientific merit *(i.e. has it been judged as a scientifically valid study by other research scientists?)*:

This project is being conducted for the Department of Fisheries and Oceans as required under the Fisheries Act as an Environmental Assessment for Land Use (road construction).

22. Anaesthetics and Analgesics *(indicate dosage and methods)*:

No anaesthetics or analgesics will be used in this study

23. Euthanasia:

a. Method of euthanasia *(if required)*: If fish appear to be in a moribund state, a stunning blow to the head followed with exsanquination by severing the gills, a CCAC acceptable method.

The stunned method described in the CCAC Guide will be used.

b. Provide justification for use of physical forms of euthanasia or for any methods that deviate from those described in the CCAC Guide, or the Report of the American Veterinary Medical Association (AVMA) Panel on Euthanasia, 2000.

24. Detailed Scientific Justification *(only necessary if category of invasiveness falls into D or E, or if CCAC Guidelines are not being followed)*:

25. Use of Biohazardous/Infectious Substances, Biological/Chemical Agents or Radioisotopes in living animals *(if so provide an indication of institutional approval of this use)*:

None

26. Disposition of animals following termination of the project:

Y **Euthanasia**

☐ **Kept for future projects**

Y **Released into the wild**

Y **Other, specify:** Given to locals

27. Project Authority's signature below indicates:

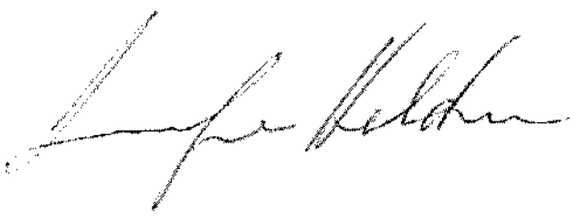
a. **That techniques employed during the execution of this project are in accordance with the Guidelines of the Canadian Council on Animal Care and that animals used in this research project will be cared for in accordance with those principles.**

b. **That alternative procedures not involving the use of living animals have been considered.**

c. **That the number of animals used will be the minimum consistent with the objectives of the research/teaching program.**

d. **That the species proposed for use in this project has/have been carefully selected.**

e. **That a brief report will be submitted within 30 days of completion of the project, outlining the protocol followed, changes to the protocol, the number of animals used and any unanticipated results or mortalities.**



Jennifer Holdner — August 28, 2007

Project Authority — **Date**

July 24, 2007

Fisheries and Oceans Canada
Fisheries Management
P.O. Box 358
Iqaluit, NU, X0A 0H0
Tel: (867) 99-8005
Fax: (867) 979- 8039
XCA-NUpermit@dfo-mpo.gc.ca

Faxed July 27, 2007

Attn: Area Licensing Administrator

RE: Fish assessment: Clyde River to Cape Christian

To whom it may concern,

This letter is to support Qikiqtaaluk Environmental's fish assessment project between Clyde River and Cap Christian.

The project proposes to conduct a fish assessment on all the river crossings on the road between Clyde River and Cape Christian. The fish assessment is required by the DFO prior to building span bridges or to install culverts to cross the rivers. The assessment will not significantly impact the wildlife of the area and local people will participate in the assessment to provide traditional knowledge.

If you have any questions regarding the HTO's endorsement of this project, please do not hesitate to contact me.

Regards,

[signature] for James Qillaq

Clyde River HTO
Tel. (867)-924-6202
Fax.(867)-924-6197

Fisheries and Oceans Canada / Pêches et Océans Canada

Freshwater Institute Science Laboratories Animal Care Committee

Date: 28 August, 2007

AUP #: FWI-ACC-2007-2008-069

To: **Jennifer Holdner**
Qikiqtaaluk Environmental Consultants

From: **Ken Rowes FWISL-ACC Chair**

Cc: **Members, FWISL-ACC , Joanne Rose DFO Licensing**

Subject: **Re: Letter of Approval.**

Dear Jennifer

The Freshwater Institute Animal Care Committee has reviewed and has approved the revised Animal Use Protocol that you have submitted concerning:

"Fish bearing stream assessment between Clyde River and Cape Christian".

