

ROCK CHECK STRUCTURES FOR RESTORATION OF HEADWATERS

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ABSTRACT

Stream degradation often has its roots in problems found in the upper watershed. These areas can be degraded by gully erosion, by the prior installation of surface drainage ditches, or by the formation of a defined channel on a site that was previously vegetated with no channel. The resultant lowering of the hydraulic grade line causes a lowering of the local groundwater table, reduced flood connectivity, and, in some cases, the loss of wetland hydrology. On sites where gully erosion is still active, the channel may be actively degrading with an advancing headcut. In other cases, the gully may have reached a state of stability, but the site has lost its original hydrologic functions. Excess sediments are supplied to lower areas in the watershed and base flows are reduced. If these upper areas are not adequately addressed, the benefits of restoration efforts in the lower portions of the watershed can be limited. A stream corridor approach is needed.

The presentation will discuss the use of a systematic approach to applying vegetation and low-head structures to restore these areas. This approach results in raising the groundwater table, increasing the frequency and extent of surface inundation, increasing upland sediment deposition, and stabilizing advancing headcuts. This low impact and cost effective approach has been applied in some wetland restoration projects but has seldom been effectively applied as part of a stream restoration. The presentation will discuss benefits, design issues, construction and maintenance. Example applications will be addressed.