Name of Practice: RIPARIAN GRASS FILTER STRIPS
VACS Program Specification No. WQ-1

This document specifies terms and conditions for the Virginia Agricultural Best Management Practices Cost-Share Program's Riparian Grass Filter Strip best management practice which are applicable to all contracts entered into with respect to that practice.

A. Description and Purpose

Riparian grass filter strips are vegetative buffers that are located along the banks of water courses to filter runoff, anchor soil particles, and protect banks against scour and erosion. Even the best conservation measures on a farm allow some soil movement during heavy rains. Filter strips are the stream's last line of defense against pollution. Since filter strips trap eroded soil, they help keep sediment out of streams. The strips also improve water quality by filtering out fertilizers, pesticides, and microorganisms that otherwise might reach waterways. In addition, riparian grass filter strips along streams serve as environmental corridors. They provide valuable food, cover, and travel ways for some wildlife species. As a result, they permit a greater diversity of wildlife, which, in turn, contributes to a more stable environment. Also, these living filters are aesthetically pleasing.

Cost-share will be provided to install and maintain riparian grass filter strips that are located adjacent to cropland or animal holding areas.

B. Policies and Specifications

1. In order to be eligible for cost-share or tax credit, producers must be fully implementing a current Nutrient Management Plan (NMP) on all agricultural production acreage contained within the field on which this practice will be implemented. The NMP must comply with all requirements set forth in the Nutrient Management Training and Certification Regulations (4VAC50-85 et seq.) and the Virginia Nutrient Management Standards and Criteria (revised July 2014); must be prepared and certified by a Virginia certified Nutrient Management Planner; and must be on file with the local District before any cost-share payment is made to the participant. Plans shall also contain any specific production management criteria designated in the BMP practice (4VACV50-85-130G).

2. Filter strips planned for sediment and related pollutant control are subject to the following state specifications:
   i. Riparian grass filter strips shall be designed and installed to filter sheet flow, rather than concentrated flow. If concentrated flow will occur, land smoothing or the use of some other BMP or combination of BMPs may be required (such as Grassed Waterways and Structures for Water Control).
   ii. Filter strips must be a minimum 35' in width. The maximum filter width eligible for cost-share payment and tax credit is 100', except for wider segments of a contoured filter where the contour is typically 35' to 100' wide.

3. Riparian grass filter strips must be located within 100'of a live or intermittent waterway,

open sinkhole, abandoned well or Chesapeake Bay Preservation Act Resource Protection Area as defined by local ordinance. An intermittent waterway is considered as being, but not limited to, any channel or flood-prone area where periodic water flow or storage is diverted by surface drainage. Riparian grass filter strips may be installed along intermittent waterways where judged appropriate and feasible by the local technical authority.

4. All trees, stumps, brush, rocks and similar materials that may interfere with installing the filter strip should be removed. The materials should be disposed of in a manner that will not degrade the quality of the environment or interfere with the proper functioning of the filter strip.

5. No-till planting is preferable. If grading is necessary, conventional equipment can be used for preparing the seedbed, fertilizing and maintenance.

6. Lime and fertilize according to soil test to assure proper establishment. Established filter strips shall not receive any applications of nitrogen or phosphorus.

7. Soil loss rates must be computed for all applications for use in establishing priority considerations and reflect at minimum a 3-year cropping history.

8. State cost-share and tax credit will be provided only one time per filter strip, while that land is under the same ownership.

9. Select an appropriate planting mix for filtering runoff and protecting water quality from the NRCS Plant Establishment Guide for Virginia.

10. Maintenance
    i. In cropland, a vegetative filter strip should be maintained on each side of the watercourse. The buffer must be maintained as perennial species for the practice lifespan.
    ii. Protect the filter strip from damage by livestock. Grazing (including flash grazing) and haying are not allowed in the protected riparian area during the lifespan of this practice. If at any time during the practice lifespan the participant is found to be grazing (including flash grazing) their livestock in the buffer, as documented by photographic evidence, the District shall require the repayment of the entire buffer payment (i.e. non-prorated).
    iii. Do not use as a roadway.
    iv. Avoid operations that leave tillage or wheel marks.
    v. Woody stems should not be allowed to exceed 2 inches in diameter.
    vi. Avoid damaging filter area with herbicides.

11. Filter strips planned for runoff from concentrated livestock areas or controlled overland flows for the treatment of liquid wastes are subject to NRCS Specification 393 Filter Strip. This practice is subject to NRCS Standards 393 Filter Strip, 466 Land Smoothing, 572 Spoil Spreading and Leveling.

12. All practice components, including the vegetative cover implemented, must be maintained for a minimum of five years following the calendar year of certification of completion. Cost-share and tax credit must be refunded if the operator destroys the cover during this time. The lifespan begins on Jan. 1 of the calendar year following the year of implementation. By accepting either a cost-share payment or a state tax credit for this practice, the participant agrees to maintain all practice components for the specified lifespan. This practice is subject to verification by the District throughout the lifespan of the practice and failure to maintain the practice may result in reimbursement of cost-share and/or tax credits.

