INNOVATIVE STREAMBANK PROTECTION MEASURES: STONE TOE AND BENDWAY WEIRS

Meg Jonas, Research Hydraulic Engineer, USACE Engineer Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, Mississippi, meg.m.jonas@usace.army.mil

Abstract U.S. Army Corps of Engineers design guidance will be extended to cover two streambank protection techniques that are suitable for projects with ecosystem restoration goals. Criteria are being developed for two methods: longitudinal stone toe protection and bendway weirs. These methods were selected from a wide array of techniques in use because of their proven effectiveness, low cost, ease of construction, and applicability to a wide variety of sites (urban, rural, small or large streams, arid and humid regions). They have a history of successful application, but lack nationally coordinated design criteria. Standard design guidance for these techniques will result in increased reliability and projects that are more effective, economical and environmentally friendly.

Streambank protection is an important component of stream and watershed restoration projects. According to the National River Restoration Synthesis Study, bank stabilization was one of the five most commonly stated goals for river restoration projects. Even where not stated as a primary goal, bank stabilization is often a critical component in meeting other restoration objectives, such as channel reconfiguration, watershed sediment management, and instream habitat improvement. The results of this research will improve the design of a critical element of stream and watershed restoration measures. Corps work efforts have been leveraged against work performed by the Bureau of Reclamation and the NRCS. The presentation will cover the status of the ongoing work, as well as an innovative application in an urban setting (Accotink Creek, Virginia). This work is being performed by the USACE Engineer Research and Development Center (ERDC) Coastal and Hydraulics Laboratory (CHL) under the Flood and Coastal Storm Damage Reduction Program.