Please note that the date of 31 August 2008 is out side the time period of this AUP (March 2007 – April 2008) and not relevant for the summer of 2008. You must resubmit this in 2008 as a continuum (RENEWAL) as noted on the form.

Please accept this signed letter of approval for your records. Please be advised that should there be a need to further revise the protocol you will be following, you are requested to contact the Freshwater Institute Animal Care Committee and obtain approval prior to proceeding.

In addition, **please be advised that you are required to submit a brief report within 30 days of completion of the project outlining the protocol followed, changes to the protocol, the number of animals used and any unanticipated results or mortalities.**

Species	Proposed #	Mortalities	Used

Remarks:

Sincerely,

Ken D. Rowes FWISL-ACC Chair
cc: Members, FWISL-ACC

Freshwater Institute Science Laboratories Animal Care Committee
Environmental Science Division / Science de l'environment
Central & Arctic / Region du centre et de l'Actique
Freshwater Institute / Institute de eaux douces
501 University Crescent
Winnipeg, Manitoba R3T 2N6
Phone:204 984-7835
Fax:204 984-2404

Canada

APPLICATION FOR WATER LICENSE

Supplemental Technical Information Required for Water Crossings

Road between Clyde River and Cape Christian

1. Water Body name:
Only the Clyde River has a name. Location is provided in the Description of the Undertaking

2. Site Photo, site map or air photo detailing the location
See description of the Undertaking

3. Other Agencies contacted to date
GN Department of Community and Government Services and DFO

4. Need for the project and alternatives considered
Access to Cape Christian for the clean is required for the labour crew and for equipment and supplies. The alternatives would be to blast and crush rocks to produce gravel to repair the airstrip at Cape Christian (which is too soft) and use a charter to support the clean up operation. This alternatives would required significantly more energy consuming and would create more environmental impacts. Furthermore, the residents of Clyde River would not see to much economical benefit from such an alternative.

5. General condition of the sites
i. Slope of banks smooth, less than 6:1
ii. Description of substrate compacted gravel (since it was used for years when the Cape Christian site was operational)
iii. Vegetation (on banks, in-stream, to be removed) none because of the traffic that took place
iv. Expected flow rates during time of construction low to very low since ATVS and pickup truck use the road and cross all the sites
v. Channel meander pattern straight line

6. Existing Habitat
i. Fish Community (species/common names) at and near the site Based on Traditional knowledge, only small chars are present in the Clyde River, all other sites are not fish bearing habitat
ii. Use of impacted area as spawning, nursery, rearing, food supply or migration route none
iii. Presence of sensitive habitat none
Iv. Assessment of impact to fish and fish habitat no in water work will be done in fish bearing habitat

7. Construction Details
i. In water work timing restriction for fishery no in water work will be done
ii. Proposed start date and completion date (see Description of the Undertaking)
iii. Type of crossing, (see Description of the Undertaking)
iv. Method of installation (see Description of the Undertaking)
v. Dimensions of pipe or structure (see Description of the Undertaking)
vi. Machinery to be used (see Description of the Undertaking)

vii. Construction sequence (timing restriction may need to be taken into account) (see Description of the Undertaking)
viii. Sedimentation and erosion control measures none planned because no in water work except in none fish bearing habitat
ix. Monitoring during construction pictures taken before, during and after
x. Other mitigation measures crew will be trained
xi. Assessment of impact to fish and fish habitat there should be no impact
xii. Bank stabilization (size range of material) well graded gravel available from Clyde River
xiii. Cumulative impacts to area Once the span free bridge is constructed, residents of Clyde River and Federal government representatives that are involves with the assessment, clean up and post-construction monitoring will no longer go across the Clyde River with vehicles, therefore having a positive impact for the fish habitat.
xiv. Contingency plan none proposed
xv. Revegetation proposed none proposed
xvi. Proposed post-construction monitoring (photos taken of the site before construction, during construction and after construction; photographs should be taken form the same reference point for easy comparison) will be done

