

Lost River 319 #2

FY07 Final Report

NPS 1246 AM1
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Lost River 2 NPS 1246 was extended – Amendment #2 covered dates – 10/1/11-12/31/11

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Lost River 319 Incremental Reporting (LR2)
April 2011- December 2011

The Lost River II Incremental Project is being closed out with the completion of several large practices within the watershed. Residual funds will be returned as appropriate.

Fanlser Stream Enhancement and Bank Stabilization Project

The Fansler site is located within the Lost River Watershed approximately 1 mile south of Mathias, WV. The total project reach is **1,621 feet**. The original site condition was characterized by significant active erosion caused by hoof shearing and agricultural land loss. The site was chosen as a priority based upon the current cropping situation and the livestock access during winter months.

The overall objective of this project is stabilization and nutrient and fecal reduction. It is expected that by successfully achieving this goal, we have enhanced the quality and quantity of habitat in the project reach for aquatic and terrestrial flora and fauna as well as local land owners and users. The objective was achieved by implementing a wide variety of natural stream restoration techniques such as bankfull bench construction, seven rock cross vanes, livestock exclusion fencing (as appropriate) and vegetative plantings and management. An important complimenting factor is the 25 foot wide riparian grass filter strip that will be maintained by the landowner between his crop field and the stream resulting in filtration of nutrient and non-nutrient runoff, reducing the rate of overland flow which can create erosion, providing specialized wildlife habitat, providing shade to adjacent waterways and acting as a source of organic matter crucial to vertebrate and invertebrate aquatic organisms. Currently, the adjacent land use is in corn. If the landowner does decide to switch the land-use to pasture, exclusion fencing will be installed at his cost. The project was completed November 2011. It is estimated that this project was contributing 63.84 tons of sediment loss to the stream. An as built survey was conducted in November and sediment loss was reduced to 38.53 tons per year resulting in a -40% reduction. Qualitative measure for this bank stabilization project will continue be conducted yearly post construction cross sections with the use of permanent pins and replicating those for 5 years. Success of the project will be determined by the variability of the cross sections year to year.

Miller Stream Enhancement and Bank Stabilization Project

This project is located along SR 259, 15.5 miles south of Baker, WV. The total length of the project reach is **2,030' feet**. The project was chosen as a priority based upon the farmer's current land use which was lending significant nutrients and fecal coliform to the stream and his willingness to enter into the **USDA Conservation Reserve Enhancement Program (CREP)**. These complimenting BMPs entail .8 acres of tree planting/woody riparian buffer (CP 22), 3.0 acres of grass filter strip (CP 21), 1,000' of streambank fencing, and alternative watering supply for livestock. It is expected that the CREP components will be completed spring of 2012 during the planting season.

The original site condition was characterized by significant active erosion caused by hoof shearing and agricultural land loss. Fourteen structures were built within the reach- ten cross-vanes and four j-hooks. The structures were built to reduce erodibility of the constructed bankfull benches while the riparian vegetation establishes. The cross-vanes will help stabilize the channel by providing grade control for the newly constructed facet slopes. The structures will also improve habitat quality and quantity by maintaining the proper profile throughout the reach. A stabilized stream crossing was installed which

now provides a reinforced specific point of entry into the stream channel, thereby minimizing erosive potential from hoof shear and farm equipment mobilization.

An as-built survey was conducted late November 2011. Qualitative measure for this bank stabilization project will be conducted yearly post construction cross sections with the use of permanent pins and replicating those for 5 years upon completion. It is estimated that this site was contributing 161.17 tons of sediment. Post construction this was reduced to 8.49 tons resulting in a -94.73% reduction. Success of the project will be determined by the variability of the cross sections year to year.

