

Foster Gulch Flood Repair

PPL-Montana MOTAC project 754-11

Submitted to

PPL-Montana
336 Rainbow Dam
Great Falls, Mt. 59404

Prepared by

Grant Grisak

Montana Fish, Wildlife & Parks
4600 Giant Springs Road
Great Falls, Mt. 49505



***Montana Fish,
Wildlife & Parks***

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In 2011 Montana Fish, Wildlife & Parks was awarded \$12,704 from PPL-Montana MOTAC to a conduct restoration project at Foster Gulch. This project was funded by PPL-Montana as part of FERC license 2188.

Foster Gulch is a tributary to Little Wolf Creek and is located approximately 5 miles northwest of the town of Wolf Creek (Figure 1). On May 5, 2009 an isolated storm event in the headwaters of Foster Gulch caused flooding which plugged two undersized culverts and resulted in a severe head cut on the main access road after the stream overflowed its banks (Figure 2, Figure 3). The L&C county road department instituted emergency measures to contain the runoff and protect the county road crossing, which prevented the delivery of several tons of road material into Little Wolf Creek. A small diversion near the lower culvert diverted the stream into a historic overflow channel that is very high gradient (Figure 4).

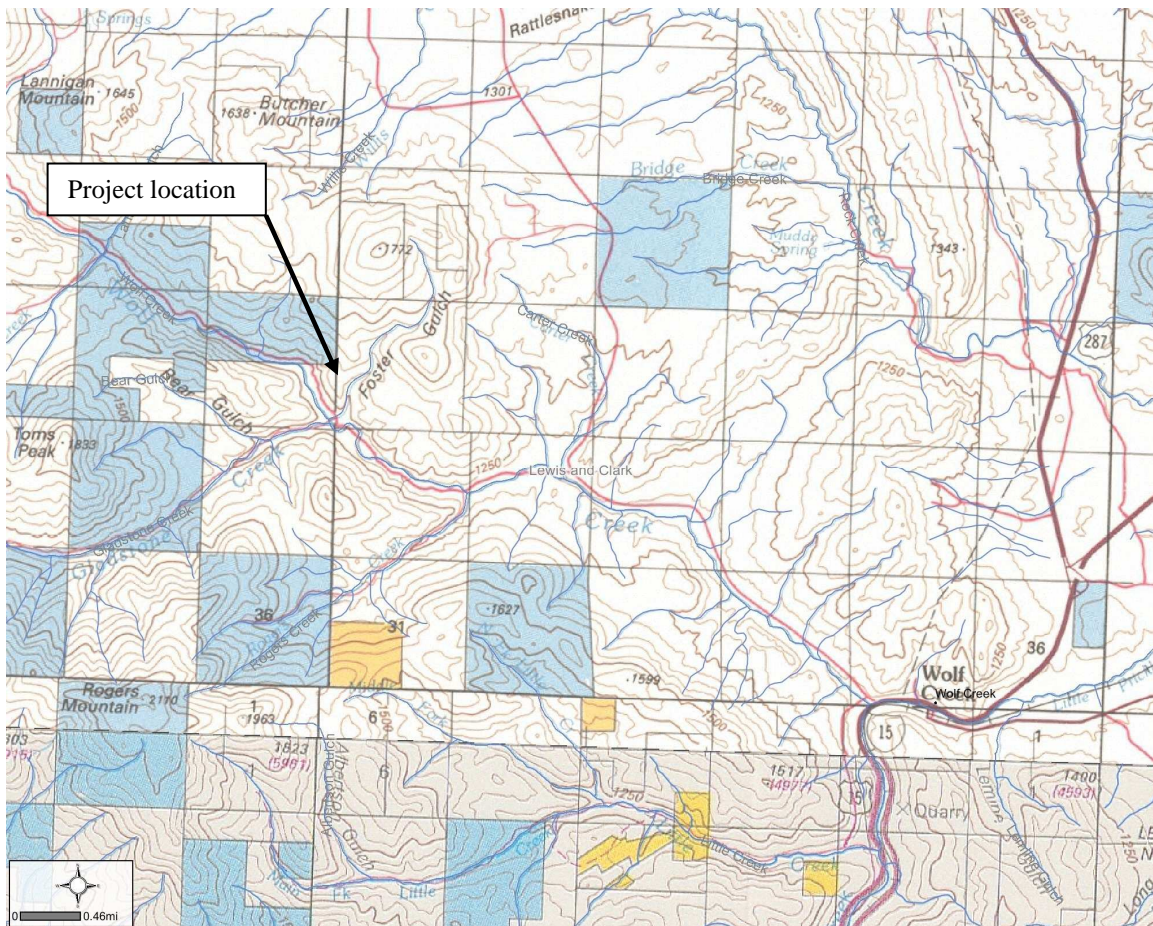


Figure 1 . Site map of Foster Gulch stream crossing project.

