

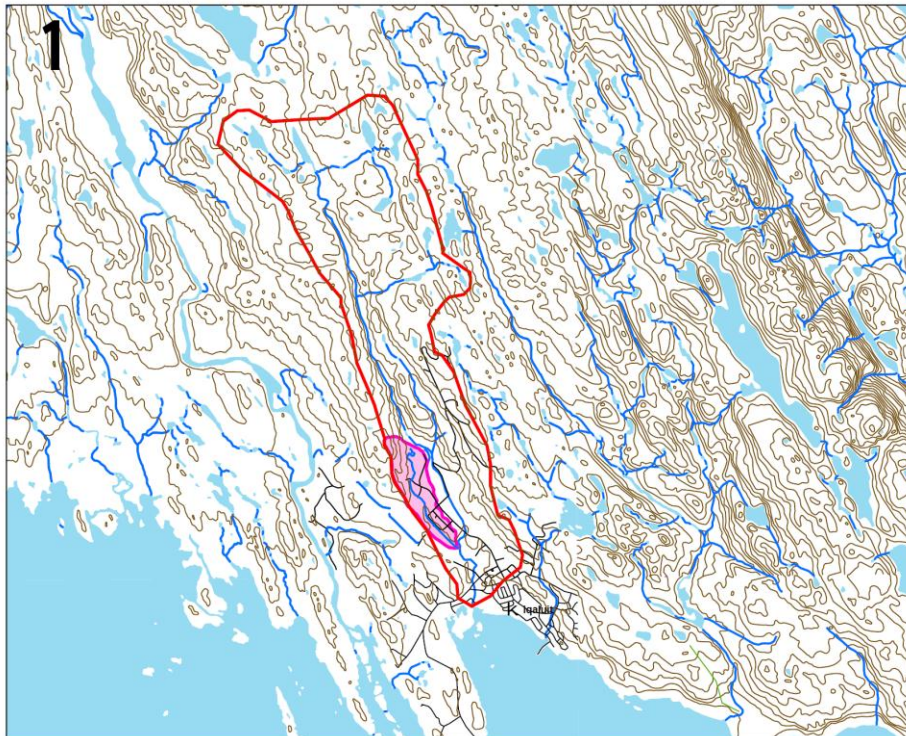


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NUNAVUT WATER BOARD NUNAVUT IMALIRIYIN KATIMAYINGI

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

1. Waterbody name (English and Inuktitut) and location (Lat & Long)
We did a Geographical Names Search and no designation has been found for the creek.
Locally, the water body is known as **Carney Creek**.
Location: 63.757828,-68.54515 (Lat & Long)
2. Site photo, site map or air photo detailing location



General Localisation Map Watershed	
Legend	
	Pond/lake
	Watershed (Watercourse A)-12.8 km ²
	Watershed (Ditch A)-0.7 km ²
	Watercourse
	Contour line (10m)
	Road
BY: JFSA Experts-consults en ressources hydriques et en environnement	
Presented to: Fisheries and Oceans Canada (DFO)	
On Behalf of: Sintra Inc.	
Project: Iqaluit International Airport Improvement Project (IIAIP)	
No. / N°: DATE: DESCRIPTION: APPR:	
SCALE: 1:45 000	
Plan 1	
FIELD NO. / N°: 1217_Plan_1_MR3	
DATE: 10/10/2013 PROJECT NO.: JFSA-1217	



3. Other Agencies contacted to date
 - a. AANDC, Aboriginal Affairs and Northern Development Canada
 - b. DFO, Department of Fisheries and Oceans Canada
 - c. EPD, Environmental Protection Division of the Government of Nunavut
4. Need for the project and alternatives considered:
Please see the Request for Review, produced by JFSA in July 2014.
5. General condition of the site (s)
For a completed description of the Aquatic environment, please see section D of the Request for Review, Iqaluit International Airport Improvement Project (IIAIP), prepared by JFSA in July 2014.
 - i. Slope of banks:
The slope of banks varies on site, between 100 % and 30 %. Please refer to the following cross-sections.
 - ii. Description of substrate:
The substrate consists mainly of gravel, along with blocks and sand.
 - iii. Vegetation (on banks, in-stream, to be removed):
The vegetation observed on banks during the visit of October 2nd is described in the following table.