8. Bridge
i. Bridge dimensions and type (see Description of the Undertaking)
ii. Any structures (abutments, pilings, piers) that will be placed in the water, on a temporary or permanent basis (see Description of the Undertaking)
iii. Anticipated changes to the existing channel/shoreline morphology as a result of the proposed works No
iv. Activities or structures that may cause a temporary or permanent barrier to movement of fish or flow of water No
v. Coffer dams, dewatering, temporary watercourse diversions, excavation and temporary crossings No
vi. Total area of impact (m2) 0 m^2 in the fish habitat
vii. Stabilization method and materials used at bridge abutments(include details of material size range) (see Description of the Undertaking)

9. Culvert Installation
i. Culvert dimensions (height and width or diameter, length) (see Description of the Undertaking)
ii. Culvert type/material (see Description of the Undertaking)
iii. Impact to fisheries ability to migrate through the culvert Culverts installed in drainage channels and creeks not supporting fish habitat
iv. Need to realign the channel? No, culverts used to be present at all sites when the site was operational (1956 to 1972)
v. Open bottom or natural substrate inside? No
vi. Slope of culvert less that 4%
vii. Installation of baffles, rock weirs or other structures No

ᐃᓚᖓ 4: ᐱᓕᕆᐊᖑᔪᒪᔪᒧᑦ ᑐᑉᓯᕗᑦ ᖃᓄᐃᑦᑑᓂᖓᓂᒃ ᓇᑐᓇᐃᔭᐃᔾᔪᑦ

ᑕᒪᑐᒪ ᐱᓕᕆᐊᕆᔪᒪᔭᑦᑕ ᑐᕌᒐᖓᑦ ᐱᔾᔪᑎᓕᒃ ᓴᓇᒃᑲᓐᓂᕈᒪᓂᕐᒥᒃ ᕿᒻᒪᑯᒥᒃ ᐊᖅᑯᒻᒥᒃ ᑲᖏᖅᑐᒑᐱᐅᑉ ᐊᒻᒪᓗ ᐱᖑᐊᕐᔫᑉ ᐊᑯᓐᓂᖓᓃᕐᑐᒥᒃ, ᑖᓐᓇ ᐊᖅᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕈᓐᓇᕐᓂᐊᕐᒪᑦ ᐃᖅᑲᓇᐃᔭᖅᑏᑦ ᐊᓯᔾᔨᕆᐊᖃᓕᕌᖓᑕ ᐊᒡᔭᖅᑐᖅᑕᐅᖃᑦᑕᕐᓗᑎᒃ ᐊᒻᒪᓗ ᓇᔪᖅᑕᖓᓐᓂ ᓱᓇᒃᑯᑖᖑᔭᕆᐊᓖᑦ ᐊᒡᔭᖅᑐᖅᑕᐅᖃᑦᑕᕈᓐᓇᕐᓂᐊᕐᒪᑕ. 2008-ᖑᓕᖅᐸᑦ ᓇᔪᖅᑕᐅᖃᑦᑕᖅᑐᒃᓴᓕᐅᕐᓂᐊᖅᑐᑦ ᐱᖑᐊᕐᔪᖕᓂ ᐃᑲᔪᖅᓲᑎᖃᐅᑦᑎᐊᕐᓂᐊᕐᒪᑕ ᓴᓗᒻᒪᖅᓴᐃᓂᐊᖅᑐᑦ 2009-ᒥ ᐊᒻᒪᓗ 2010 ᐅᐊᔭᖓᓂ (ᐃᓄᓕᕆᔨᑐᖃᒃᑯᓐᓂᑦ ᐊᑐᓃᖓᔪᓂᒃ ᓄᓇᐃᑦ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᖏᓐᓄᑦ ᐱᔪᓐᓇᐅᑎᑖᓚᐅᖅᑐᒧᑦ ᐊᒻᒪᓗ ᐃᒥᕐᒥᒃ ᐊᑐᕈᓐᓇᕐᓂᐊᕐᒧᑦ ᐱᔪᓐᓇᐅᒻᒥᒃ ᑕᒪᑐᒧᖓ ᐊᑐᕋᔭᖅᑐᓂᒃ), ᕿᑭᖅᑖᓗᖕᒥ ᓯᓇᒃᑯᑖᖃᖅᑎᑦᑎᔾᔪᑦ, 100 ᐳᓴᓐᑎᒥᒃ ᓇᖕᒥᓂᕆᔭᐅᔪᑦ ᕿᑭᖅᑖᓗᒃ ᑯᐊᐳᕆᓴᒃᑯᓐᓄᑦ ᑳᓐᑐᕌᒃᑕᖅᑎᑕᐅᓚᐅᖅᑐᑦ ᑲᓇᑕᐅᑉ ᒐᕙᒪᒃᑯᖏᑦᑕ ᓴᓇᔪᓕᕆᔨᖏᓐᓄᑦ, ᓴᓗᒻᒪᖅᓴᐃᖁᔭᐅᓪᓗᑎᒃ ᕿᒻᒪᑯᒥᒃ ᓈᓚᐅᑎᖃᕐᕕᐅᓚᐅᖅᓯᒪᔪᒥᒃ ᐱᖑᐊᕐᔪᖕᓂ ᐊᒃᑑᑉ 2007-ᖑᑎᓪᓗᒍ.

