PROJECT COMPLETION REPORT

BUCK FORK – N. MYRTLE CULVERT REPLACEMENT

OWEB Project # 99-511

Figure 1
Pre-project view, Buck Fork Creek Culvert, outlet end

Figure 2
Post-project, Buck Fork Creek Bridge installed

Prepared by

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Umpqua Basin Watershed Council
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Buck – North Myrtle Culvert Replacement

BACKGROUND

Landowner(s):

Art and Linda Lund
PO Box 2174 (13860 N. Myrtle Road)
Myrtle Creek, OR 97457
541-863-3674

Project Location:

T28S, R4W,WM, Section 13, SW ¼

Scoping:

The landowners, Art and Linda, were first introduced to us through their downstream neighbors, Lindley and Lois Stanton. We had been working with the Stantons to fence their riparian area and provide off channel stock water. In conversation, mention was made of the neighboring South Myrtle Ditch project where ditch irrigation users were converting to more water efficient sprinkler irrigation. The Stantons were excited about this project and told us they and the Lunds were both users of the Giese Ditch. In the meantime the Lunds had contacted the Douglas Soil and Water Conservation District (DSWCD) about a stream bank erosion problem. An appointment was made with Art and Linda to walk their property and discuss their needs. Present were the Lunds, Walt Barton – DSWCD, Sam Dunnavant – ODFW, Dave Williams – Watermaster, and Bob Kinyon of the Umpqua Basin Watershed Council (UBWC).

Lunds recently purchased nearly 75 acres of the Giese ranch consisting of cut over timberland and hay fields. It was apparent from the beginning they were interested in taking care of their portion of the North Myrtle Creek environment - making sure the forested portion was adequately stocked and the stream was fish friendly. Hence their interest in reducing bank erosion, improving water quality and fish passage. The walk through found a number of project needs – stabilizing an eroding stream bank, removing metal from an old stream bank garbage dump, and replacing a rusted water tank culvert that was a barrier to fish passage.

The proposal was to replace the water tank culvert with a railroad flatcar bridge, stabilize the eroding stream bank with logs and boulders, and clean up the metal from the old dump. Bob Kinyon (UBWC) designed the railroad flatcar bridge, Walt Barton (DSWCD) designed the log and boulder structure and the landowner cleaned up the old metal dump.

The project was originally proposed to be funded by State R & E funds and was accepted at about the same time as funding was pulled from that program. Since funds had been legislatively passed on to OWEB, it was suggested we submit this project again for funding through OWEB.

FISHERY

The streams in the Myrtle Creek watershed are important salmonid and trout waterways for coho, winter steelhead and cutthroat trout. There is much anecdotal evidence from local landowners of adult spawning in the area. ODFW employee Sam Dunnavant conducted a fish presence survey in June, 1999 below and above the water tank culvert prior to replacement. Salmonids and trout were noted below the culvert in abundance, but few coho were noted above.

FISCAL

Agency/Organization:

Oregon Watershed Enhancement Board
775 Summer St. NE
Suite 360
Salem, OR 97301-1290

Program:

Watershed Management Grant
Contact: Mark Grenbemer, Region 2 Rep.
Phone: 541-471-2886 Fax: 541-471-2876

Grant Number: 99-511

Amount Obligated: $ 12,075

Dates:
Award: June 23, 2000
Completion: April 1, 2001

Budget:

OWEB funds:

	Budget	Actual	
• Technician	$ 165	$ 281.00	
• Travel	72	72	
• Instream Work labor	8,000	8,000.00	
• Boulders/Delivery	1,000	1,000.00	
• Seed/Plants	200	200.00	
• 3 Logs	540	540.00	
• Rail Road Car	1,000	1,000.00	
• Fiscal Management	1,098	982.00	
Total			$ 12,075

Landowner Contribution (In-Kind):

• Front end track loader operated (15 hours x $65/hour)	$ 975	
• Labor – Bridge placement & decking (36 person hours x 20/hour)	720	
Total Landowner Contribution		$ 1,695

Other Cash Contribution: (Umpqua Fishery Enhancement Derby)

• Railroad Car	
Total Other Contribution	$ 4,000

Total project cost **$ 17,770**

PROJECT DESCRIPTION

The watershed council and Salmonberry Enterprises, Inc. entered into a Watershed Improvement Project contract for the work in September, 2000. This contract provided an employment opportunity for three people and provided money to local businesses for rock, lumber, hardware, concrete, railroad car delivery, and equipment rental which in turn provided employment to employees of those companies.

Railroad flatcar delivery:
Because the end of the future bridge was so close to North Myrtle Road the railroad flatcar needed to be stored across Buck Fork Creek prior to installation. We purchased the 40 foot long 100,000 pound capacity flatcar from Schnitzer Steel Products Co. of Portland, Oregon and arranged with a local trucking firm, A & M Transport of Glendale, Oregon, to deliver the flatcar on the return trip of one of their flatbed semis from Portland to Glendale. The existing culvert crossing had to be temporarily widened to accommodate the truck backing across to the flatcar storage area. The contractor placed some rip rap along the side of the crossing. This material was later retrieved for use in the project.

