

Bio-engineered Stream Bank Stabilization using WETLAND SOD

WETLAND SOD in combination with erosion control fabric was used to reconstruct and stabilize eroding stream banks on the Teton River in southeast Idaho (elevation 6,000 ft). This method was developed to establish slopes and plant communities similar to those found on stable, natural reference banks found throughout the upper Teton River system and to provide an alternative to traditional rip-rap.

The Teton River has an average base flow of 250 cfs. and an average peak flow of 1,500 cfs. Above and throughout the study area the Teton River is a predominantly ground water fed, free flowing system with a moderate spring run-off. Conditions at the study sites pre-construction included an average bank height of 3.5 – 5 ft, an average bank slope of 1:1 (or steeper) and dominant bank vegetation consisting of introduced pasture grasses. The dominant soil type was a silty clay loam.

Each bank was reconstructed by first excavating the bank down to the base-flow water line to a width of 6.5 ft. Two layers of long-term erosion control fabric were staked onto the base of the excavated banks using 8 in. wire staples. Soil was compacted onto the erosion control fabric layers to a depth of 8 in. Approximately 3 ft of the erosion control fabric was wrapped up onto the compacted soil to build the initial soil lift of the reconstructed banks. A second soil lift was constructed approximately 3 ft behind the first lift using the same methods. The remaining soil was sloped back to create a bank with an average slope of 4:1. WETLAND SOD, a pre-vegetated coir mat containing mature native plants, was installed in two rows onto the constructed soil lifts to a width of 6 ft. Containerized willows were planted at a density of 1 willow per 5 ft and both rooted and dormant cuttings were installed though out the project area. All disturbed areas were seeded with a mesic species mix. The project was irrigated throughout the first growing season and the upland areas were spot sprayed for weed control.

A total of 4,400 linear ft of eroding bank was reconstructed from 2002 through 2003 at 6 individual sites for a cost of \$75 per linear ft. This price included design, permitting, construction, revegetation, irrigation and weed control. Bank treatments successfully established native plant communities and withstood cattle trampling, grazing and peak flow events within 1 year post-construction.



Before Conditions (October 2002).



Willows and Soil Lifts Installed (October 2002).



Wetland Sod Installed (August 2003).



Post - project Conditions (August 2008).