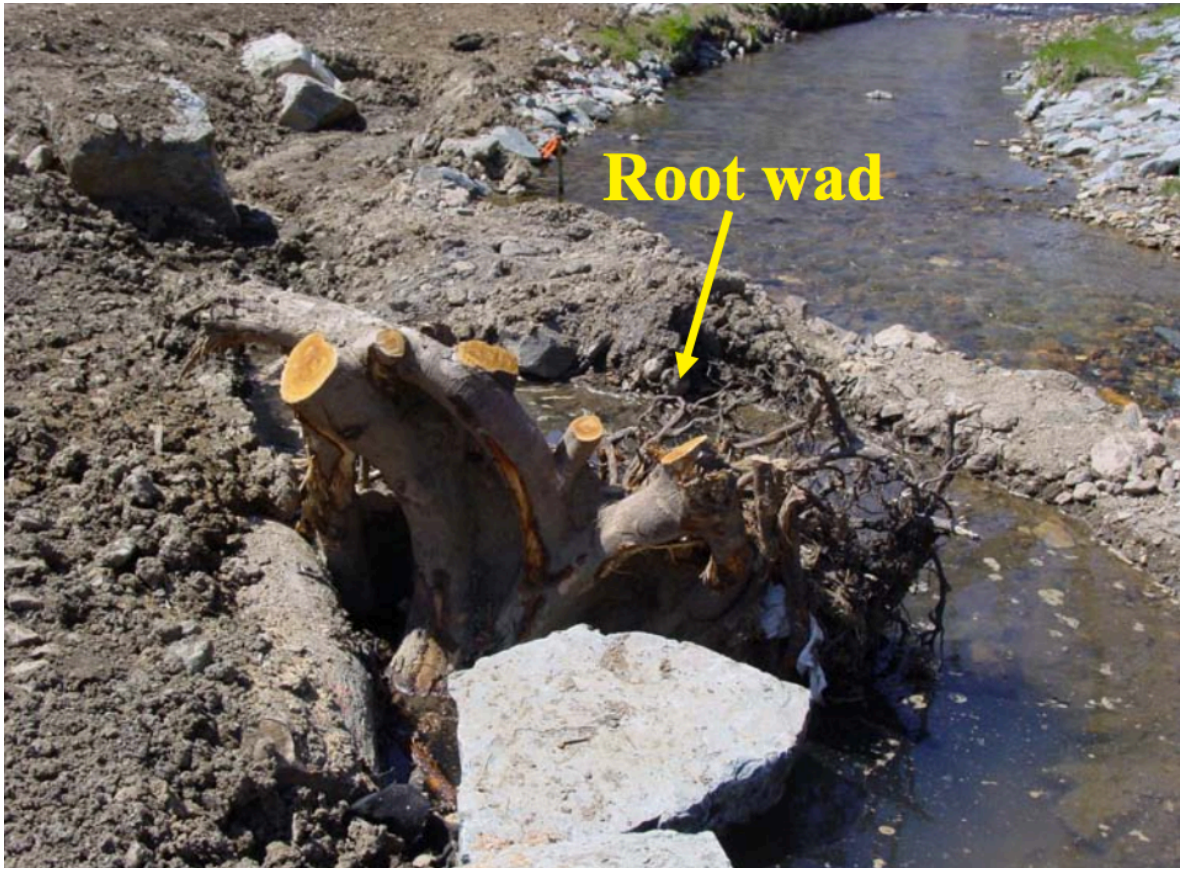
Stream Restoration Techniques

Root Wads

The root wad is the lower portion of a tree and the root system used to protect stream banks from erosion.

The root wad will…

- Enhance in-stream habitat.
- Provide overhead cover for pools.
- Promote habitat formation along the outside of meander bends.

