

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**

- Maintain or alter channel bed elevation or gradient.
- Modify sediment transport or deposition.
- Manage surface water and ground water 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 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**

Plan all work to comply with Federal, state, and local laws and regulations.

Impact to cultural resources, wetlands and Federal and state protected species shall be evaluated and avoided or minimized to the

extent practicable during planning, design and implementation of this conservation practice in accordance with established National and Florida policy, General Manual (GM) Title 420-Part 401; Title 450-Part 401, Title 190-Parts 410.22 and 410.26, National Planning Procedures Handbook (NPPH) Florida Supplements to Parts 600.1 and 600.6, National Cultural Resources Procedures Handbook (NCRPH), National Food Security Act Manual (NFSAM), and the National Environmental Compliance Handbook (NECH).

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

Measures to be applied shall be compatible with improvements planned or being implemented by others.

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

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

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

Measures shall be designed for anticipated debris impact and fluctuating water levels.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Spoil material from clearing, grubbing and channel excavation shall be disposed of in a manner that will not interfere with the function of the channel and in accordance with Florida NRCS conservation practice standard Spoil Spreading, Code 572.

All disturbed areas around measures shall be protected from erosion. Select vegetation that is best suited for the anticipated site conditions in accordance with Florida NRCS conservation practice standard Critical Area Planting, Code 342.

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

Channel clearing to remove stumps, fallen trees, debris, and sediment bars shall only be done when they are causing or could cause detrimental bank erosion or structural failure. Habitat-forming elements that provide cover, food, pools, and water turbulence shall be retained to the extent possible.

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

Measures shall not impair the floodway or floodplain functions.

Measures shall not result in adverse effects on the function of the stream or the stream corridor. These adverse effects include destruction of in stream 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 shall not cause detrimental changes in water surface elevations.

The quantity and character of the sediments entering the reach of channel under consideration shall 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 debris 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, including improvements to the riparian corridor.

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 the 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 for this practice shall be prepared for specific channel reaches and field sites and shall describe the requirements for applying the practice to achieve its intended purpose(s).

As a minimum, the plans and specifications shall include, but not limited to, the following items:

- Site plan layout.

- Cross-sections and profiles.
- Location and details of appurtenant structures.
- Special requirements for diverting water, dewatering site, and keeping work area dry.
- Special foundation requirements.
- Vegetative requirements.

#### **OPERATION AND MAINTENANCE**

An operation and maintenance (O&M) plan shall be provided to and reviewed with the landowner. The O&M plan shall include items as appropriate to maintain the system and insure that it functions properly. The plan shall include, but not limited to, the following items:

- Periodic inspections, especially after high flow events.
- Remove sediment deposits to maintain capacity of channel.

- Prompt repair or replacement of damaged areas.
- Maintain areas protected by vegetation in vigorous vegetation.

#### **REFERENCES**

Florida NRCS Conservation Practice Standards:  
Critical Area Planting, Code 342  
Spoil Spreading, Code 572  
General Manual  
Title 420-Part 401  
Title 450-Part 401  
Title 190-Parts 410.22 and 410.26  
National Cultural Resources Handbook  
National Environmental Compliance Handbook  
National Food Security Act Manual  
National Planning Procedures Handbook  
Florida Supplements to Parts 600.1 and 600.6