

## NATURAL RESOURCES CONSERVATION SERVICE

### CONSERVATION PRACTICE STANDARD

## CHANNEL BED STABILIZATION

(Feet)

CODE 584

#### DEFINITION

Measure(s) used to stabilize the bed or bottom of a channel.

#### PURPOSE

This practice may be applied as part of a conservation management system to support one or more of the following:

- Maintain or alter channel bed elevation or gradient
- Modify sediment transport or deposition
- Manage surface water and groundwater levels in floodplains, riparian areas, and wetlands.

#### CONDITIONS WHERE PRACTICE APPLIES

This practice applies to the beds of existing or newly constructed alluvial or threshold channels that are undergoing damaging aggradation or degradation and that cannot be feasibly controlled by clearing or snagging, by the establishment of vegetative protection, by the installation of bank protection, or by the installation of upstream water control measures.

#### CRITERIA

Use of this standard will comply with all applicable federal, state, and local laws and regulations.

Measures will be designed and installed according to a site-specific plan.

Measures to be applied will be compatible with improvements planned or being carried out by others.

Sufficient depth will be maintained to provide adequate outlets for subsurface drains, tributary streams or ditches, or other channels.

Effect of channel work on existing structures such as culverts, bridges, buried cables, pipelines, and irrigation flumes will be evaluated to determine the impact on their intended functions.

Measures will be designed for flow duration, depth of inundation, buoyancy, uplift, scour, angle of attack, and stream velocity and be sustainable for higher flow conditions, based on acceptable risk.

Measures will be compatible with the bank or shoreline materials, water chemistry, channel hydraulics, and slope characteristics, both above and below the water line.

Measures will be designed for anticipated ice action, debris impact, and fluctuating water levels.

Spoil material from clearing, grubbing, and channel excavation will be disposed of in a manner that will not interfere with the function of the channel.

All channel slopes, berm, spoil and other disturbed areas around measures will be protected from erosion. Vegetation will be selected that is best suited for the anticipated site conditions.

Measures will not impede the upstream or downstream passage of aquatic organisms.

Channel clearing to remove stumps, fallen trees, debris, and sediment bars will only be done when they are causing or could cause detrimental bank erosion or structural failure. Habitat-forming elements that provide cover,

**Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service State Office, or download it from the Field Office Technical Guide for your State.**

food, pools, and water turbulence will be retained or replaced to the extent possible.

Measures will be designed to maintain the appropriate sediment transport regime in order to avoid detrimental erosion or sedimentation upstream and downstream.

Measures will not impair the floodway or floodplain functions.

Measures will not result in adverse effects on the function of the stream or the stream corridor. These adverse effects include destruction of instream habitat, sediment transport imbalances, passage barriers, or unexpected changes in channel plan, pattern, or profile.

When water surface elevations are a concern, the effects of protective measures will not cause detrimental changes in water surface elevations.

The quantity and character of the sediments entering the reach of channel under consideration will be analyzed on the basis of both present conditions and projected conditions caused by changes in land use or land treatment and upstream improvements or structural measures.

### **CONSIDERATIONS**

Consider area-wide planning for proper design, function, and management of protective measures, where the design reach involves multiple stakeholders.

Assess channel stabilization needs in sufficient detail to identify the causes contributing to the instability (e.g. watershed alterations resulting in significant modifications of discharge or sediment production). Due to the complexity of such an assessment, use of an interdisciplinary team should be considered.

When designing protective measures, consider the changes that may occur in the watershed hydrology and sedimentation over the design life of the measure.

Consider using woody material removed during construction in the overall practice design.

Consider maintaining or improving the habitat value for fish and wildlife, which includes lowering or moderating water temperature, and improving water quality.

Consider opportunities to improve habitat for threatened, endangered, and other species of concern, where applicable.

Consider maximizing adjacent wetland functions and values with the project design and minimizing adverse effects to existing wetland functions and values.

Consider protecting side channel inlets and outlets from erosion or sedimentation.

Consider the type of human use and social and safety aspects when designing the protective measures. Use construction materials, grading practices, vegetation, and other site development elements that enhance aesthetics, recreational use, and maintain or complement existing landscape uses such as pedestrian paths, climate controls, and buffers. Avoid excessive disturbance and compaction of the site during installation.

Measures should be designed to minimize safety hazards to boaters, swimmers, or people using the channel.

### **PLANS AND SPECIFICATIONS**

Plans and specifications will be prepared for the practice site. Plans will include the following, as applicable:

- Plan view
- Profile
- Cross section (typical or other)
- Location of excavation or borrow
- Seeding rates.
- Seeding dates.
- Establishment procedure.

Plans and specifications for the establishment and management of the species of plants to be established may be recorded in narrative form, on job sheets, or on other forms.

### **OPERATION AND MAINTENANCE**

An Operation and Maintenance plan will be prepared. The plan will provide specific instructions for operating and maintaining the system to insure that it functions properly. It will also provide for periodic inspections and prompt repair or replacement of damaged components.