

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

CLEARING AND SNAGGING

(Ft.)
Code 326



DEFINITION

Removing snags, drifts, or other obstructions from a channel or drainage way.

PURPOSES

Reducing significant human and/or natural environmental risks by improving physical characteristics of a channel to:

- restore flow capacity;
- prevent bank erosion by eddies;
- reduce the formation of bars; or
- minimize blockages by debris.

CONDITIONS WHERE PRACTICE APPLIES

Any channel or urban floodway where the removal of trees, brush, and/or other obstructions is needed to accomplish one or more of the listed purposes.

CRITERIA

General Criteria Applicable To All Purposes

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. If the capacity of channel or drainage way is required, determine the capacity, both before and after improvement, by using Manning's formula with applicable values of the retardance factor "n" from Supplement B to the National Engineering Handbook, Section 5 – Hydraulics, or similar source. Use the value of "n" to determine channel capacity after improvement that reflects the degree of natural changes and maintenance expected to occur in future years.

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

Location. Include the perimeter of the channel, the flow area of the urban floodway, or both in the area to be cleared and snagged. Include trees on the bank that are leaning over or other objects that may fall into the channel in the area to be cleared and snagged. If root balls are still attached to the streambank, cut off the log 6 to 12 inches above the ground and leave the stump and root mass for bank stability.

Specify clearing and snagging only for other areas such as berms, areas used for temporary disposal sites or travelways, or for other planned conservation uses where needed to implement this practice.

Stability. Ensure clearing and snagging does not impair channel stability. Comply with NRCS conservation practice standard Open Channel, Code 582 in determining channel stability. Analyze the effect on downstream and upstream reaches due to the removal of obstructions by using appropriate stream and channel geomorphologic procedures.

If clearing and snagging will result in streambank erosion, use the criteria within NRCS conservation practice standard Streambank and Shoreline Protection, Code 580 in conjunction with this standard.

Debris disposal. Place the debris removed from the channel on-site in a manner that will stabilize the debris or haul off-site and dispose the debris in an appropriate manner.

Protection. Restore all areas denuded and disturbed during snagging operations by planting native vegetation where practical. Minimize or avoid disturbance of wetlands, riparian areas, and fish and wildlife habitat sites where possible. Take caution to ensure disturbed sites are not impacted in such a manner to encourage non-native plant species to become established.

CONSIDERATIONS

Consider and minimize the effects on water quantity and quality.

Consider the removal of deadfalls, stumps, and trees from streambanks and channels may increase discharge, velocity and channel capacity that could reduce flood damage from out of bank flow.

Consider the improved flow conditions may lower the hydraulic gradient and drain flood plains more quickly.

Consider the decreased groundwater recharge in water losing streams that may result from reduced residence time of water in the channel.

Consider the temporary losses of aquatic or wetland habitat that may occur with the removal of vegetation.

During implementation of the practice, consider there may be an increase in turbidity due to an increased sediment load. Water quality may be further degraded by chemical substances (i.e. organic nitrogen or phosphorus) attached to the sediment particles.

During construction, consider that a heavy organic load may be produced resulting in a decreased availability of dissolved oxygen. Long term effects may cause a decrease in yields of sediment and sediment attached substances.

Consider the use of sediment control practices which will limit sediment and organic load effects such as silt curtains, silt fences, and temporary sediment basins.

Consider the increase in surface water temperatures at low flow that may occur from removal of shade producing canopy until re-growth occurs. Accelerated flows may reduce the period of time water is exposed for "sun warming", thus reducing water temperature.

In streams carrying dissolved substances, consider a reduction in ground water recharge that may contribute to improved aquifer quality.

Consider the number of pools and riffles forming the channel bottom may be reduced and fish habitat could be adversely affected.

Consider incorporating as need or practical measures and construction methods that enhance fish and wildlife values. Consider giving special attention to landscape aesthetics, protecting and maintaining key shade, food, and den trees and to stabilization of disturbed areas following treatment.

Consider removal methods and the disposal location of cleared material that will not be used for bioengineering (removal from site, placement in or out of the floodplain, not placed in wetland

areas, etc.), and implement according to permit conditions.

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:

- Where applicable, control grazing in the construction area during vegetative

establishment and when soil conditions are wet.

- Maintain a vigorous vegetative cover. Fertilize in accordance with the Institute of Food and Agricultural Sciences (IFAS) recommendations and establish vegetation according to conservation practice standard Critical Area Planting, Code 342.
- 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 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
- Supplement B to the National Engineering Handbook, Section 5 – Hydraulics