C. Rate(s)

1. The VACS payment shall be based on the approved estimated cost or eligible actual cost, whichever is less, and shall vary by the minimum buffer width and lifespan of the practice. The buffer payment rates shall be provided for a maximum of 15 acres. The VACS payment rates including the buffer payment rates are:

Minimum Riparian Grass Filter	Lifespan	VACS payment rate	Buffer payment rate	Buffer payment cap
50'	15 years	100%	$80 per acre per year	$18,000 per contract
	10 years	95%	$80 per acre per year	$12,000 per contract
35'	15 years	90%	$80 per acre per year	$18,000 per contract
	10 years	85%	$80 per acre per year	$12,000 per contract

NOTE: The buffer payment cap is the maximum a participant can be paid per tract even when multiple practices with buffer payments are approved in a given program year (for example, but not limited to, FR-3, SL-6F, SL-6W, WP-2W and WQ-1).

2 As set forth by Virginia Code, the Commonwealth currently provides a tax credit for implementation of certain agricultural best management practices as discussed in the Tax Credit Guidelines of the VACS Manual.

3. If a participant receives cost-share from any source (state, federal or private), only the percent of the total cost of the project that the applicant contributed is used to determine the tax credit.

D. Technical Responsibility

Technical and administrative responsibility is assigned to qualified technical DCR and District staff in consultation, where appropriate and based on the controlling standard, with DCR, Virginia Certified Nutrient Management Planner(s), NRCS, DOF, and VCE. Individuals certifying technical need and technical practice installation shall have appropriate certifications as identified above and/or Engineering Job Approval Authority (EJAA) for the designed and installed component(s). All practices are subject to spot check procedures and any other quality control measures.

Revised April 2023

METHOD OF CALCULATING EROSION REDUCTION FOR FILTER STRIP (WQ-1)

The effectiveness of vegetative filter strip is directly related to a variety of site-specific conditions. Except for the actual area of grass vegetation, filter strips do not reduce active erosion in the contributing field, but only trap a percentage of the delivered sediment passing through this grass vegetation. Not all of the sediment that occurs in the field reaches the filter strip. For these reasons, the effectiveness of a filter strip must take into account sediment delivery and trapping efficiency in the calculation of water quality benefits.

Step 1: Determine size of filter strip and erosion rate.

a. Determine the length (ft.) and width (ft) for calculating the area (acres) of the filter strip. Acres will be the extent technically authorized.

b. Using RUSLE2, determine soil loss occurring in the field. Place this erosion rate in under the Sheet and Rill (tons/ac/yr) erosion reduction field in the Tracking Program

Step 2: Determine trapping efficiency of the filter area.

a. Determine the amount of delivered sediment to the filter strip by calculating the effective length of slope of the contributing field to the filter area. Maximum length allowed is 400 feet. Multiply the length of the filter strip (lfs) from Step 1 times the length of slope. Divide this number by 43,560 sq. ft. /acre to determine the contributing acreage.

$$\frac{\text{Length of Filter Strip} \times \text{Length of Slope}}{43{,}560}$$

Next, the contributing acreage is multiplied by the soil loss rate occurring on the field (previously calculated in Step #1) times a sediment delivery ratio (SDR) occurring in the field itself. Assume a SDR of 0.5.

Area x Erosion Rate x SDR = Delivered Sediment Load

b. Determine the amount trapped by multiplying the delivered sediment load times the trapping coefficient of the vegetation.

Sediment Load x Trapping Coefficient = Sediment Trapped

Use one of the following coefficients for your calculations:

Strip Width	Coefficient
35'	0.35
50'	0.50
100'	0.75

This trapping efficiency expressed in tons/year is placed in under Gross Erosion Reduction in tons/yr. field of the Tracking Program.

Example: 1,000-foot filter strip is planned for a 50-acre field; the slope length of the contributing area is approximately 250 feet. US soil loss rate is approximately 6 tons/ac./year. The filter strip itself is 50' wide.

Step 1: Size of filter area is to be placed in Extent Requested - 1.15 acres.

Erosion rate of 6 tons/ac/year to be placed in Sheet & Rill Reduction.

Step 2: Trapping efficiency

a. Delivered Sediment

Length of filter strip (1,000) x Length of Slope (250) 43,560

1,000 x 250 = 5.7 acres of contributing field 43,560

Area (5.7 ac) x Erosion Rate (6 tons/ac/yr) x SDR (0.5)

5.7 x 6 x 0.5 = Delivered Sediment Load of 17.1

b. Trapping coefficient

Sediment Load (17.1) x Trapping Coefficient (0.5) = 8.55 Round 8.55 up to 9

and place under Gross Erosion Reduction.