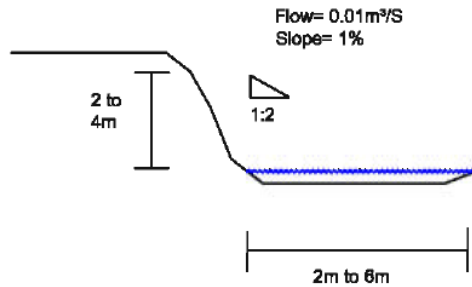
Iqaluit, Nunavut		Iqaluit International Airport Improvement Project
		JFSA Project: 1217-03
Floristic list		
Scientific Name	English Name	Inuktitut Name
<i>Ameria maritima subsp. sibirica</i>	Arctic thrift	Immulik
<i>Brassicaceae</i>	Mustards	
<i>Carex membranacea</i>	Membranous sedge	Kilirnait ajjikasangit iviit
<i>Chamerion latifolium</i>	Dwarf fireweed	Paunnat
<i>Eriophorum angustifolium</i>	Common cotton grass	Puallunnguut
<i>Festuca brachyphylla</i>	Alpine fescue	Ivilsugait
<i>Oxyria digyna</i>	Mountain sorrel	Qunguliit
<i>Poa glauca</i>	Glaucous bluegrass	Kilirnaujait
<i>Salix arctica</i>	Arctic willow	Suputiit
Reference: Mallory, Carolyn and Aiken, Susan, 2012, Common Plants of Nunavut, Inhabit media, 205 pages.		

- iv. Expected flow rates during time of construction (June-July-August):
The flow was measure on October 3rd, 2014, at the exit of the culverts of the Federal road. The result is approximately 0.01 m³/s.
During the work, we expect the flow rates can vary from 0.01 m³/s (minimum base flow) to 1.5 m³/s (flow expected in summer rain).
 - v. Channel meander pattern:
All the sections where work are expected, the channel is pretty straight, except for the section WC-1, which is more a braided channel.
6. Existing Habitat - Please refer to the 2014 Fish Study (*Fish habitat survey-Iqaluit JFSA 1217-01—P.pdf*)
 - i. Fish Community (species/common names) at and near the site
 - ii. Use of impacted are as spawning, nursery, rearing, food supply or migration route
 - iii. Presence of sensitive habitat
 - iv. Assessment of impact to fish and fish habitat
7. Construction Details
 - a. No in water construction other than culvert and ditch realignment are planned for the project.
8. Bridge
 - a. No bridge work is planned for the project.
9. Culvert Installation (refer to plans CC-114 and CC-115 for culvert locations and dimensions, ANNEXE-A)
 - i. Culvert dimensions (height and width or diameter, length)
13 culverts between 600 and 1500 mm and from 18 to 69 linear meters
1 culvert with 2.010 and 3.400 mm diameter (not circular) (Refer to plan CC-511, ANNEXE-B)
 - ii. Culvert type/material
Corrugated steel
 - iii. Impact to fisheries ability to migrate through the culvert

*For Section position, refer to PLAN 3, ANNEXE-C

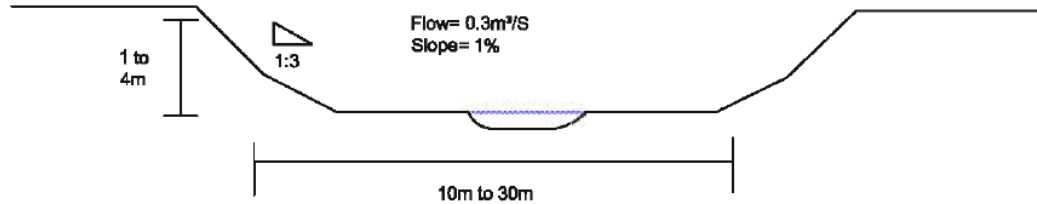
2- Section Wc-2: Flat and narrow

Chaining Q1300- Q1800



1- Section Wc-1: Flat and wide

Chaining Q0- Q1200



PRESENTED to : Nunavut Water Board

ON BEHALF OF : SINTRA inc.

