

# SUMMIT CREEK CULVERT REPLACEMENT

**BPA Contract #00028841**

**BPA Project #1992-026-01**

## **Completion Report**

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**By:**

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### **Abstract**

All improvements at the Summit Creek site were completed which eliminated a low-flow fish passage barrier to 1.2 miles of upstream habitat. The culvert was removed and replaced with an 11' x 4.5' multi-plate steel arch. Wallowa Resources and the USFS are currently raising funds to complete the Doe Creek culvert replacement in the summer of 2007. This will wrap up the original 3 culvert project as it was conceived in 2004 to include new structures for improved passage at Doe, Billy and Summit Creeks.

### **Introduction**

The objective of this project is to restore season-long passage of adult and juvenile steelhead in the Upper Joseph Creek subwatershed by replacing the culvert at Summit Creek with an open-bottom arch.

This culvert was rated as high for replacement in the Culvert Fish Passage Rating and Prioritization Report by the Wallowa-Whitman National Forest staff based on Region 6 fish passage evaluation criteria. The Upper Joseph Creek subwatershed was ranked high priority for steelhead/reddband trout restoration work in *Toward an Integrated Classification of Ecosystems: Defining Opportunities for Managing Fish and Forest Health* (Rieman, et al 2000).

Finally, the Upper Joseph Creek subwatershed has been identified as one of the five highest priority Geographic Areas for restoration for the Joseph Creek Steelhead population (Grande Ronde Subbasin Plan, p. 16). The Plan also states that restoration in this subwatershed will have a large impact on steelhead abundance and productivity (p. 17), and addresses the strategy of restoring fish passage at man-made barriers (p. 47).

### **Methods and Materials**

Methods and materials for each project component are described below (Table 1).

*Table 1. Methods and Materials for Summit Creek Culvert Replacement, 2006.*

<b>Project Component</b>	<b>Materials Description</b>	<b>Accomplished by:</b>
Culvert Replacement	Excavator, dump truck, concrete, multi-plate steel arch, plants, grass seed, shovel, sump pump, fish nets, tarp, chainsaw	Contractor, USFS employee

