

Yellow Breeches Creek Dam Removal Project
Cumberland Valley Chapter, Trout Unlimited
Final Report
6/21/10

1) Narrative Project Description

This project was successful in completing the removal, as planned, of two abandoned low-head dams on Yellow Breeches Creek on the border of Cumberland and York Counties. The project restored natural stream functions and improved aquatic habitat in the stream reaches affected by these dams. The two dams removed were locally referred to as Spangler's Mill Dam and Green Lane Farms Dam, but are recorded in DEP files as Upper Mill Dam (DEP Permit ID D21-021) and Mill Dam (DEP Permit ID D21-022), respectively. In addition, the removal of these dams provided public safety benefits by removing obstacles to boaters and by eliminating cliff-jumping that had been popular, despite requiring illegal trespassing, upstream of one of the dams. The importance of removing abandoned dams for safety is underscored by the drowning that occurred at the Rosegarden Dam on Yellow Breeches Creek in 2008. The removal of these two dams brings the total number of dams removed in recent years within the Yellow Breeches Watershed to seven. Several dams remain on the mainstem of the Yellow Breeches, and continued efforts may eventually lead to an entirely free-flowing creek.

Each of these dam removals involved the following tasks:

- A. Site Survey – A topographic and bathymetric survey of each dam site and the impounded stream reach was performed. This included the dam, Yellow Breeches Creek, adjacent lands as appropriate, and all nearby or affected structures.
- B. Impounded Sediment Investigation – This included an evaluation of the amount of trapped sediment, its physical and chemical characteristics, and incorporation of this information into the design process so that any temporary downstream impacts would be minimized.
- C. Engineering Design and Construction Drawings – A set of dam removal design plans were prepared for each dam removal. These consisted of a cover sheet, plan views of existing and proposed conditions, graphic display of the stream profile and cross sections, all required construction details, and all erosion and sediment control measures.
- D. Permitting – The required permits were secured for the dam removals, including a restoration waiver issued by PADEP Division of Dam Safety, a drawdown permit from the Pennsylvania Fish and Boat Commission (PFBC), and an Erosion and Sedimentation Control Plan permit from the Cumberland County Conservation District. In addition, coordination with the Pennsylvania Historical and Museum Commission and the U.S. Army Corps of Engineers occurred in order to obtain the restoration waiver from PADEP. Also included in this task is post-dam removal reporting to the appropriate agencies.

- E. Construction – This step involved the actual removal of each dam. Heavy construction equipment was utilized to break the concrete dams, to move dam and impounded sediment from the stream channel and to grade new streambanks where this material was placed.

All goals and deliverable requirements of the project were met or surpassed. The dams were removed; all necessary bank reinforcement was done; a larger-than-planned-for riparian buffer was planted at the site of the Spangler’s Mill dam. The riparian buffer consisted of 210 native shrubs and trees and were planted by volunteers from Trout Unlimited and highschoolers from the Cumberland Valley High School, who adopted the riparian planting as a community service project.

No significant obstacles were encountered in performing this project. A few challenges were encountered and are described below in the sections on each dam removal. This project was a success largely because of the involvement of an engineering firm and a construction firm with extensive experience with dam removal projects, who were prepared to meet any challenges. A woody riparian buffer at the Spanglers Mill site has been planted. Also, both projects will be visually inspected periodically and after major flood events.

Both projects received substantial coverage in the Harrisburg Patriot-News, and were the subject of several articles. The focus of these articles varied, but the ecological benefits of dam removal projects were included in the coverage and helped to educate the public about the benefits of these projects. In addition, the Green Lane Dam removal was the subject of a brief local news report (CBS 21, Harrisburg).

The project was completed with the combination of the Growing Greener Grant (\$110,000) and a National Fish and Wildlife Foundation grant in the amount of \$50,000. These funds along with several hundred hours of volunteer labor (buffer planting, public relations efforts and project management on the part of CVTU) allowed the project to be completed as planned without encountering any cost limitations or overruns..