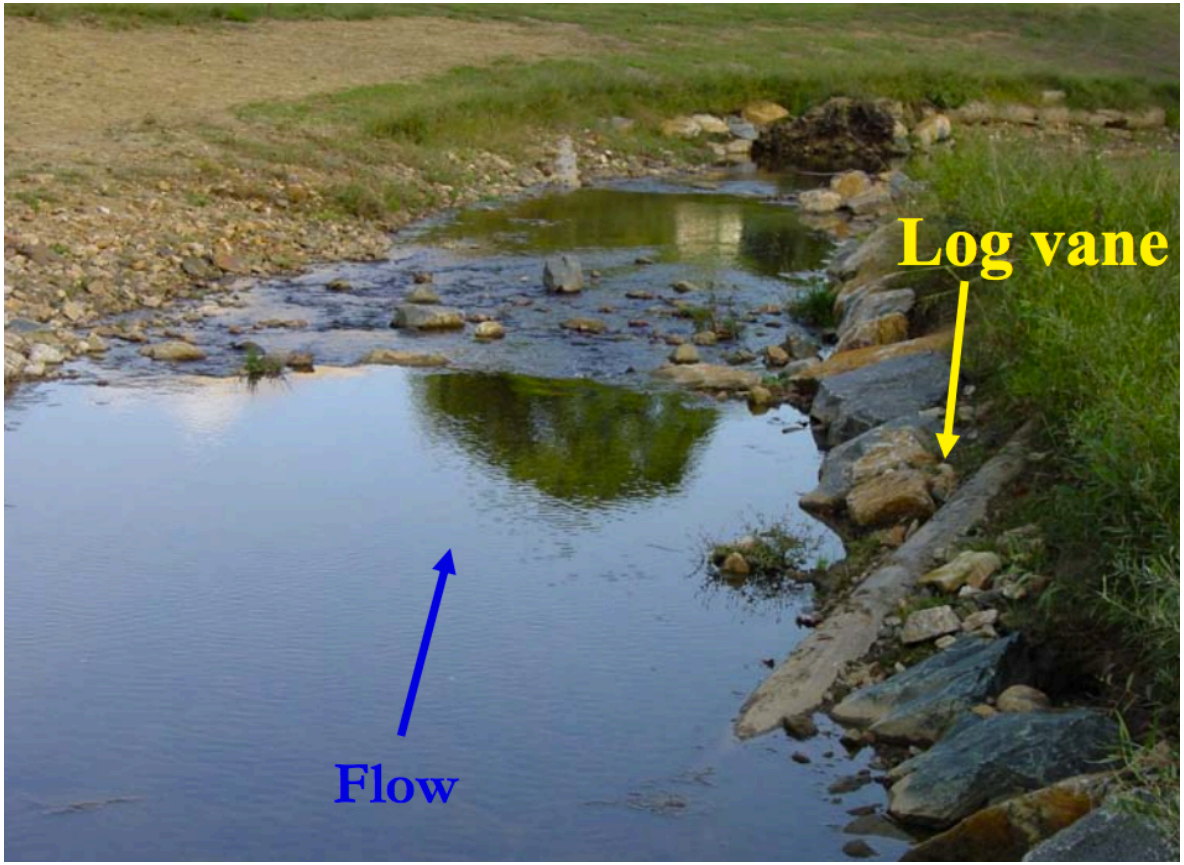


Log or Rock Vanes

Vanes are linear structures that extend into the stream from the bank in an upstream direction and remain partially submerged at all times.

The vanes will…

- Redirect the water to the streams center.
- Reduce stream bank erosion.
- Enhance habitat through down stream scour pools.