The truck with the railroad flatcar arrived late in the afternoon of September 7, 2000. This contractor had never unloaded a flatcar from a truck before so it was a learning experience for him! With much jockeying about and getting some of the unloading equipment stuck on uneven ground, the 17,000 pound flatcar was safely on the ground, and the trucking company's flatbed trailer was unscathed, two hours later. The contractor used a combination of a medium sized track excavator (John Deere 410) and 4 wheel drive all terrain forklift to unload the flatcar. For future reference, both were too small for the job. A large excavator would have done the job by itself in half the time.

Culvert removal:

Work began on the project in early September to remove the water tank culvert in preparation for placing the railroad flatcar bridge. After placing a silt dam downstream of the work area, the contractor used a medium size track excavator (same as above) to dig out the fill on each side of the culvert and either stockpile it adjacent to the work area or had it hauled a short distance down the highway to a small stockpile area on the landowner's property. This material would later be retrieved and used on the project.

All work was done from the stream bank, first excavating the south bank side of the culvert and placing the rip rap bridge abutment, then excavating the north bank (next to highway) side of the culvert. The banks were excavated back to a point where placement of rip rap bridge abutments was at the natural stream bank. The 8 foot diameter culvert was removed from the stream and placed at the stockpile area for later disposal by the landowner. Minimal disturbance of the stream bed occurred.

Rip rap bridge abutments:

Large rip rap rock (1,000 to 3,000 pound) were stacked at each bank of the stream under where the ends of the flatcar bridge would rest. Each rock was placed then tamped and/or moved around until it was firmly in place. Once all abutment rocks were in place the concrete forms were constructed so that the concrete would form a cap upon which the flatcar bridge would rest. Eye bolts were embedded in the concrete for bridge tie downs. The concrete was poured September 15, later than we really wanted, because of equipment breakdown and delays of the concrete pumping company. As soon as the concrete cured, we would be ready for the big moment!

Bridge installation:

Prior to installing the flatcar bridge the old decking was removed and the bolts that held it down were cut off with a concrete saw. We were getting extremely close to the cutoff date for in stream work – September 15. Conversation with Tom Loynes (ODFW) assured us we could continue with installation of the bridge as long as no actively took place below the bank full width. The big day arrived on September 22. The contractor chose to use the all terrain forklift to pull the bridge across the stream – an excellent choice after an initial rough start. The forklift was 4 wheel drive but not very good in really uneven ground, so it became stuck. At one point the contractor's wheeled backhoe, the landowner's track loader, and the all terrain forklift were all tied together in a long line across the highway and into the landowner's pasture in a successful attempt to get the forklift unstuck!

The flatcar bridge frame was pulled across the stream using the telescoping boom of the forklift with a heavy cable attached between them. As the bridge was inched across the cable was shortened keeping the bridge suspended well above the stream. The point of balance was finally reached just before the bridge reached the north abutment and the end came to a rest on the rip rap. From there it was a simple matter to lift the end of the bridge onto the abutment.

Decking installation:

The bridge decking consisted of 4" x 12" x 12' long pressure treated planks and 2" x 12" x 20' long pressure treated runners. The planks were attached to the bridge frame with metal straps bolted through the original bolt holes and the runners were attached with spikes and lag bolts. The landowner helped the contractor install the decking by making modifications to the planks to fit the frame. Finally a bumper timber was installed on each side of the bridge.

After all work was done on the bridge, the landowner used his track loader to smooth up the project area and the stockpile site, and then seeded and fertilized the entire area.

PERMITS/AGREEMENTS

A DSL permit for hardened crossings was requested and then received on August 19, 1999. It is General Authorization for Fish Habitat Enhancement, DSL Project No. GA-17311.

MONITORING

Post-project effectiveness monitoring will start in the summer of 2001 and continue annually for five years. The UBWC field technician will photograph the project from established photo points and will complete an interim report, which will be submitted to OWEB and the project landowner. Changes in stream profile will be noted as well. Accumulated data and photo points will be entered into the UBWC database.

SUMMARY COMMENTS

This railroad flatcar bridge project has led us to explore other stream crossing alternatives as the cost of flatcars increases and the availability of 40 foot flatcars diminishes. Depending on weight

requirements and length of crossing, we have been looking at pre-formed concrete bridges for shorter spans, flatcar bulkheads bolted together for shorter spans, fabricated I-beam bridges for any length or width, and semi flatbed trailers for lighter weight applications up to 56 feet long. We had timber company engineers and private citizens stop by with suggestions because of the close proximity to the highway.

This project has successfully eliminated the fish barrier caused by the water tank culvert.

Figure 3
Pre-project, interior view of the old culvert

Figure 4
Riprap in place

Figure 5
Bridge being lowered onto concrete footing

Figure 6
Putting on the new pressure treated planking