ᑖᓐᓇ ᐊᖅᑯᑦ ᓴᓇᔭᐅᒃᑲᓐᓂᕆᐊᓕᒃ ᓄᓇᓯᐅᑦ ᒥᑭᔪᖅ 4X4 ᖃᐅᑕᒫᑦ ᐅᑎᖅᑕᕋᐅᔭᖃᑦᑕᕈᓐᓇᕐᓂᐊᕐᒪᑦ ᔪᓚᐃᒥ ᐱᒋᐊᖃᑦᑕᕐᓗᓂ ᓯᑎᐱᕆᐅᑉ ᕿᑎᐊᓄᑦ, ᐊᒡᔭᖅᑐᐃᖃᑦᑕᕐᓗᓂ ᐃᖅᑲᓇᐃᔭᖅᑎᓂᒃ, ᓂᕿᓂᒃ, ᐃᓚᒃᓴᓂᒃ ᐊᒻᒪᓗ ᐊᓯᖏᓐᓂᒃ ᐊᑐᖅᑕᐅᔭᕆᐊᓕᖕᓂᒃ ᓴᓗᒻᒪᖅᓴᐃᓂᕐᒧᑦ. ᑕᒪᓐᓇ ᐱᓕᕆᐊᕆᔭᕗᑦ ᐃᑲᔪᖅᓱᖅᑕᐅᔪᖅ ᑲᖏᖅᑐᒑᐱᐅᑉ ᕼᐋᒻᓚᒃᑯᖏᓐᓄᑦ. ᐊᒥᓱᑦ ᑲᖏᖅᑐᒑᐱᖕᒥᐅᑦ ᐃᑲᔪᓯᐊᕈᓐᓇᖅᑐᑦ ᐊᖅᑯᒻᒥᒃ ᐊᑐᖃᑦᑕᕐᓗᑎᒃ ᐅᐱᕐᖓᒃᑯᑦ ᐅᒥᐊᕐᒥᓂᒃ ᐊᒡᔭᖅᑐᐃᔪᓐᓇᕐᓂᐊᕐᒪᑕ Davis Strait-ᒧᑦ. ᐅᑯᓄᖓ ᐊᑦᑕᑕᐃᓯᒪᔪᒧᑦ ᑲᖏᖅᑐᒑᐱᖕᒥᐅᑦ ᒪᐃᔭᖓᓐᓂᖕᖔᖅᑐᒥᒃ ᐃᑲᔪᖅᓯᐃᓂᕋᐃᓯᒪᔪᓂᒃ ᑎᑎᖅᑲᓂᒃ.