PROJECT :

Iqaluit International Airport
Improvement Project

Water Liscence / NWB

No.	DESCRIPTION	DATE	APPR.
DATE :	2014, October 23rd	CONÇU :	MR
		DESSINÉ :	MR
PROJECT No. :	P1217-03	VÉRIFIÉ :	GL
		APPROUVÉ :	GL
Scale :	N/A		
Page 1 of 2			
DESSIN RÉF. :	Y: 1217-03 CoupeType GL.dwg		

JFSA

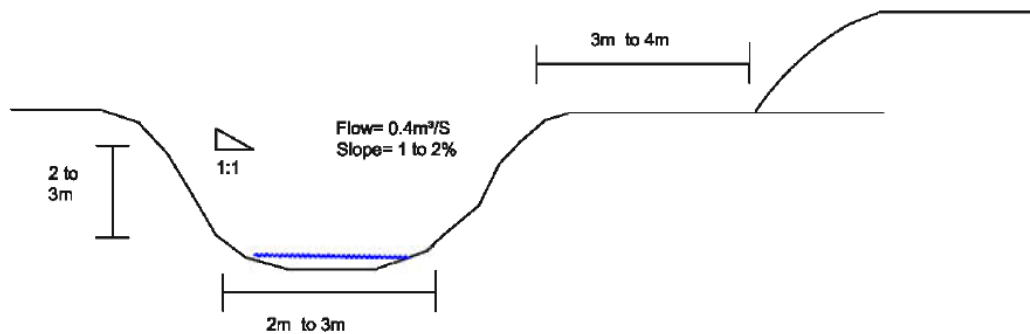
Experts-conseils en ressources
hydriques et en environnement



