Project Completion Abstract for Fish Passage Restoration Projects (engineering activities)

[3000 Road, Site 19/1759, Fulton River Watershed, Northern Interior Forest Region]

Objectives of the overall project

The overall objective is to provide unrestricted fish passage for all life stages of fish for the purpose of spawning, rearing or migration which will support increased fish sustainability, survival and production. The existing culverts were undersized for Q_{100} flows, were restricting access to identified fish habitat upstream and were replaced with an open bottomed fish friendly structure (13.0m pre-cast concrete bridge). The bridge will remove the identified fish passage barrier created by the culverts and will ensure unrestricted fish passage is provided for all life stages of fish in the reconstructed stream channel. The project is not located within a community watershed.

Stream - Unnamed Stream
Stream Classification – S3
Fish Species – Dolly Varden/Bull Trout

FIA Investment Schedule Number, Project Number, and Fiscal Year

FIA Investment Schedule Number: NOTSA 032502
Project Number: 2502001
Contract Number: 06-FIA-07
Fiscal Year: 2006/2007

Recipient Name and Division/ MoF District/ MoF Region

West Fraser Mills Ltd.
Pacific Inland Resources Division, Smithers, BC.
Skeena Stikine Forest District
Northern Interior Forest Region

Names/Affiliation of Registered Professionals Involved in the Project

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Name of Watershed / Sub-basin, & Location

Watershed: Harold Price Creek
Watershed Code: 460-081700-43900-51100-1190
Stream Name: Unnamed
1:20,000 Mapsheet: 093M.016
Location: 3000 Road, ~34.0 km
Site Number: Site 19/1759
UTM Coordinates: E 637557 N 6111059

Introduction

An analysis of fish passage issues in the Bulkley TSA by Pacific Inland Resources, a division of West Fraser Mills, revealed that a pre-code stream crossing (900mm CMP) existed on the 3000 Road at ~34.0km that did not meet current fish passage requirements. The 3000 Road is a permanent main haul road that has been in use for more than 25 years. In an effort to expand the available habitat for various fish populations, the current structure will be replaced with a permanent pre-cast concrete bridge.

Fish Passage Culvert Inspection – Sept. 18/03
Barriers – Partial; Culvert slope (5.1%) and culvert water velocity (1.1m/s) are barriers to juvenile fish passage upstream
Priority rank score – 40 (H)
Fish Species (DV/BT) – 10 Habitat Value (M) – 7
Barrier (Partial) – 7 Habitat (>1km) – 6
% Stream Barred (>70%) – 10
Upstream Barriers (Yes) – 0

Description of Design

The stream in question is fish bearing and the existing culvert is a partial barrier to upstream fish passage. Since restoration of fish passage was the objective of the project, an open bottom structure that

would span the reconstructed stream channel was chosen. A pre-cast concrete bridge was selected for its longevity, low maintenance requirements and in order to minimize in-stream earthworks. Steel pipe piles were chosen as the most economical bridge foundation with pre-cast concrete spread footings as an alternative if piles were found to be unsuitable for the site.

Description of Completed Work

Construction commenced on the afternoon of Oct.18/06 with the setup of the crane and rigging. Driving of the piles on both the south (empty) side and north (loaded) side at Site 19/1759 was completed by ~ 3:30pm on Oct.19/06. Piles on both sides were driven to the existing ground elevation (embedment ~40ft). Following isolation of the in-stream work area and fish salvage (no fish captured) construction reconvened on Nov. 2/06 with preparation of the site and unloading of the bridge materials. The next day, Nov. 3/06, a second excavator arrived and the culvert was excavated. A sumphole was scooped out on the u/s side of the road, a pump was installed and the stream flow was diverted around the in-stream work area. After a short time there was no flow through the in-stream work area. The culvert was pulled. Clean, unsorted gravel was encountered about 30cm below the bed of the culvert. The gravel was very good material for the stream bed so it was contoured to a constant grade and the stream flow was slowly reintroduced into the new stream channel. A second pump was installed in the former culvert outlet pool and the dirty water was pumped out away from the stream until the new channel was running clean. Both pumps were then removed. The end cap beams were placed and welded to the piles. Rubber bearing strips were placed and some back filling of the cap beams was completed. Rip-rap was then placed in front of the cap beams. Following this the bridge slabs were placed on the cap beams. The following day (Nov. 05/06) welding of the shear plates was started, the dowels were placed in pockets and the dowel holes grouted. The roadway approaches were levelled and one of the excavators was moved to Site 13/1722. Nov. 06/06, the last day at this site, saw the completion of the shear plate welding, injection of expanding foam between longitudinal joints of the slabs and placement of the no post barriers at both ends of the bridge. The bridge signs were erected and the bridge crew moved to Site 13/1722. Isolation nets were removed from the stream channel. An environmental monitor was on site for all in-stream work phases.

Cost Summary

Site Prescription/ Site Design	$2970.00
Project Supervision	$8042.04
Fish Salvage and Environmental Monitoring	$9980.40
Works	$83,450.00
	$1749.17
Total	$106,191.61

Post-construction Inspection

An engineer was on site for all stages of construction, therefore a formal post-construction inspection was not completed on this site. The engineer verified that all stages of the bridge construction were completed to design specifications, documented daily progress and submitted signed and sealed record drawings and a Certification of Construction along with a daily progress report.

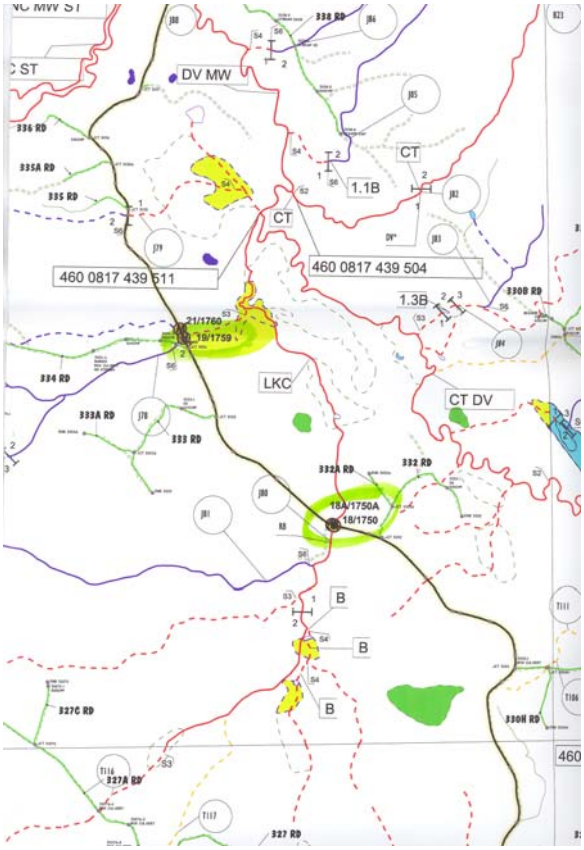
Photographs

Photo 1. U/s view of outlet, culvert partially excavated.

Photo 2. U/s view of completed new channel with bridge in place.

Photo 3. 3000 Road-Site 19/1759 culvert outlet conditions. Culvert slope and H_2O velocity are barriers to juveniles.

Key Map



TRIM Mapsheet 093M.016

Note to Author:

The layout of the Project Completion Abstract should be in a two-column format (as viewed in Page Layout mode). The two page format of the abstract (not the content) is illustrated in the Annual Compendium of Aquatic Rehabilitation Projects for the WRP 1999-2000 available at

http://srmwww.gov.bc.ca/frco/bookshop/wrp.html