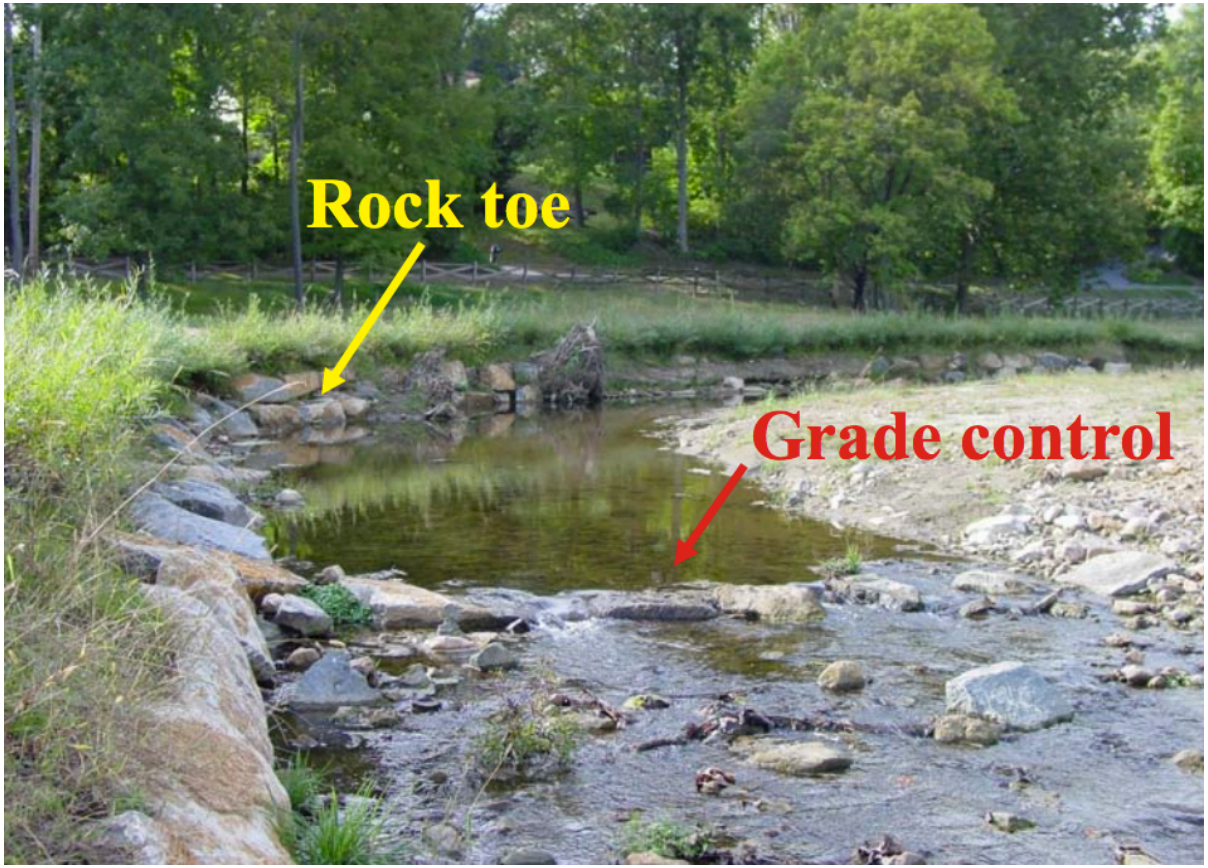
Note: Scour pools: A pool formed by water flow either to the left or right against a partial channel obstruction or bank.

Rock Grade Control

A rock sill is constructed cutting across the stream to prevent down-cutting and maintain a desired stream bank elevation.

Rock Grade Control will…

- Make sure that the streambed does not down cut below the elevation of the structure.



Step Pools

Step pools are a series of structures in the stream designed to dissipate the energy in steep-gradient sections of the stream.

The step pools will…

- Create grade control
- Reduce channel gradient creating fish passage
- Creates flow diversity

Log & Rock Toe Protection

The placement of a rocks and/ or logs at the toe of the stream bank for reinforcement. The lower portion of the bank receives the most erosive force.