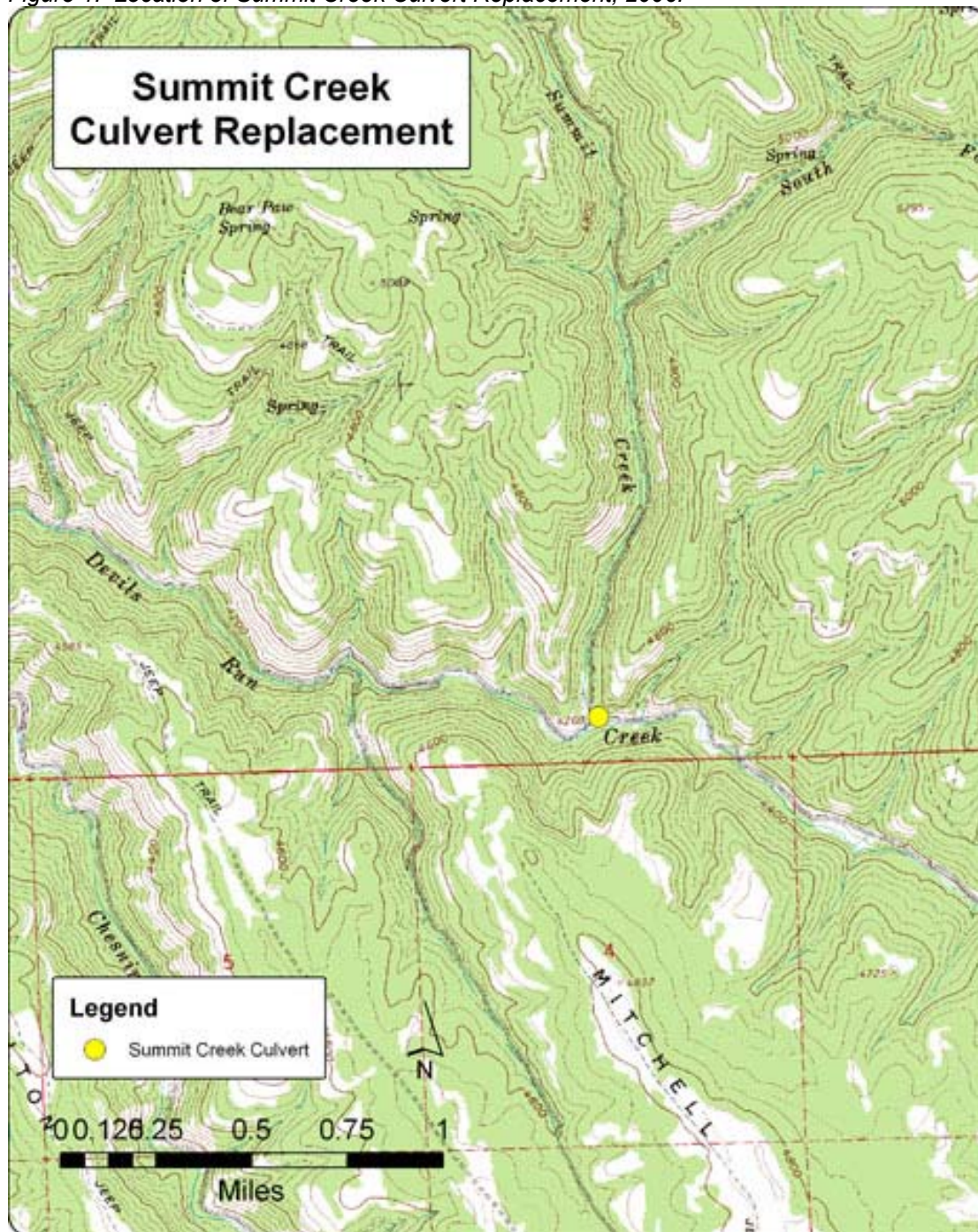
## Project Description

A comparison of the original BPA contract (2006) tasks and the final accomplishment are listed below in Table 2. The final accomplishment is displayed in Figure 1.

*Table 2. Summary of work performed in Summit Creek Culvert Replacement, 2006.*

Tasks	Location	Date	Final Accomplishments	Original Contract	Difference
Culvert Replacement	T04N R47E Sec 33	09/06-10/06	Summit Creek arch installed	Install Summit Creek arch	none

*Figure 1. Location of Summit Creek Culvert Replacement, 2006.*



## Project Participants

Table 3. Summary of Summit Creek project participants, responsibilities and fiscal contributions, 2006.

Participant	Responsibilities	Fiscal Contribution
Wallowa Resources	Developed RFPs & contracts with USFS; managed contracts; wrote reports; purchased supplies and materials	
USFS	Developed DSL/ACoE permits, assisted in developing RFPs & contracts with WR; conducted initial site surveys; provided approval of engineering designs; provided oversight and inspection for contract work; spread native grass seed; wrote reports	\$15,900
Bonneville Power Administration	Fiscal contributor	\$23,780
Oregon Watershed Enhancement Board	Fiscal contributor	\$62,000
The Nature Conservancy/Pacificorp	Fiscal contributor	\$12,895
Grande Ronde Model Watershed	Assisted in project quality control	

## Description of Project Area

This project is located on Summit Creek in Wallowa County on USFS land: T04N R47E Sec 33.

## Results and Discussion

This project was originally part of a larger effort intended to replace the culverts at 3 sites: Doe, Summit and Billy Creeks with two arches and a bridge. The Billy Creek Bridge was successfully completed in the spring of 2006. The engineering plans for all three sites and purchase of the multi-plate steel arches for Summit and Doe Creeks were completed as part of a previous project phase.

In the first round of GRMW's 2006 funding requests, Wallowa Resources applied for and received BPA funding to replace the Doe and Summit Creek culverts. The contingency, however, was that we also secured the funding applied for from OWEB. We did not receive that funding.

In the meantime, the USFS was successful in securing funding from the "Pacific NW Whole Watershed Joint Venture Initiative" (a joint effort between the USFS and OWEB), and Wallowa Resources worked successfully with The Nature Conservancy to secure additional funds from Pacificorp. With this new funding in hand, and prioritizing Summit Creek for implementation in a scaled-back project, we reapplied to GRMW in a late summer funding round for funds to complete the Summit Creek culvert replacement. The board approved that request in July, 2006 and the project was underway. Wallowa Resources awarded and signed the construction contract with LD Perry, Inc. in August, 2006.

Excavation and construction began in mid-September, 2006. The culvert at Summit Creek was removed and replaced with an 11' x 4.5' multi-plate steel arch. The BPA funds were spent first to meet the September 30 grant deadline. Joint Venture and Pacificorp funds sustained the project through completion in October, 2006. Project changes from the original designs included modifications to the concrete abutments to reduce costs and decreasing the length of the arch to better match the road profile. USFS Hydrologist Dana Orrick spread native grass seed on disturbed areas in November, 2006 taking advantage of the warm, wet weather.

The San Dimas Technology and Development Center, a research branch of the USFS, was on site to videotape selected portions of the project for an interactive restoration training DVD.

### **Summary and Conclusions**

Like the Billy Creek project before, we are very pleased with the outcome of the Summit Creek culvert replacement. We have now accomplished 96% of our original passage goal at the three culvert sites: Doe, Billy and Summit Creeks. We are hoping for 100% by the end of 2007, with completion of the Doe Creek culvert replacement project.

We appreciated working with the contractor, LD Perry, Inc. Overall we found the company responsive in meeting budget as well as site-specific project needs. The project went smoothly with a few minor changes.