This project was designed to restore the unstable head cut area on the road, place two properly sized culverts at the crossings to prevent future plugging and flooding, restore the stream to its original channel and prevent the system from eroding any further.

Little Wolf Creek is a vital spawning tributary for rainbow and brown trout from the Missouri River. Redd surveys in 1998 counted 1,981 rainbow trout redds (Grisak 1999). Surveys in 2007 counted 1,289 rainbow redds and 390 brown trout redds. Surveys in 2008 counted 678 rainbow redds and 269 brown trout redds (Grisak 2012).

Spawning surveys have shown that Little Wolf Creek is a vital component of the trout production for the Missouri River trout fishery and represents approximately 30% of the spawning in the Little Prickly Pear Creek subdrainage. This stream has had numerous habitat projects instituted to protect the spawning runs of trout. MFWP institutes some of the most restrictive regulatory procedures with private and government parties through the 310, 124 and 318 permitting processes to safeguard this important spawning tributary.



Figure 2. Foster Gulch washout along the shoulder of the main access road approximately 100 yds from the confluence with Little Wolf Creek. July 2009.



Figure 3. Foster Gulch washout in the center of the main access road approximately 300 yds from the confluence with Little Wolf Creek. July 2009.



Figure 4. Foster Gulch stream at diversion site. July 2009.

On March 28, 2011, GCM Service Inc. conducted a Class III cultural resources inventory of the proposed project and determined there were no cultural resource found in the area. On April 21, 2011, the Montana State Historical Preservation Office concurred with the findings of GCM, Inc.

Montana Fish Wildlife & Parks secured the following permits; MFWP 124 permit, MDEQ 318 permit and ACOE Nationwide 14 permit. We also gained written permission from the landowners Mark Hawn – Sagebrush Consultants LLC, Patty O'Reilly and Lewis and Clark County.

In June, we conducted a walk-through with hydrologist Alan McNeil and developed the following scope of work;

- Install 20' x 24" squash CMP at upper crossing
- Install 30' x 24 " squash CMP at lower crossing
- Remove berm on east side of road
- Borrow material from "depression" downstream of county road
- Spoil berm/depression material in washout on existing road
- Grade road with lateral slope toward east side
- Install 3 water bars on road between the two crossings
- Install rock sill/step at outlet of upper pipe
- Install 2-3 rock sills/steps at outlet of lower pipe
- Increase elevation of overflow channel inlet near inlet of lower pipe
- Install BMP's at both crossings and east shoulder of road

Lewis and Clark County constructed three water bars and delivered them to the site on September 6. Montana Fish, Wildlife & Parks facilitated the purchase of culverts and erosion control materials and delivered them to the site on September 7. Implementation began on September 7 and continued through September 15 (Figure 5, Figure 6, Figure 7). Fish, Wildlife & Parks made three trips back to the site between September 20 and October 10 to apply seed, spray water on seeded areas to facilitate germination, install erosion control devices, construct a gate near the approach entrance and take photographs. During these visits, the stream was functioning properly at both crossings and at the county road crossing downstream.



Figure 5. Upper stream crossing after new culvert and BMPs installed. Foster Gulch, October 2011.



Figure 6. New road grade with wash-out repaired and water bars installed, Foster Gulch October 2011.



Figure 7. Lower stream crossing after new culvert and BMPs installed. Foster Gulch, October 2011

References

- Grisak, G. G. 1999. Missouri River rainbow trout spawning study, Missouri River young of the year trout investigations II and Montana statewide whirling disease investigations. Progress report. Montana Fish, Wildlife & Parks, Bozeman.
- Grisak, G. 2012. Rainbow trout and brown trout spawning redd survey and fecundity analysis for the Missouri River –Holter Dam tailwater fishery. Progress report. PPLMontana MOTAC projects 003-08, 753-09, 757-10. Montana Fish, wildlife & Parks. Great Falls.