

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

CLEARING AND SNAGGING

(Ft.)  
Code 326



**DEFINITION**

Removal of vegetation along the bank (clearing) and/or selective removal of snags, drifts, or other obstructions (snagging) from natural or improved channels and streams.

**PURPOSES**

Reduce risks to agricultural resources or civil infrastructure by removing obstructions that hinder channel flow or sediment transport in order to:

- Restore flow capacity and direction;
- Prevent excessive bank erosion by eddies or redirection of flow;
- Reduce the undesirable formation of bars; and/or;
- Minimize blockages by debris and ice.

**CONDITIONS WHERE PRACTICE APPLIES**

Any natural or improved channel where the removal of vegetation, trees, brush, and/or other obstructions is needed to accomplish the listed purposes.

**CRITERIA**

The design shall address all modified flow conditions caused by clearing and snagging.

**General.** Plan, design, and construct the clearing and snagging measures to comply with all Federal, state, and local laws and regulations. Some clearing and snagging activities may require a U.S. Army Corps of Engineers Section 10 or 404 permit.

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 6001 and 600.6, National Cultural Resources Procedures Handbook (NCRPH), national Food Security Act Manual (NFSAM), and the National Environmental compliance Handbook (NECH).

Include restoration actions with the application of this practice when clearing and snagging is to be completed on any channel where significant channel erosion will occur, major impairment to the landscape resource quality is likely, or significant impairment to habitat for fish and wildlife will occur.

Perform selective snagging, where possible, primarily with hand operated equipment, water based equipment, or small equipment used in a manner that will minimize soil, water, and other resource disturbances.

**Capacity.** Where the capacity of the channel, needs to be determined both before and after modification, it shall be determined using National Engineering Handbook (NEH) Part 654,

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

Stream Restoration Design, Chapter 6, Stream Hydraulics.

**Hydraulics.** The value of the Manning's "n" roughness coefficient used to determine channel capacity after modification shall reflect the degree of natural changes and maintenance expected to occur in future years.

**Location.** The area to be cleared and snagged shall include the perimeter and flow area of the channel. Trees on the bank that are leaning over or other objects that may fall into the channel may be included.

Clearing and snagging may also be used for other areas, such as temporary disposal areas or travel-ways, required for implementation of this practice.

**Stability.** Clearing and snagging may affect channel stability. The effect on downstream and upstream reaches due to the removal of obstructions shall be analyzed using appropriate stream and channel geomorphologic procedures.

**Debris disposal.** Material cleared and snagged shall be removed from the floodplain or deposited in areas or in a manner that will not significantly affect the flow capacity of the floodplain.

**Vegetation.** All areas denuded and/or disturbed during clearing and snag removal shall be restored by planting vegetation. Native vegetation shall be used where practical. Vegetation established as part of this practice shall include ecologically suitable species obtained from local sources wherever practical.

Disturbance of wetlands, riparian areas, and fish and wildlife habitat sites shall be minimized or avoided where possible.

The establishment of vegetation on cleared and snagged areas shall be in accordance with Florida NRCS conservation practice standard Critical Area Planting, Code 342. .

## CONSIDERATIONS

Debris in stream systems affects the physical characteristics of the stream as well as the diversity and abundance of its aquatic organisms. Fisheries and/or Aquatic Biologists can assist in evaluating and incorporating measures to improve aquatic and riparian-wetland habitat:

Enhancements for fish and wildlife values should be incorporated as needed and practical. Special attention should be given to landscape aesthetics and to protecting and maintaining key shade, food, and den trees.

Habitat forming elements that provide cover, food, pools, and water turbulence should be retained or replaced to the extent possible

Root balls of fallen trees that are securely anchored in the channel or naturally-formed logjams may provide fish habitat and/or stability. The effects of these items shall be included in the channel capacity hydraulic analysis.

Existing on-site woody debris should be incorporated into design to help stabilize banks, modify channel flow, provide anchorage and food for invertebrates, and provide habitat and cover for fish. Note that woody debris should be securely fastened as dislodged woody debris may be a risk to downstream structures such as bridges, dams, or other civil works.

- Erosion rates decline as a percentage of vegetative roots in a streambank increases. Selection of appropriate riparian vegetation will increase the streambank's ability to resist future erosion.
- Sediments may be re-suspended in the flow due to the clearing and snagging activity. Treatments that promote beneficial sediment deposition and the filtering of sediment and dissolved substances should be considered.

Schedule in-stream work to avoid environmentally sensitive periods such as spawning and migration to the fullest extent possible.

Measures and practices should be incorporated, as needed and practical, to address modified flow conditions such as:

A lowered hydraulic gradient which may drain adjacent flood plains more quickly.

Decreased groundwater recharge in water losing streams resulting from reduced residence time in the channel and adjacent floodplains.

Ground-disturbing activities associated with this practice have the potential to adversely affect protected plant species and may encourage the establishment of exotic and/or non-native species. Quickly revegetating disturbed areas can minimize the introduction of non-native species.

Temporary erosion and sediment best management practices can be used to minimize the delivery of fine sediment to adjacent and downstream reaches.

Construction methods that enhance fish and wildlife values should be incorporated as needed and practical:

Operate heavy machinery from atop adjacent streambanks to the fullest extent possible.

After all material has been removed from streambank locations, limit machinery access to riparian areas to minimize damage to stream habitat.

### PLANS AND SPECIFICATIONS

Describe the requirements for applying the practice in the plans and specifications for clearing and snagging to achieve its intended purpose(s).

As a minimum, include, as applicable, the following items in the plans and specifications:

- limits of area requiring clearing and snagging
- location of ingress and egress to the site
- description of works of improvement and extent of removal
- location of disposal areas for debris
- location of areas off limits for disposal areas
- location and description of trees or woody vegetation to be left undisturbed
- method of debris disposal
- manner and sequence of construction operations so that impacts on the environment will be minimized
- erosion control measures, as applicable
- vegetative requirements for areas denuded and disturbed, as applicable

Implement all operations in a safe and skillful manner. Observe safety and health regulations and use appropriate safety measures.

### OPERATION AND MAINTENANCE

Establish a maintenance program with the landowner/user to maintain channel capacity and desired vegetative cover. Consider the following items:

- Area should be assessed after each major storm event for downed trees and debris accumulation. Remove downed trees and debris accumulations that are causing bank erosion problems as soon as possible..
- Promptly repair eroded areas.
- Remove major silt and sediment accumulations in the channel cross-section as soon as practical, when the effects are causing significant bank erosion problems.
- Re-establish vegetation cover immediately where scour erosion has removed established seeding.
- Keep inlets to side drainage structures and channels open and armor if necessary.
- Periodically inspect the area for signs of significant stream bank undermining or instability.

### REFERENCES

- General Manual
  - Title 420-Part 401
  - Title 450-Part 401
  - Title 190-Parts 410.22 and 410.26
- National Cultural Resources Procedures Handbook
- National Engineering Handbook (NEH) Part 654, Stream Restoration Design, Chapter 6, Stream Hydraulics
- National Environmental Compliance Handbook
- National Food Security Act Manual
- National Planning Procedures Handbook Florida Supplements to Parts 600.1 and 600.6
- NRCS Conservation Practice Standards
  - Critical Area Planting, Code 342
  - Open Channel, Code 582
  - Streambank and Shoreline Protection, Code 580