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NATURAL RESOURCES

Michael L. Parson, Governor


Carol S. Comer, Director

MEMORANDUM

2019-014

DATE: April 8, 2019

TO: All Soil and Water Conservation Districts

FROM:  Colleen Meredith, Director
Soil and Water Conservation Program

SUBJECT: Request for Comments on Draft Policies on Denitrifying Bioreactor and Saturated Buffer

During the August 2018 area meetings, program staff presented the idea of developing policies for two new practices. The practices are saturated buffer and denitrifying bioreactor. Both of the practices are designed to improve water quality by treating subsurface drainage reducing the amount of nitrates entering a water body.

The Soil and Water Districts Commission authorized requesting comments from districts on the attached draft policies at their January 10, 2019, meeting. The policies are similar to the Natural Resources Conservation Service (NRCS) standard and specifications for the practices. The program is requesting input from the districts on these two practices. Areas of the policies that district input will be especially beneficial are on the cost-share rate of the components for installation, and if an out-of-production incentive is needed.

During the update of the cost-share rules, the 75% maximum cost-share rate was changed to allow the Commission to establish the cost-share and incentives rates. The change to the rule gives the Commission more flexibility in the management of practices. When commenting on cost-share rates and incentives, please indicate what would be effective rates to entice landowners to implement these practices.

There have been questions about implementing the two practices on practices with surface inlets as they are designed to treat subsurface drainage. The practices are proposed to not be used in conjunction with surface inlets which is consistent with NRCS standards and specifications. The Commission, also at their January meeting, approved assisting with research and a pilot project for implementing the practices with surface drainage.



Recycled paper

Comments on the draft policies are due by June 7, 2019. Please email your comments to soil&waterconservationprogram@swcd.mo.gov. Thank you.

CM:jp

Attachments

N604 Saturaded Buffer

N605 Denitrifying Bioreactor

N604 Saturated Buffer

Purpose

Reduce nitrate loading to surface water from subsurface drain outlets.

Applicability

1. Applies to crop land with a subsurface drainage system that can be adapted to discharge to a vegetated area.
2. Soils and topography that is capable of maintaining a raised water table without adverse effects to channel banks, shorelines, or adjacent lands.

Erosion Requirements

Practice has no erosion requirements.

Specifications

The completed practice must meet the NRCS Standards and Specifications for Saturated Buffer 604; Drainage Water Management Code 554 , Structure for Water Control 587, Critical Area Planting Code 342, and Subsurface Drain 606 .

Policies

1. Vegetation in the area must be harvested or grazed annually at a minimum and timed based on the saturation conditions to not damage the vegetation.
2. Minimum buffer zone width is 30 ft.
3. Periodic removal of invasive trees or shrubs to reduce distribution line from plugging is required.
4. The practice may be installed in a suitable area already established in permanent vegetation.
5. ***Cost-share is authorized for:***
 - a. Treatment of subsurface drainage flow from row crop fields where there is a need to reduce nitrate concentration.
 - b. Out of production incentive which is available for the length of the installed buffer.
 - c. Water control structure(s) to maintain the designed water table elevation.
 - d. Pipe and trenching for lateral lines and overflow.
 - e. Critical Area Seeding: permanent vegetative cover establishment based on the Critical Area Seeding Component.
6. ***Cost-share is not authorized for:***
 - a. Treatment of surface drainage from primarily surface inlets that are utilized by practices such as terraces, diversions, and water and sediment control structures.
 - b. Treatment of animal waste, or septic system discharges.

Maximum State Cost-Share

1. Assistance for components is limited to (suggested %) of the county average cost, not to exceed the state average cost.
2. A one-time incentive cannot exceed (suggest \$\$) per linear foot of installed distribution pipe.

Map Requirements

1. A legible, aerial photography map that shows the completed practice must be scanned and attached as document type "Map" in MoSWIMS prior to contract payment submission. The map must have the following:
 - Landowner name and locational data (section/township/range or coordinates)
 - Farm perimeter
 - Field numbers, field boundaries, and drainage acres
 - Any other features that may affect the contract payment
 - If multiples of the same practice are shown on the map, clearly identify which practice is associated with the contract payment

Technical Responsibilities

Technical staff has the responsibility for determining the need for the practice, for design of the practice based upon the minimum extent necessary, and to certify that the completed practice meets NRCS standards and specifications within commission policy.

Acres Served

Acres that drain into the saturated buffer.

Extent Installed

Linear feet of the buffer area.

Maintenance Life

10 years.

N605 Denitrifying Bioreactor

Purpose

To improve water quality by reducing the nitrate nitrogen content of subsurface agriculture drainage flow.

Applicability

The practice applies to sites where there is a need to reduce nitrate nitrogen concentration in subsurface drainage flow.

Erosion Requirements

Practice has no erosion requirements.

Specifications

The completed practice must meet the NRCS Standards and Specifications for Denitrifying Bioreactor (605), Drainage Water Management (554), Structure for Water Control (587), Critical Area Planting (342), and Subsurface Drain (606) contained in the Field Office Technical Guide.

Policies

1. The bioreactor will need to be identified with signage or posts to keep equipment off the bioreactor.
2. If wood chips are utilized as the media, no wood chips that have been treated for ground contact may be used. Additionally, high tannin content wood chip such as oak, cedar, or redwood may not be used.
3. Geotextile or plastic lining must be used in the top, bottom, and sides of the bioreactor.
4. Adequate cover of two feet of soil must cover the top of the bioreactor.
5. Excess soil excavated during the installation process should be disposed of by blending into surrounding landscape or hauling away from the site.
6. Seeding of the area must be done at the time of installation.
7. ***Cost-share is authorized for:***
 - a. Treatment of subsurface drainage flow from row crop fields where there is a need to reduce nitrate nitrogen concentration.
 - b. A one-time out of production incentive for installing the bioreactor.
 - c. Critical Area Seeding: Permanent vegetative cover establishment based on the Critical Area Seeding component.
 - d. Water control structure box(es) needed to maintain the water elevation.
 - e. Wood chips or appropriate carbon media.
 - f. Excavation of media chamber.
8. ***Cost-share is not authorized for:***
 - a. Treatment of surface drainage from primarily surface inlets that are utilized by practices such as terraces, diversions, and water and sediment control structures.

Maximum State Cost-Share

1. Assistance for components is limited to (suggested %) of the county average cost, not to exceed the state average cost.
2. A one-time out of production incentive cannot exceed (suggested \$) per square foot of the bioreactor.

Map Requirements

1. A legible, aerial photography map that shows the completed practice must be scanned and attached as document type "Map" in MoSWIMS prior to contract payment submission. The map must have the following:
 - Landowner name and locational data (section/township/range or coordinates)
 - Farm perimeter
 - Field numbers, field boundaries, and drainage acres
 - Any other features that may affect the contract payment
 - If multiples of the same practice are shown on the map, clearly identify which practice is associated with the contract payment

Technical Responsibilities

Technical staff has the responsibility for determining the need for the practice, for design of the practice based upon the minimum extent necessary, and to certify that the completed practice meets NRCS standards and specifications within commission policy.

Acres Served

Acres draining into the bioreactor.

Extent Installed

Square footage of the bioreactor chamber.

Maintenance Life

10 years.