

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

FILTER STRIP

(Ac.)

CODE 393

DEFINITION

A strip or area of herbaceous vegetation situated between cropland, grazingland, or disturbed land (including forestland) and environmentally sensitive areas.

PURPOSE

- To reduce sediment, particulate organics, and sediment-adsorbed contaminant loadings in runoff.
- To serve as Zone 3 of a Riparian Forest Buffer, Rhode Island NRCS Standard 391.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies when planned as part of a conservation management system.

On agricultural land, this practice applies when planned as a component of a conservation management system where soil loss is less than or equal to 2T and where a nutrient management plan and/or an integrated pest management (IPM) plan or wildlife habitat management plan has been implemented.

On areas situated below cropland, grazing land, or disturbed land (including forest land) where an assessment indicates that sediment, total suspended solids, particulate organic matter, and/or sediment-adsorbed contaminants may leave these areas and enter environmentally sensitive areas.

CRITERIA

General Criteria Applicable to All Purposes

Laws and Regulations. All Federal, state, and local laws, rules, regulations, and requirements governing the construction and use of this practice shall be followed.

Filter strips shall be designated as vegetated areas to treat runoff and are not part of the adjacent cropland rotation.

Overland flow entering the filter strip shall be primarily sheet flow. Concentrated flow shall be dispersed.

Vegetative requirements shall be determined using the current Rhode Island NRCS Standard 342, Critical Area Planting.

Federally-listed noxious weeds and state-listed non-native, invasive plants shall not be established in the filter strip. Federally-listed noxious weeds shall be controlled if present.

If state-listed non-native, invasive plants are present, an assessment of the pros and cons of control will be made and acted upon.

Additional criteria to reduce sediment, particulate organics and sediment-adsorbed contaminant loadings in runoff

The minimum flow length for this purpose shall be 20 feet.

Filter strip flow length shall be determined based on:

- field slope percent and length,
- filter strip slope percent,
- erosion rate,
- amount and particle size distribution of sediment delivered to the filter strip in runoff,
- density and height of the planned filter strip vegetation, and
- runoff volume associated with erosion producing events.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service Rhode Island State Office (<http://www.ri.nrcs.usda.gov>), or download it from the Rhode Island electronic Field Office Technical Guide (eFOTG) <http://www.nrcs.usda.gov/technical/efotg/>

**NRCS, RI
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Filter strip location requirements:

- a) The filter strip shall be located along the downslope edge of a field or disturbed area. To the extent practical it shall be placed on the approximate contour. Variation in placement on the contour should not exceed a 0.5% longitudinal (perpendicular to the flow length) gradient.
- b) The drainage area above the filter strip shall have greater than 1% but less than 8% slopes. The State Resource Conservationist may, on a case by case basis, make exceptions for steeper slopes with short slope lengths, especially on HEL fields.
- c) The ratio of the drainage area to the filter strip area shall be no greater than 60:1.
- d) On cropland, the average annual sheet and rill erosion rate above the filter strip shall be less than or equal to 2T.
- e) Additionally, the land shall be managed in accordance with the Rhode Island NRCS Standards 590, Nutrient Management, 595, Pest Management, and/or NRCS Standard 633, Waste Utilization,.

The filter strip shall be established to permanent herbaceous vegetation consisting of a mixture of grasses, legumes and/or other forbs adapted to the soil, climate, nutrients, chemicals, and practices used in the current management system. Species selected shall have stiff stems, grow upright, and have a high stem density near the ground surface to trap water-borne soil particles.

Stem density shall be such that the stem spacing does not exceed 1 inch.

Additional Criteria to Serve as Zone 3 of a Riparian Forest Buffer, Practice Standard 391

Except for the location requirements, the criteria given in "Additional criteria to reduce sediment, particulate organics, and sediment-adsorbed contaminant loads in runoff" also apply to this purpose.

If concentrated flows entering Zone 3 are greater than the filter strip's ability to disperse them, other means of dispersal, such as spreading devices, must be incorporated.

CONSIDERATIONS

The conservation practice's area of potential effect (APE) 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.

Use Rhode Island NRCS Standard 386, Field Border to protect filter strips and/or accommodate harvest and maintenance equipment or for the purpose of creating or maintaining wildlife/beneficial insect habitat.

To avoid damage to the filter strip consider establishing a field border with vegetation that is somewhat tolerant to herbicides used in the upslope crop rotation or in the vicinity of the practice.

Increasing the width of the filter strip will increase the potential for capturing particulates.

Filter strip size may be adjusted to a greater flow length if needed to accommodate harvest and maintenance equipment.

Select grass species that sequester more carbon.

Increasing the width of filter strip will increase the potential for carbon sequestration.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for each field or treatment unit according to the Criteria included in this Standard. Specifications shall describe the requirements for applying this practice to meet the intended purpose.

Record practice specifications on the Rhode Island NRCS Conservation Practice Job Sheet 393, Filter Strip or equivalent.

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.

Comment [J1]: If we have current job sheet for CPS 393, we need to post it on eFOTG.

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

Based on this standard, plans and specifications shall be prepared for each specific field site where a filter strip will be installed. A plan includes information about the location, construction sequence, vegetation establishment, and management and maintenance requirements.

Specifications shall include:

- a) Length, width, and slope of the filter strip to accomplish the planned purpose (length refers to flow length across the filter strip).
- b) Species selection and seeding or sprigging rates to accomplish the planned purpose.
- c) Planting dates, care and handling of the seed to ensure that planted materials have an acceptable rate of survival.
- d) A statement that only viable, high quality and regionally adapted seed will be used.
- e) Site preparation sufficient to establish and grow selected species.

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan for the vegetated filter area shall be prepared and signed by the owner/operator. Copies of the O&M plan shall be provided to the owner/operator.

As a minimum, the following items shall be addressed:

Grazing of the filter strip is prohibited.

Ensure that a dense vigorous vegetative stand is established prior to introducing runoff.

Remove or incorporate accumulated sediments, organic solids, or debris.

Inspect after major storm events, and at least quarterly.

Repair any gullies that have formed, remove unevenly deposited sediment accumulation that will disrupt sheet flow, reseed disturbed areas, and take other measures to prevent concentrated flow through the filter strip.

Repair any erosion rills, channels, berms, or trenches to restore sheet flow.

Harvest vegetation as appropriate, to encourage dense growth, promote an upright growth habit, and remove nutrients and other contaminants that are contained in the plant tissue.

Control undesired weed species; especially federally-listed noxious weeds and state listed non-native invasive plants.

Remove sediment accumulations, especially at the filter strip-field interface, regrade, and re-establish the filter strip vegetation, if needed to maintain or restore the filter strip's function. If applicable, minimize destruction of vegetation within portion of strip devoted to wildlife habitat by regrading only to the extent needed to remove sediment and fill concentrated flow areas.

Apply supplemental nutrients as recommended by a soil test to maintain the desired species composition and stand density of the filter strip.