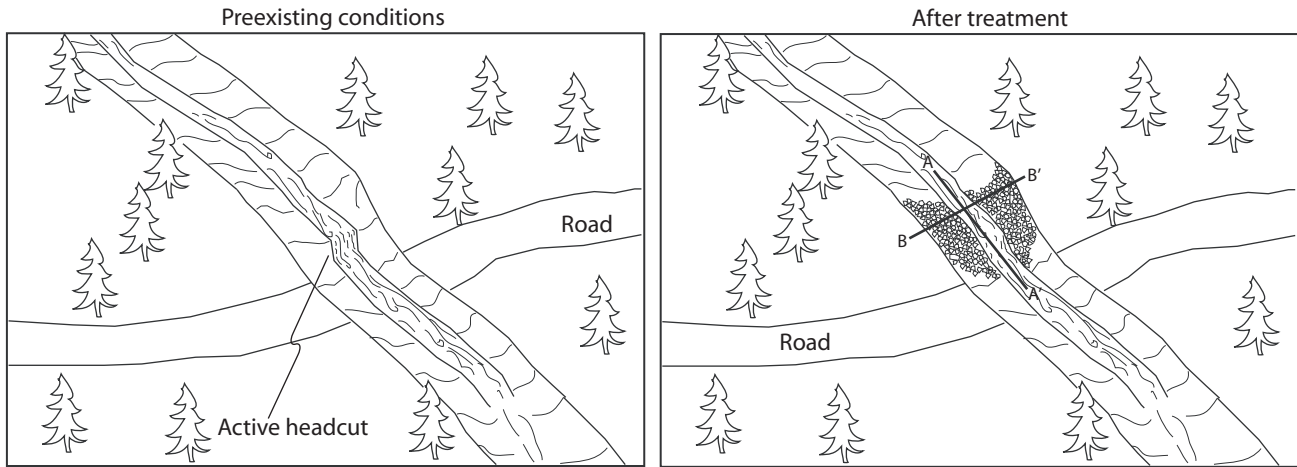
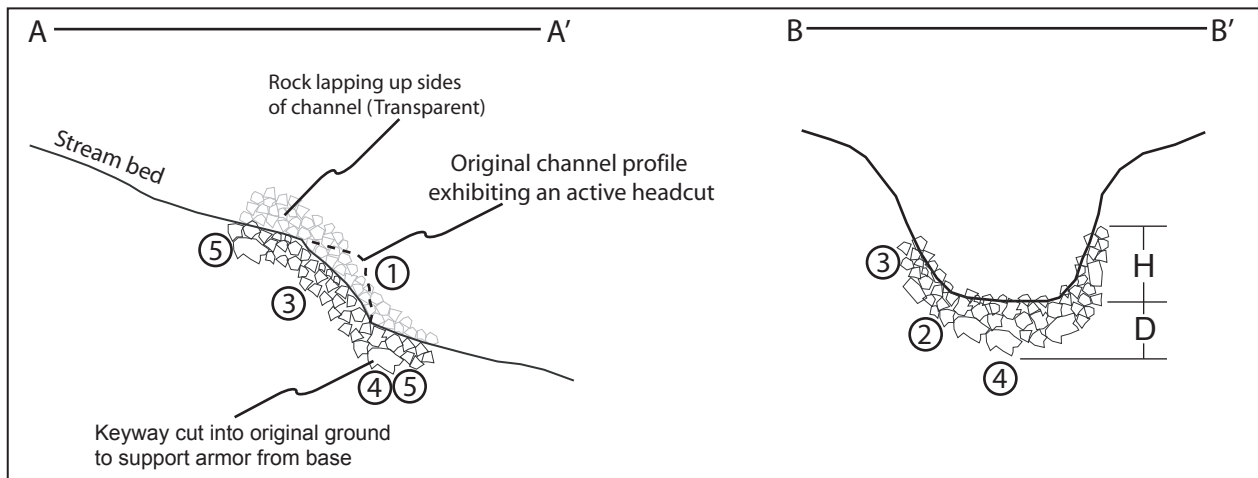


# Typical Rock Grade Control Structure Installation at man-made headcuts/knickpoints in a non-fish bearing stream channel



## Cross section parallel and perpendicular to watercourse



## Notes

The main objective is to create a structure that will not be flanked, undercut, or eroded by the stream.

The critical elements of a successful grade control structure are:

- 1) Excavating the headcut to a gentler channel gradient over a distance of stream  
(See road log for details)
- 2) rock selection- rock should be selected that is resistant to transport during design flows, and has a bell shaped distribution of sizes with the median diameter equivalent to the D50 particle size of the stream at the site of installation (See road log for range of rock diameters).
- 3) The rock must be placed in a "U" shape that will contain the 100 yr. return interval stream flow, won't constrict the channel cross sectional area, and be flush with the streambed and not deflect flow.
- 4) The rock must be imbedded into the channel at least two rock diameters in thickness.
- 5) The largest rock should be used at the base and top of the grade control structure to buttress the other rock

Pacific Watershed Associates Inc.

Geologic and Geomorphic Studies • Watershed Restoration • Wildland Hydrology • Erosion Control • Environmental Services  
PO Box 4433, Arcata, CA 95518 / Ph: 707-839-5130 / FAX: 707-839-8168 / www.pacificwatershed.com

PWA Typical Drawing #18