ᐱᓕᕆᐊᕆᔪᒪᔭᑦᑎᒍᑦ ᐃᓕᐅᖅᑲᐃᔭᕆᐊᖃᕐᓂᐊᖅᑐᒍᑦ ᑐᐊᐸᖕᓂᒃ ᑕᒪᑐᒧᖓ ᐊᖅᑯᑎᐅᑉ ᖄᖓᓄᑦ. ᑐᐊᐸᐃᑦ ᓄᐊᑕᐅᓯᒪᓕᕇᖅᑐᑦ ᐃᓕᐅᖅᑲᖅᑕᐅᓯᒪᓕᕐᓗᑎᒡᓗ ᐊᖅᑯᑎᐅᑉ ᓴᓂᖓᓄᑦ, ᐊᒻᒪᓗ ᐱᒃᑲᓐᓂᕆᐊᖃᕈᑦᑕ, ᕼᐋᒻᓚᒃᑯᓐᓂᑦ ᐱᒃᑲᓐᓂᕈᓐᓇᕐᓂᐊᖅᑐᒍᑦ. ᐊᖅᑯᑎᐅᑉ ᖃᖓᑕ ᐊᓯᐊᒍᑦ, ᐃᑳᕈᓯᐅᕆᐊᖃᕐᓂᐊᖅᑐᒍᑦ ᐊᑕᐅᓯᕐᒧᑦ ᑰᖕᒧᑦ (ᐃᖃᓗᓕᒃ) ᐊᒻᒪᓗ 8-ᓂᒃ ᑰᕋᓛᓄᑦ ᐃᑳᕈᑎᓂᒃ (ᐃᖃᓗᖃᓐᖏᑦᑐᑦ). ᑕᐃᒪᐃᓐᓂᖓᓄᑦ, ᑲᖏᖅᑐᒑᐱᐅᑉ ᑰᖓᓂ ᐃᑳᕈᓯᐅᕈᒪᔪᑦ ᓴᕕᕋᔭᖕᒥᒃ, ᐊᒻᒪᓗ 8-ᓂᒃ ᑰᑉ ᓴᕐᕙᐅᓂᖓᓄᑦ ᐃᓂᒃᓴᓕᐅᕐᓗᑕ ᑰᕋᓛᒃᑯᑦ ᐊᒻᒪᓗ/ᐅᕝᕙᓘᓐᓃᑦ ᓴᕐᕙᐅᕕᐅᔪᒃᑯᑦ.

ᑕᒪᓐᓇ ᐃᖅᑲᓇᐃᔮᕆᓕᕈᑦᑎᒍᑦ ᑲᖏᖅᑐᒑᐱᖕᒥᐅᓄᑦ ᓴᖅᑮᓂᐊᖅᑐᑦ ᐃᖅᑲᓇᐃᔮᒃᓴᓂᒃ, ᑭᓯᐊᓂᓕ ᐱᕐᔪᐊᖑᓂᖅᓴᐅᔪᖅ ᐃᖅᑲᓇᐃᔮᒃᓴᒃᑲᓐᓂᕐᓂᒃ ᐃᓚᓐᓂᐊᕈᑎᒃᓴᓂᒡᓗ ᓴᖅᑭᑦᑎᓂᐊᕐᓂᒍᑦ ᓴᓗᒻᒪᖅᓴᐃᓯᒋᐊᕈᑦᑕ ᐱᖑᐊᕐᔪᖕᒥᒃ. ᐊᒻᒪᓗᒃᑲᓐᓂᖅ, ᑲᖏᖅᑐᒑᐱᐅᑉ ᕼᐋᒻᓚᒃᑯᖏᑦ ᑕᒪᑐᒥ ᐊᖅᑯᒻᒥᒃ ᐋᖅᑭᒃᓱᐃᔪᒪᓯᒪᔪᖅᑲᐃᑦ ᐊᒻᒪᓗ ᐃᑳᕈᓯᐅᕐᓗᑎᒃ ᑲᖏᖅᑐᒑᐱᖕᒥᐅᑦ Davis Strait-ᓕᐊᖃᑦᑕᕈᓐᓇᕐᓂᐊᕐᒪᑕ. ᑕᒪᑐᒪ ᐱᓕᕆᐊᕆᔭᐅᓂᖓᓄᑦ, ᕿᑭᖅᑖᓗᒃᑯᑦ ᖀᓇᐅᔭᖅᑎᒍᑦ ᐃᑲᔪᕐᓂᓖᑦ ᕿᑭᖅᑖᓗᑉ ᐅᐊᖕᓇᖓᓃᑦᑐᖅ ᐱᕙᓪᓕᐊᑎᑕᐅᓂᐊᖅᑎᑦᑐᒍ ᐊᒻᒪᓗ ᐃᑲᔫᓯᐊᖅᑎᑕᐅᓂᐊᖅᑐᑎᒃ ᓄᓇᕗᒻᒥᐅᑦ.