*For Section position, refer to PLAN 3, ANNEXE-C

4- Section DT-1: Straight and narrow

Chaining QZ100- QZ500



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JFSA

Experts-conseils en ressources
hydriques et en environnement

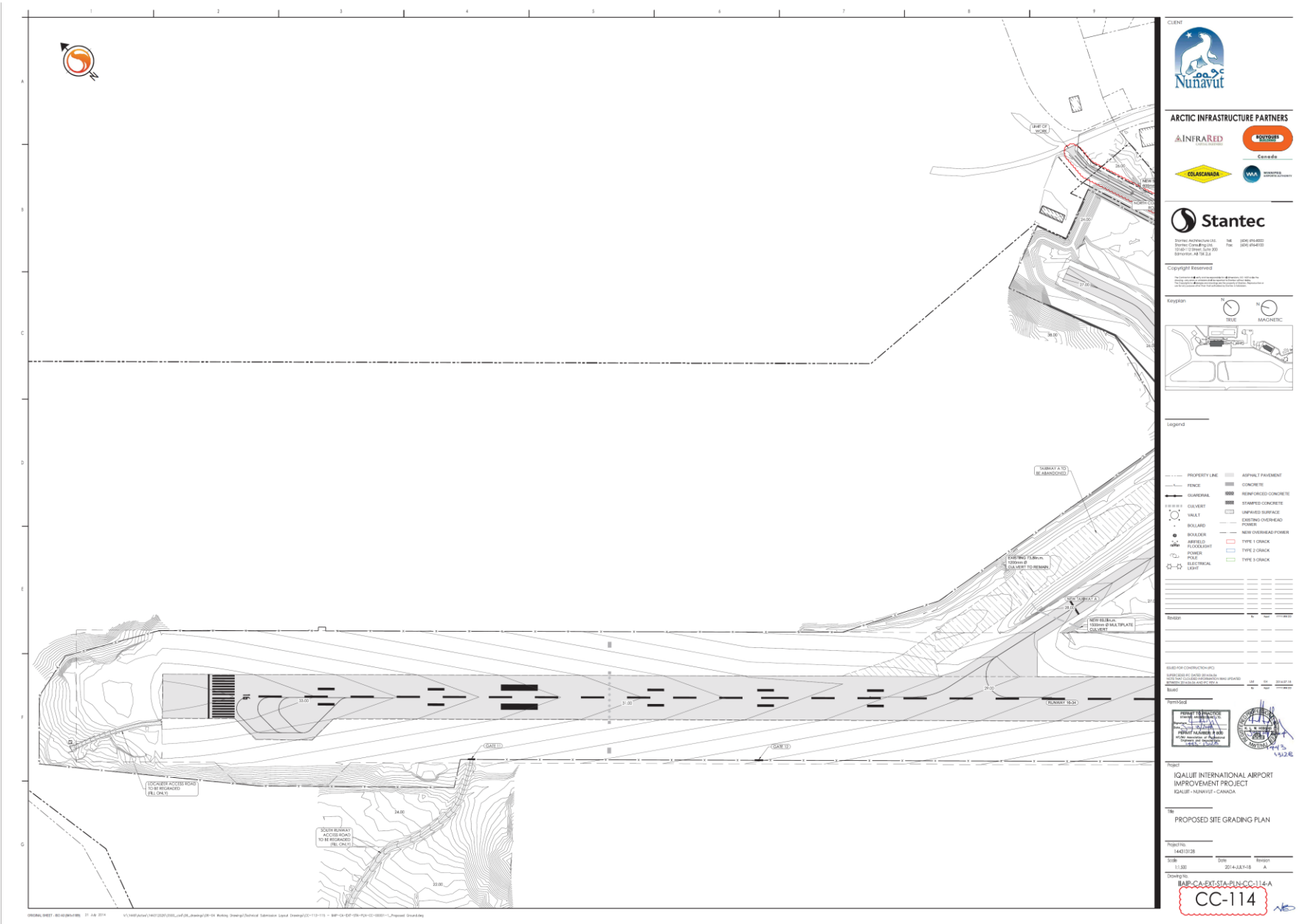


The fish will not be able to use the 250 m culvert installation. D&B JV has proposed to DFO to replace the existing culvert under the Federal road to offset the 250 meters culverts installation and to allow passage of fish.

