

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
RHODE ISLAND**

CLEARING AND SNAGGING

(Ft.)

CODE 326

DEFINITION

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

PURPOSE

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; and/or
- Minimize blockages by debris and ice.

CONDITIONS WHERE PRACTICE APPLIES

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

CRITERIA

General Criteria Applicable to All Purposes

Laws and Regulations. All Federal, state, and local laws, rules, regulations, permit conditions and requirements governing the planning, design, and implementation of this practice shall be followed. The landowner shall obtain all necessary permits prior to practice implementation.

Clearing and snagging shall not be completed on any channel where an assessment shows that 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, unless needed restoration actions are included with the implementation of this practice.

Capacity. The capacity of the channel, both before and after improvement, shall be determined 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. The value of "n" used to determine channel capacity after improvement 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 of the channel, the flow area of the urban floodway, or both. Trees on the bank that are leaning over or other objects that may fall into the channel shall also be included. 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.

Stability. Clearing and snagging shall only be specified 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.

Clearing and snagging shall not impair channel stability. The criteria for determining channel stability shall comply with Conservation Practice Standard (582), Open Channel. The effect on downstream and upstream reaches due to the removal of obstructions shall be analyzed using appropriate stream and channel geomorphologic procedures.

If clearing and snagging will result in

streambank erosion, criteria within Conservation Practice Standard (580), Streambank and Shoreline Protection will be used in conjunction with this standard.

Vegetation. All areas denuded and disturbed during snag removal shall be restored by planting native vegetation where practical in accordance with NRCS Standards 327, Conservation Cover or 342, Critical Area Planting. Disturbance of wetlands, riparian areas, and fish and wildlife habitat sites shall be minimized or avoided where possible. Cleared material shall be removed from the floodplain or deposited in approved areas that will not significantly affect the flow capacity of the stream.

CONSIDERATIONS

The conservation practice's area of potential effect (APE), including but not limited to areas of equipment/vehicle traffic in the channel and floodway and areas of vegetation removal, will be evaluated by RI-NRCS field staff for its potential to affect cultural resources. The cultural resource worksheet (RI-CR-01) will be forwarded to the RI-NRCS Cultural Resources Coordinator and, if required through State Level Agreements and tribal consultation protocols, conduct cultural resources or other investigations or actions which are of geological, paleontological, or of other scientific importance.

Insure that threatened and endangered species and their habitat shall not be permanently adversely impacted by the use of this practice.

Effects on water quantity and quality should be considered.

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

Improved flow conditions may lower the hydraulic gradient and drain flood plains more quickly. Rapid drawdown may cause sloughing of saturated, unstable streambanks.

Decreased groundwater recharge in water-losing streams may result from reduced residence time of water in the channel.

Temporary losses of aquatic or wetland habitat may occur with the removal of vegetation.

During implementation of the practice, there may be increased 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, 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.

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

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

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

Measures and construction methods that enhance fish and wildlife values should be incorporated as needed and practical. Special attention should be given to landscape aesthetics, to protecting and maintaining key shade, food, and den trees, and to stabilization of disturbed areas.

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

Plans and specifications shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include construction plans, drawings, job sheets or other similar

documents. These documents shall as a minimum, specify the requirements for installing the practice and include the kind, quantity and quality of materials to be used.

To the extent practical, specifications shall conform to NRCS National Engineering Handbook Parts 642 and 643 (Section 20).

Construction operations shall be carried out in a manner and sequence so that impacts on the environment will be minimized and held within acceptable limits.

All operations shall be carried out in a safe and skillful manner. Safety and health regulations shall be observed and appropriate safety measures used.

AS BUILT DRAWINGS

As built drawings shall be prepared which show all pertinent elements and elevations as actually installed. A copy shall be provided to the owner / operator upon construction completion.

OPERATION AND MAINTENANCE

A maintenance program shall be established by the landowner or operator to monitor channel conditions and maintain vegetative cover. **The maintenance program shall be in accordance with permit conditions or regulations.**

Items to consider are:

- Control of grazing or other activity
- Establishment and maintenance of appropriate riparian buffer zones.
- Establishment and maintenance of a vigorous vegetative cover.
- Re-establishment of vegetation cover where scour erosion has removed established seeding.
- Monitoring and reporting of eroded areas.
- Monitoring and reporting of major silt and sediment accumulations and/or debris in the channel cross-section.
- Monitoring and reporting of inlets to side drainage structures.
- Periodic inspection and reporting of the area for signs of significant streambank undermining or instability.