We are proud that our efforts are included in the San Dimas training video and look forward to seeing our project site in the DVD when it is released. An engineer from San Dimas was on site during much of the construction and provided valuable input (e.g. shortening the arch). It was a bit challenging, however, to have two engineers on site. They tended to have strong and different opinions regarding arch construction. We will keep this in mind as we implement the Doe Creek project in 2007.

The only potential negative to this project involves the streambed simulation rock inside the arch. It contains more clay and less roughness than originally designed. The streambed will be monitored closely in the spring of 2007 to see if the channel is on a path to correct itself.

The corridor immediately adjacent to the stream channel and within bank full width will be seeded following high flow in the spring of 2007. We will monitor the entire site and reseed if necessary to establish healthy vegetation.

All partners involved should be commended for their ability and willingness to respond quickly favorably in the face of changing project demands. In particular, we applaud the USFS for securing the OWEB Joint Venture funds for this project. Not only were those funds critical to setting the project in motion, but also represent the kind of on-the-ground, cash investment in restoration that is rare in this era of budget cuts and centralization. Wallowa Resources and the USFS remain committed to securing the funding for completing the culvert replacement at Doe Creek in 2007.

## Summary of Expenditures

Table 4. Summary of expenditures for the Summit Creek Culvert Replacement, 2006.

	BPA	USFS/OWEB Joint Venture	TNC & PacifiCorp	USFS	Total
<b>Personnel</b>					
Wallowa Resources Project Manager (264 hours @ \$20/hour)	\$1,451	\$3,311	\$512		\$5,274
USFS Personnel (Hydrologist 300 hours @ \$25/hour, Engineer 150 hours @ \$40/hour)				\$13,500	\$13,500
Site Inspection (Contract Engineer, 44 hrs @ \$80)		\$2,456	\$1,074		\$3,530
<b>Subtotal</b>	<b>\$1,451</b>	<b>\$5,767</b>	<b>\$1,586</b>	<b>\$13,500</b>	<b>\$22,304</b>
<b>Excavation &amp; Installation</b>					
Removal of CMP (Lump sum)		\$2,500			\$2,500
Structural excavation: Footings, rock fill, and riprap toe trenches - Structural backfill incidental item (721 c.y. x \$33/c.y.)		\$23,583			\$23,583
Placed Riprap, class 4, method a (81 c.y. x \$49/c.y.)		\$4,000			\$4,000
Special rock embankment, (Compacted rock fill for footing) (90 c.y. x \$30/c.y.)		\$2,700			\$2,700
Crushed aggregate for roadway, 6" surface course, grading F, compaction B (Lump sum)		\$1,700			\$1,700
Structural concrete, class A(AE), for footings - Reinforcing steel incidental item (52 c.y. x \$490/c.y.)	\$20,800	\$4,700			\$25,500
Mobilization (Lump sum)		\$7,000			\$7,000
Install owner furnished structural plate arch, 11' span, 4'-6" rise, 80' length; furnished at USFS yard in Enterprise (Lump sum)		\$500	\$10,500		\$11,000
Install and remove owner furnished road closure and detour signs, modify existing field signing as necessary (Lump sum)		\$250			\$250
Placed Rock Band, Method D (Commercial Source) (8 c.y. x \$150/c.y.)		\$1,200			\$1,200
Placed stream bed simulation rock, bed class 9, method E (Commercial Source) (54 c.y. x \$119/c.y.)		\$6,400			\$6,400
Placed select borrow (Commercial Source) (13 c.y. x \$92/c.y.)		\$1,200			\$1,200
Reconstruct Roadway		\$500			\$500
<b>Subtotal</b>	<b>\$20,800</b>	<b>\$56,233</b>	<b>\$10,500</b>	<b>\$0</b>	<b>\$87,533</b>
<b>Direct Project Total</b>	<b>\$22,251</b>	<b>\$62,000</b>	<b>\$12,086</b>	<b>\$13,500</b>	<b>\$109,837</b>
<b>Administration</b>					
Wallowa Resources Indirect Expenses	\$1,529		\$809		\$2,338
USFS Indirect Expenses (17.8% of direct project costs)				\$2,400	\$2,400
<b>GRAND TOTAL</b>	<b>\$23,780</b>	<b>\$62,000</b>	<b>\$12,895</b>	<b>\$15,900</b>	<b>\$114,575</b>
<b>Percent of Budget</b>	<b>21%</b>	<b>54%</b>	<b>11%</b>	<b>14%</b>	<b>100%</b>



## Photo Monitoring – Summit Creek Culvert Replacement



*Summit Culvert outlet April 2006 (pre-replacement)*



*Summit Arch outlet November 2006 (post-replacement)*



Photographs cont.'d



*Road reconstruction over the newly installed Summit Creek arch (inlet view).*



*Road reconstruction over the newly installed Summit Creek arch (outlet view).*