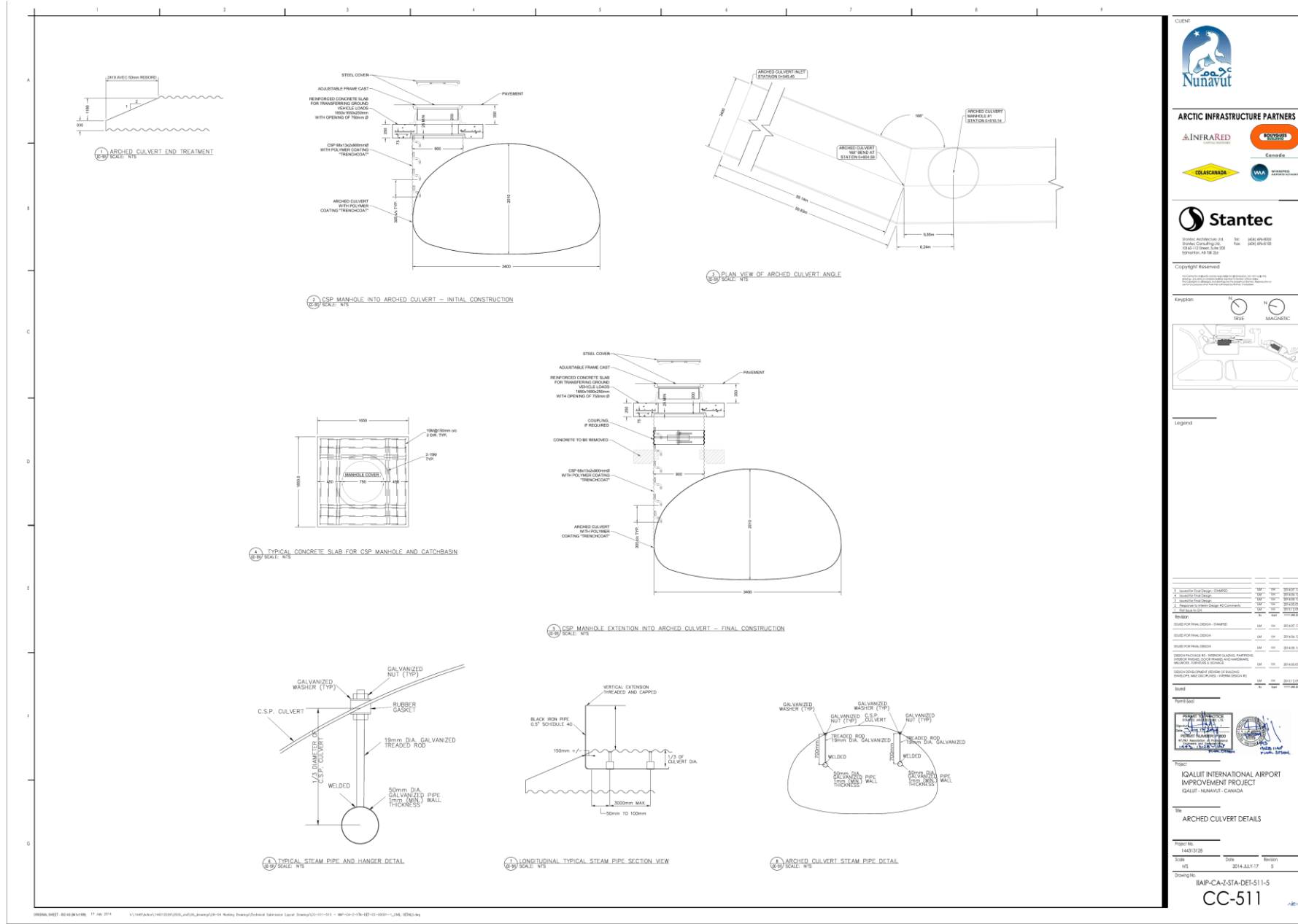
The slope in the culvert installed in the watercourse will allow fisheries to migrate through the installation with respect to the fish swimming speed. DFO standards will be respected and applied.

- iv. Need to realign the channel?
The creek will be realigned on 450 meters with a 10 to 15 meters displacement
- v. Open bottom or natural substrate inside?
Closed bottom at the level of the surrounding substrate levels with no natural substrate
- vi. Slope of culvert
Slopes of all culverts are between 0 and 1.1 %
The 250 meters culvert will be sloped at 0.68 %
- vii. Installation of baffles, rock weirs or other structures
Compensatory improvements have been presented to DFO and were approved. A more detailed plan with installation of baffles, rock weirs or other structures will be presented (refer to Plan 3, ANNEXE-C).

