

Supplemental Technical Information Required for Water Crossings
(linear/bridge/culverts)

1. Waterbody name (English and Inuktitut) and location (Lat & Long)

Duval River where it outlets into the tidal flats to the east of the Hamlet of Pangnirtung.
Location LAT 66° 8'55.33"N LONG 65°41'30.01"W.

2. Site photo, site map or air photo detailing location

See attached Photo 1 - Google Earth picture

3. Other Agencies contacted to date

- a) Nunavut Impact Review Board – decision attached dated August 20 2009
- b) Department of Fisheries & Oceans Canada – Fish Habitat Management - Fisheries Act section 35(2) authorization pending
- c) Transport Canada – Marine – Navigable Waters Protection Program – no concerns – see attached letter dated July 30 2009
- d) Nunavut Planning Commission – see attached response dated Sept 3 2009, from NPC stating that the two existing land use plans do not apply to the area surrounding Pangnirtung
- e) Nunavut Water Board – contacted spring/summer of 2008 when the Hamlet of Pangnirtung bridge was washed out – emergency amendment issued - see NWB file - 3BM-PAN0207

4. Need for the project and alternatives considered

The crossing is required to transport aggregate from the existing quarry for the small craft harbour development of the existing Pangnirtung Harbour. The existing bridges cannot support the aggregate-loaded trucks.

5. General condition of the site (s)

- i. Slope of banks
Approximate - 1.5:1 to 2:1 slope
- ii. Description of substrate
Course substrates typical of sand and gravels, the river bed and adjacent floodplain upstream consists of larger rocks and boulders
- iii. Vegetation (on banks, in-stream, to be removed)
Little or no vegetation.
- iv. Expected flow rates during time of construction
Permanent watercourse – works to be done in the fall/winter and crossing to be in place before higher flows of the spring
- v. Channel meander pattern
River channel at this location has little or no meander pattern.

6. Existing Habitat

- i. Fish Community (species/common names) at and near the site
The tidal flats adjacent to the Duval River outlet are known to support fish species such as arctic charr and capelin (Jacques Whitford Limited, February 2008)
- ii. Use of impacted area as spawning, nursery, rearing, food supply or migration route
The Duval River does not support spawning runs of migratory fish species such as arctic charr. The outlet or delta associated with the Duval River may support direct fish habitat in the form of food supply to adult or young charr.
- iii. Presence of sensitive habitat
None
- iv. Assessment of impact to fish and fish habitat
The placement of the crossing on the bed of the Duval River will result in the harmful alteration, disruption of fish habitat and require fish habitat compensation. This proposal is currently under review by DFO-Fish Habitat Branch – Iqaluit Office.

7. Construction Details

- i. In water work timing restriction for fishery
No in-water works during spring (use of adjacent area for capelin spawning)
- ii. Proposed start date and completion date
Fall of 2009.
- iii. Type of crossing
Rock gravel structure surrounding 3 corrugated steel pipe culverts.
- iv. Method of installation
Culverts will be placed on river bed and crossing backfilled to grade equal to roadway.
- v. Dimensions of pipe or structure
The river crossing will be made up of 3 culverts of the following size – 40 metres long by 1.8 metres in diameter. Fill to support the crossing will be placed on the river bed and around the culverts will require 3,500 cubic metres of crushed rock. The footprint will be approx 660 sq metres.
- vi. Machinery to be used
Two (2) Highway / haul road construction rock trucks, including a tail gate and dust covers to the back of the bins
One (1) Tracked dozer or loader (possible a sheep foot dozer if available) for spreading the crushed rock
- vii. Construction sequence (timing restriction may need to be taken into account)
Fall/winter 2009
- viii. Sedimentation and erosion control measures
Under contingency plan.
- ix. Monitoring during construction
Site will be monitored by hamlet in conjunction with project engineering consultant.
- x. Other mitigation measures

- See 6(iv)
- xi. Assessment of impact to fish and fish habitat
See 6(iv)
- xii. Bank stabilization (size range of material)
The banks will be stabilized with native materials found on site.
- xiii. Cumulative impacts to area
Not applicable.
- xiv. Contingency plan
Contingency plans will be in place to implement mitigation measures related to silt/sediment control in the event flows occur during the culvert placements. These will be field-fitted to meet the specific conditions that may occur.
- xv. Revegetation proposed
Not applicable due to the nature of the site – outlet of high energy watercourse.
- xvi. Proposed post-construction monitoring (photos taken of the site before construction, during construction and after construction; photographs should be taken from the same reference point for easy comparison)
Photos will be taken during construction by monitoring of site by engineering consultant.

8. Bridge

NOT APPLICABLE

9. Culvert Installation

- i. Culvert dimensions (height and width or diameter, length)
See 7(v)
- ii. Culvert type/material
See 7(v)
- iii. Impact to fisheries ability to migrate through the culvert
Not applicable – see section 6
- iv. Need to realign the channel?
No
- v. Open bottom or natural substrate inside?
natural substrate
- vi. Slope of culvert
Little or no slope or gradient at this location of the river bed.
- vii. Installation of baffles, rock weirs or other structures
Not applicable

References:

Nearshore Fish and Fish Habitat Assessments Related to Marine Structure Developments at Arviat, Chesterfield Inlet, Pangnirtung, Qikiqtarjuaq and Repulse Bay, Nunavut (Jacques Whitford Limited, February 2008)

Formatted: Bullets and Numbering