Log & Rock Toes will…

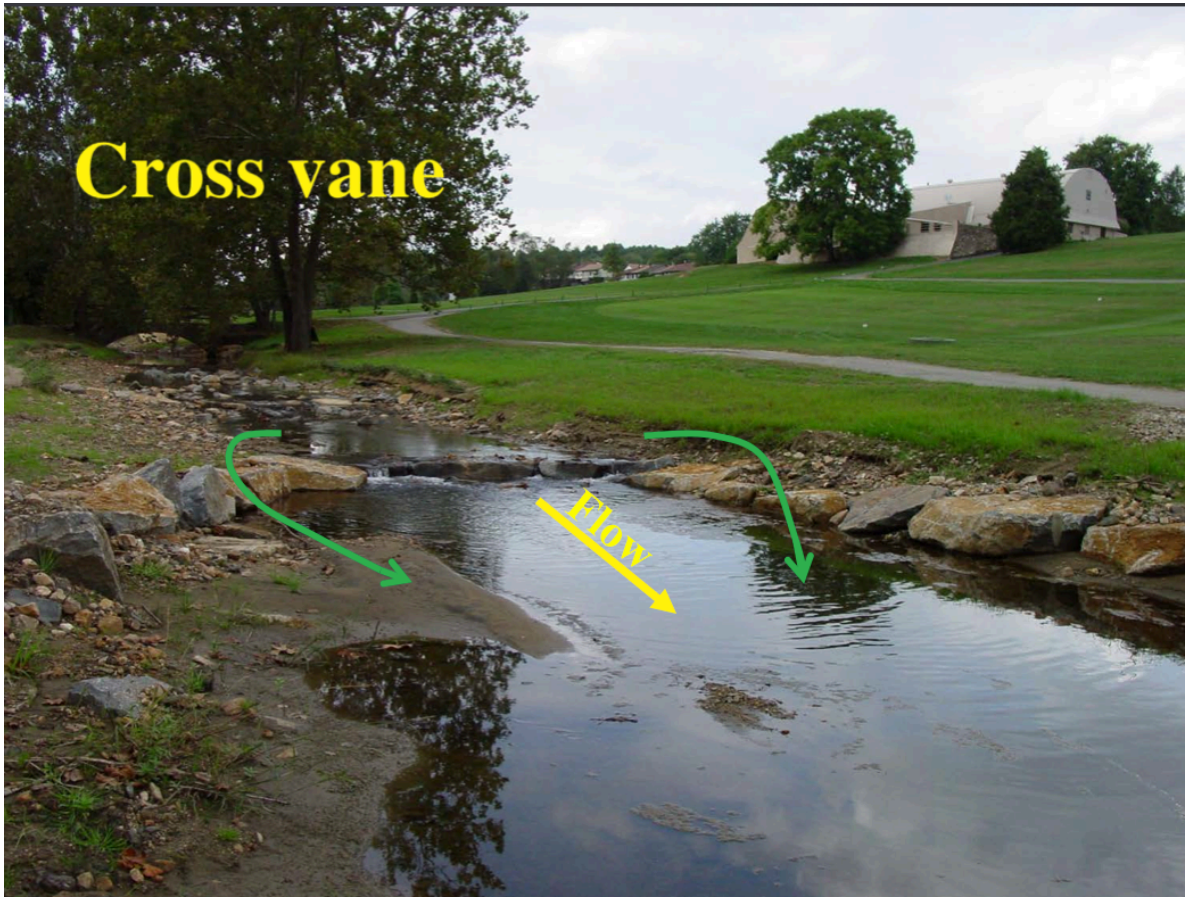
- Reduce bank erosion
- Prevent undercutting
- Reduces sediment in the stream increasing water quality

Rock Cross Vane

A rock sill that is constructed to go across the stream. The vane extends down the stream rising to the elevation of the bank.

A Rock Cross Vane will…

- Provide grade control to prevent down-cutting
- Redirect the stream energy back to the center of the channel
- Promotion of pool formation downstream
- Narrowing/deepening of the base-flow channel



Fringe Wetlands & Vegetative Buffer

Wetlands and buffers along the stream allow for a living cushion between the stream and the land activities.

The Wetlands and Buffer will…

- Filter and capture sediment in the stream
- Increase water quality
- Preserve the floodplain
- Contribute to ground-water recharge.

Note: Ground-Water Recharge: The process of surface water being absorbed in the ground and becoming ground water.

Live Branch Layering

The use of riparian vegetation branch clippings planted and compacted with soil to create a long-term bank stabilizer.

Live Branch Layering will…

- Stop stream bank erosion
- Promotes growth of natural vegetation
- Provides shade, insects and overhead cover for fish habitat

Random Boulder Placement

The single or clustered placement of boulders randomly throughout the stream channel.

Random Boulder Placement will…

- Promote riffles & pools for improved aquatic life
- Provide stream habitat cover
- Allow for small scour pools and eddies to for which can be used as fish spawning areas