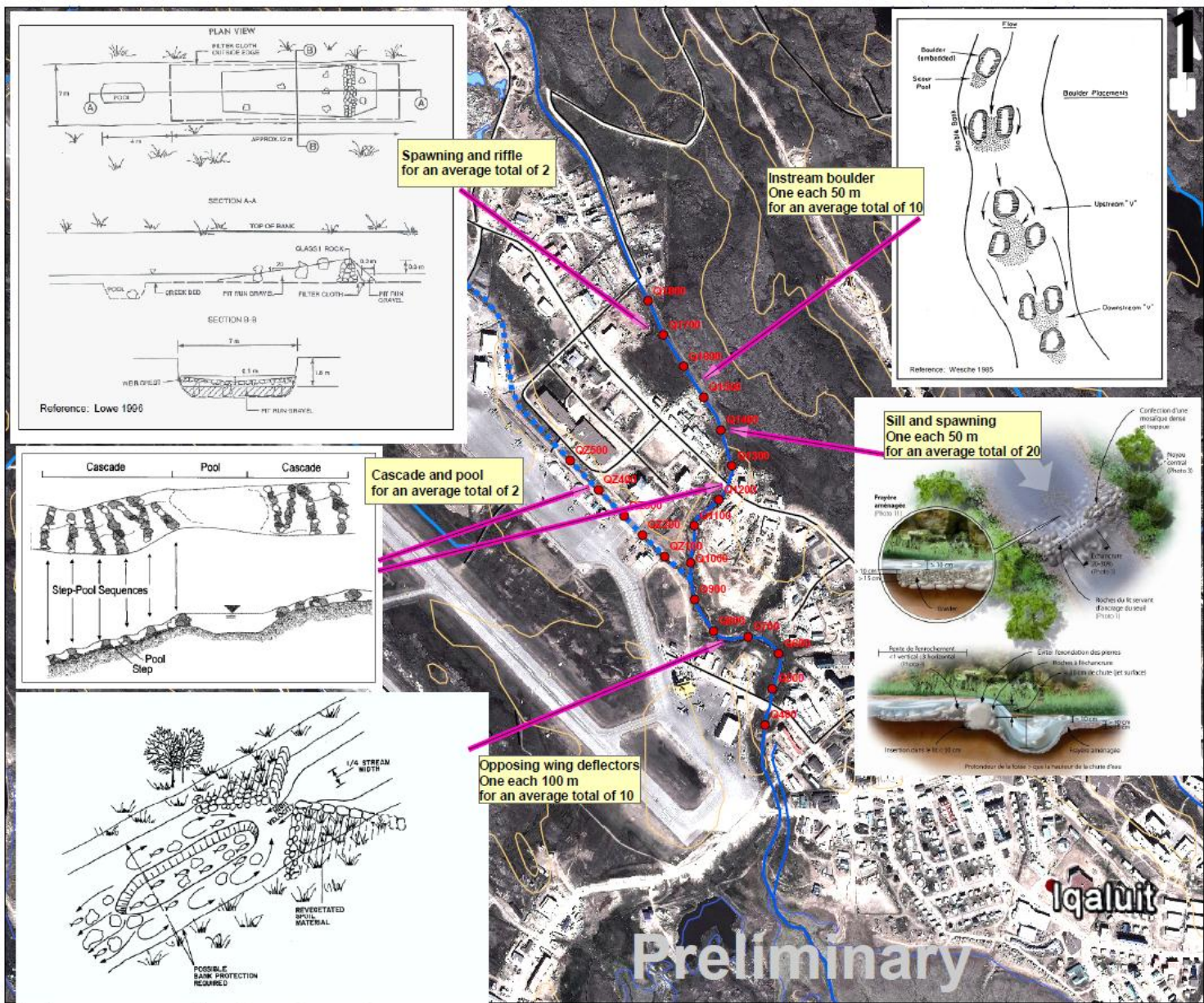
Annexe-A, Site Plan CC-114



Annexe-B, Culvert Plan *Figure CC-511*



Annexe-C, Plan 3



Fish habitat improvement

Conceptual plan

Legend

- Pond
- Ditch A
- Watercourse A
- Contour line (10m)
- Road
- Chaining

The final type design and their number will be determined during the preparation of plans and specifications. These final adjustments will be approved by DFO.

BY: **JFSA** Experts-conseils en ressources hydriques et en environnement

Presented to: **Nunavut Water Board (NWB)**

On Behalf of: **Sintra Inc.**

Project: **Iqaluit International Airport Improvement Project (IIAIP)**

No.	BY	DATE	DESCRIPTION	APPR.

SCALE: 1:10 000

160 80 0 160 320 480 Meters

Plan 3

FIELD SURVEY: J.L.	DATE	PROJECT NO.
DRAWN BY: G.B.		
CHECKED BY: G.L.		
APPROVED BY: G.L.		

1217-03_plan3_GL

Oct. 2014 P1217-03