Individual Dam Removal Project Descriptions:

Spangler’s Mill Dam Removal

This concrete dam was built in 1911 and was approximately eight feet high. It was built to replace a timber-crib dam and powered a grist mill. The dam had long ago ceased to serve its original function, and was owned by the Pennsylvania Department of Corrections at the time of its removal. The site survey was performed in June 2007. The engineering design plans were completed in July 2007, and all necessary permits were secured by June 2008. Construction took place over approximately a week and a half in September 2008 and involved removal of the dam and impounded sediment, construction. One noteworthy aspect of this project was the existence of two bedrock ledges located within the stream approximately 150 feet upstream of the dam. These ledges were concealed by impounded sediment at the time of the site survey. However, they became apparent during the removal of the dam. Moderate field adjustments were

made to the opposite streambank due to these ledges. However, subsequent storm events over approximately the following six months caused a localized bank erosion problem. Another contributing factor was related work performed by the PFBC to provide handicapped access in this area following the dam removal. Ultimately, the PFBC decided to abandon the idea of handicapped access here, and additional streambank modifications and rock stabilization were performed in June 2009 to eliminate the erosion problem. These modifications, along with the remainder of the project, remained stable during a major storm event in July 2009.

Green Lane Farms Dam Removal

This concrete dam was built in 1915 to run a grist mill, and was immediately downstream of a crib dam built in the late 1800s. Like Spangler's Mill Dam, this dam had ceased to serve its intended purpose decades ago. The Green Lane Farms Dam was legally 'orphaned' and therefore fell under the control of the state. This status was determined through a lawsuit following a drowning at the dam in the 1970s in which an adjacent property owner was sued. The site survey for this project was initially delayed as the PFBC sought a legal access agreement with this property owner. Eventually this was resolved and the site survey was conducted in September 2008. The engineering plans were completed in October 2008. Two sewer line stream crossings were present near the dam. Coordination with the sewer authority occurred so that they were aware of the post-dam removal stream conditions and potential impacts (small to none) to their lines both during and after construction. It is also noteworthy that a small contingent of local residents became loosely organized in late spring 2009 to oppose the removal of the dam. Some of those opposed lived along the impounded reach of the creek and enjoyed the slow-flowing impounded reach. Others lived nearby and felt that the site would be less visually attractive without the dam. This group contacted the DEP Division of Dam Safety and an informal meeting was held to more thoroughly hear their opinions. It should also be noted that several nearby landowners who had communicated support for the project did not attend the meeting. Following the meeting, the permit waiver was issued by PADEP in early June 2009. Construction of the project began shortly and was performed over approximately a week and a half in late June 2009. During construction, many conversations were had with nearby residents and some that were opposed to the project initially expressed that the project appeared better than they had envisioned.

2) Project Abstract for Public Dissemination

This project entailed the removal of Spanglers Mill and Green Lane Dams on Yellow Breeches Creek. The removal of these dams restored the natural ecology and functions of the creek and also eliminated public safety hazards. Better in-stream habitat now exists for trout, smallmouth bass, and other aquatic life. In addition to the dam removal, an extensive (ca. 3 acre) woody riparian buffer of native trees and shrubs was planted at the Spangler's Mill site.

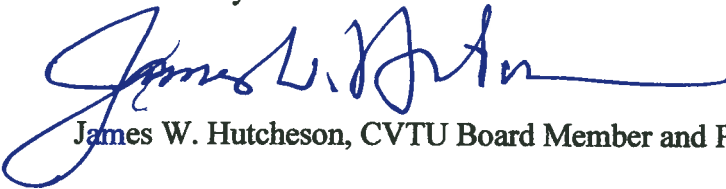
3) Accomplishment Worksheets -See attachment.

4) Photographs - See attachments.

- 5) Detailed Technical Reports - None included. Engineering dam removal plans are on file with DEP's Division of Dam Safety.
- 6) Operation, Maintenance, and Replacement Plans

Because this project involved the *removal* of in-stream features, no operation or replacement is necessary. The project areas will be visually monitored over time and the riparian buffers will be monitored and kept up for a minimum of two years (This includes watering, if necessary, and replacement of dead or damaged trees and shrubs) Should any unanticipated problems develop with the bank reinforcements that require additional work, additional funding will be sought to perform this work.

Submitted by:



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