



**Project Completion Abstract
Barren Creek, S3
Km. 18.2 Michelle Bay FSR
Fish Passage Project**

Objectives

The project objectives are:

- To eliminate the barrier to passage for rainbow and cutthroat trout and chinook and coho salmon. (Photo 1.)
- To restore the stream channel to more natural conditions and eliminate the need to complete in-stream road maintenance works, i.e. clean out culvert.

FIA Investment Schedule Number, Project Number and Fiscal Year

- Investment Schedule # NOTSA 208102
- Project # 8102001
- Fiscal Year 2009-2010

Recipient Name and Division/ MoF District/ MoF Region

- Canadian Forest Products Ltd.
- Nadina Forest District
- Northern Interior Forest Region

Names/Affiliation of Registered Professionals involved in the Project

- Michael Van Arem, RPF. Association of British Columbia Forest Professionals.
- Brad Major, P.Eng., Professional Engineers and Geoscientists of BC
- Jason Yarmish, RP Bio., College of Applied Biology

Author

Wayne Patterson

Watershed and Location

- Skeena River Watershed
- Bulkley River Tributary

- Located at km 18.2 km on the Michelle Bay FSR
- MOF ID#R5-097
- GPS coordinates N. 54-28-23 W. 126-32-10

Introduction, Summary of the background and history

Stream crossing was identified through MOF and Canfor staff as having potential fish passage issues. The crossing was assessed by Triton Environmental to fulfill the following:

- Evaluate to what degree the crossing blocked fish passage,
- Identify the amount of available fish habitat above the crossing, and
- Rank the crossings for rehabilitation to facilitate fish access.

The Michelle Bay FSR is a typical Off-Highway main line forest resource access road constructed during the 1970s. The crossing at 18.2 km consisted of a single closed bottom 1800mm metal culvert installed in the 1970s.

An assessment of this crossing was completed by Triton Environmental Consultants in November of 2007. The existing culvert is considered a full barrier to fish migration based on the vertical drop at the outlet of the culvert. (see photo # 1)

Based on the results of the FPCI Scoring Matrix; a total score of 50, the multiple fish species affected and the high value of habitat present, the culvert at 18.2 km on the Michelle Bay Forest Service Road is given a high priority for replacement

Description of Design

Replace closed bottom culvert with a clear span bridge and restore the stream channel. A 39.624m clear span steel / concrete composite bridge was chosen to replace the existing culvert because:

- This design provides adequate channel width and opportunity for streambed restoration.
- Due to the depth of road fill at this location, this steel / concrete composite bridge is most cost efficient for the chosen span.
- The clear span bridge reduces the possibility of fish passage becoming obstructed.

Description of Completed Work

- Design completed: 2008/12/08
- Environmental Management Plan completed: 2008/08/13
- Contract for culvert removal, streambed rehabilitation and the supply and installation of the new structure was tendered December 17, 2008 and awarded January 26, 2009.
- Materials purchase and delivery completed: March 30, 2009
- Construction Completed September, 14, 2009. (Photo 2 and Photo 3)

Cost Summary

Materials Purchase	\$207,500.00
Installation	\$245,373.48
Engineering	\$ 18,990.13
Environmental	<u>\$ 11,162.25</u>

Total Cost \$483,025.86

Post Construction Inspection

It is expected that routine structural and maintenance inspections will suffice to detect any problems that may arise at this site in the future.

Photographs



Photo 1. Stream Culvert Outlet.



Photo 2. New Barren Creek Bridge



Photo 3. View of New Channel Looking Downstream.