Teets Beef Feeding Facility and Manure Stacker

Mr. Teets owns and operates a farm located south of Lost River on SR 259. Part of the farm is operated as a beef feeder calf/finish enterprise. Mr. Teets requested assistance to plan, design and construct a 40' X 360' animal feeding facility and manure stacker for the operation. In the past, feeder calves and finish calves were fed in open areas of the pasture field. The waste scraped from the area was stored in open areas when it could not be spread directly onto crop fields. Runoff from the open feeding area and the storage area flows directly through existing drainage directly into Lost River or into an unnamed trib of Lost River. Runoff and infiltration from the open feeding areas and manure stacks was potentially leading to pollution of surface water and groundwater from excess nutrients, pathogens and sediments. A roofed 40'X360' feeding area with an adjacent roofed dry manure stacking facility was designed and installed per NRCS standards (CPS 313, Waste Storage Facility for Dry Manure Stacker CPS 561, Heavy Use Area Protection and standard drawing WV_ENG-84j) for 200 calves with an average of 1,000 lb/animal. The building is located in the old area used for winter feeding. All animals will be housed in total confinement, under roof, and on concrete floors. Waste volume, manure plus 15% for bedding and feed waste, for 120 days, for the 200 head finish cattle herd is estimated at 30,360 cf. This volume of waste can be stored in the planned stacking area. Watering troughs were installed to provide livestock water. The structure is located above the 100-yr-24 hr floodplain of Lost River and above the 25 yr-24 hr floodplain of the unnamed trib. The structure reduces the potential for pollution by providing a stable area (concrete floor) for livestock to concentrate for feeding; providing a storage area for accumulated wastes until they can be applied to the ground in an environmentally acceptable manner and utilized for their nutrient value; and providing a roof and walls to protect the wastes and livestock from adverse weather and polluted runoff. Roof runoff (clean water) is captured in 6K aluminum gutter and discharged through 4" dia. PVC pipe downspouts and underground outlets. The discharge is onto rock riprap pads in adjacent ditches or stable pasture areas. NRCS Conservation Practice Standards (CPS) 558 and 620 were used to design these practices to handle a 5 minute, 25 year rainfall event. Concrete aprons and stabilized gravel aprons are installed all around the building to protect the areas from livestock and vehicle traffic damage. Stored wastes will be applied to hay land, pasture and crops according to his Comprehensive Nutrient Management Plan. This project was completed with the assistance of technical oversight by the Moorefield NRCS Field Office.

Fanlser Stream Enhancement and Bank Stabilization Project



Pre-Construction photos show the severe erosion issues



1,621' of streambank was restored with seven rock vanes and construction of bankfull benches on both sides of the river. The site was re-vegetated and will continue to be monitored for success.

Miller Stream Enhancement and Bank Stabilization Project Pre-Construction



Pre-construction conditions on the Miller site.

**Miller Stream Enhancement and Bank Stabilization Project
Continued.....Post Construction**



2,030' of streambank has been restored using a variety of NSR techniques, including vanes, benches and vegetation.



The farm will complete the CREP contract in Spring of 2012 with grass and tree buffers, fencing and alternative watering systems. The bottom left photos shows the armored stream crossing installed.

Teets Beef Feeding Facility and Manure Stacker- Before



Cattle were fed adjacent to the tributary and manure was piled in the fields until it could be properly spread



Teets Beef Feeding Facility and Manure Stacker- During & After Construction



200 calves will be contained inside this barn and fed away from the stream as well as their waste being appropriately stored until it can be utilized in an environmentally safe manner.



BMP	Number of Units	Units Installed	Goal to date	Nitrogen Reduction (lbs/yr)	Phosphorus Reduction (lbs/yr)	Sediment Reduction (T/yr)	Fecal Coliform Reduction (cfu/day)
Natural Stream Restoration	3,000 ft (4.5 acres)	3651	122%	332	340	179	1.34E+15
Feedlot Relocation	2 systems	1	50%	1287	156.5	89.5	3.03E+16
Riparian Buffer Establishment	5 acres	3.8 (CREP)	76%	215	20.9	4.18	4.49E+15
Alt. Water w/ fencing	5 sys	0	0	0	0	0	0
Alt water w/ fence & rotational grazing	5 sys	0	0	0	0	0	0.00E+00
Septic upgrades	4 systems	0	0	0	0	0	0.00E+00
Totals				1834	211.4	272.68	3.6E+16

***NPS 319 Lost River II Projects
December 2011***

