United States Department of Agriculture

Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

CRITICAL AREA PLANTING

CODE 342

(ac)

DEFINITION

Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal seeding/planting methods.

PURPOSE

This practice is used to accomplish one or more of the following purposes:

- Stabilize areas with existing or expected high rates of soil erosion by wind or water
- Stabilize stream and channel banks, pond and other shorelines, earthen features of structural conservation practices
- Stabilize areas such as sand dunes and riparian areas

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to areas vulnerable to erosion; areas such as, but not limited to—

- Active or abandoned mined lands.
- Urban restoration sites.
- Construction areas.
- Conservation practice construction sites.
- Areas needing stabilization before or after natural disasters such as floods, hurricanes, tornados, and wildfires.
- Eroded banks of natural channels, banks of newly constructed channels, and lake shorelines.
- Other areas degraded by animal activities, human activities or natural events.

NRCS, WI
September 2025

CRITERIA

General Criteria Applicable to All Purposes

For all seeding establishment criteria use Wisconsin Guidance Documents 5, Establishing and Maintaining Native Grasses, Legumes, and Forbs; and 6, Establishing and Maintaining Introduced Grasses and Legumes.

Site preparation
Conduct a site investigation to identify any physical, chemical, or biological conditions that could affect the successful establishment of vegetation.

Clear areas to be planted of unwanted materials and smooth or shape, if needed, to meet planting purpose(s).

Prepare a suitable seedbed for all seeded species. Rip compacted layers and re-firm the soil prior to seedbed preparation, as needed.

As site conditions dictate, when grading slopes, stockpile topsoil to be redistributed over area to be planted.

Species selection
Select species for seeding or planting that are suited to local site conditions and intended uses, and common to the site or location.

Selected species will have the capacity to achieve adequate density and vigor to stabilize the site within an appropriate period.

Establishment of vegetation
Plant seeds using the method or methods best suited to site and soil conditions.

Limit sod placement to areas that can naturally supply needed moisture or sites that can be irrigated during the establishment period. Place and anchor sod using techniques to ensure that it remains in place until established.

Specify species, rates of seeding or planting, legume inoculation, minimum quality of planting stock (e.g., pure live seed (PLS) or stem caliper), method of seedbed preparation, and method of establishment before application. Use only viable, high-quality seed or planting stock.

Use seed tested for purity and germination (Pure Live Seed) and planting stock that is adapted to the site. Untested introduced and native grass and forb seed are not approved for planting.

Do not plant species on the Wisconsin DNR NR40 – Invasive Species list.

If the specific Rhizobium bacteria for selected legumes are not present in the soil, treat the seed with the appropriate available inoculum. Inoculate legumes at time of planting based on conservation objectives and site history. See USDA NRCS Plant Materials Technical Note No. 5 (Title 190), Using the Appropriate Legume Inoculant for Conservation Plantings.

Seed or plant at a time and in a manner that best ensures establishment and growth of the selected species. For engineered construction projects, seeding may be completed on disturbed areas immediately following construction to minimize risk of soil erosion. If seeding establishment fails, re-seeding during the recommended seeding dates will be required.

Apply nutrients and amendments as needed to ensure vegetation establishment and planned

growth. Nutrients and amendments are not needed for native plant establishment.

Mulch or otherwise stabilize (e.g., polyacrylamide (PAM)) plantings as necessary to ensure successful establishment. Refer to CPS 484, Mulching.

Additional Criteria to Stabilize Stream and Channel Banks, Pond and Other Shorelines, Earthen Features of Structural Conservation Practices

Bank and channel Slopes
Shape channel side slopes so that they are stable and allow establishment and maintenance of desired vegetation.

A combination of vegetative and structural measures may be necessary on slopes steeper than 3:1 to ensure adequate stability.

Species selection.
Plant material used for this purpose must:

- Be adapted to the hydrologic zone into which they will be planted.
- Be adapted and proven in the regions in which they will be used.
- Be compatible with existing vegetation in the area.
- Protect the channel banks but not restrict channel capacity.

Establishment of vegetation.
Specify species, planting rates, spacing, methods and dates of planting based on local planting guides or technical notes.

Identify and protect desirable existing vegetation during practice installation.

Use a combination of vegetative and structural practices with living and inert material when flow velocities, soils, and bank stability preclude stabilization by vegetative establishment alone. Use Conservation Practice Standard (CPS) Streambank Stabilization (Code 580) for the structural measures.

Control existing vegetation on a site that will compete with species to be established vegetatively (e.g.. bare-root, containerized, ball-and-burlap, potted) to ensure successful establishment of the planted species.

Plant streambank stabilization vegetation in accordance with the NRCS Engineering Field Handbook Part 650, Chapter 16, “Streambank and Shoreline Protection,” and Chapter 18, “Soil Bioengineering for Upland Slope Protection & Erosion Reduction.”

Site protection and access control.
Restrict access to planted areas until fully established.

Additional Criteria to Stabilize Areas Such As Sand Dunes and Riparian Areas

Plants for sand dunes and coastal sites must be able to survive being buried by blowing sand, sand blasting, salt spray, salt water flooding, drought, heat, and low nutrient supply.

Include sand trapping devices such as sand fences or brush matting in the revegetation/stabilization plans where applicable.

CONSIDERATIONS

Species or diverse mixes that are adapted to the site and have multiple benefits should be considered. Native species may be used when appropriate for the site.

To benefit pollinators and other wildlife, flowering shrubs and wildflowers with resilient root systems and good soil-holding capacity also should be considered for incorporation as a small percentage of a larger grass-dominated planting. Where appropriate consider a diverse mixture of forbs to support pollinator habitat. Perform management activities at the times and in a manner that causes the least disruption.

Planning and installation of other CPSs such as Diversion (Code 362), Obstruction Removal (Code 500), Subsurface Drain (Code 606), Underground Outlet (Code 620), or Anionic Polyacrylamide Application (Code 450) may be necessary to prepare the area or ensure vegetative establishment.

Areas of vegetation established with this practice can create habitat for various types of wildlife. Maintenance activities, such as mowing or spraying, can have detrimental effects on certain species.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for each field or management unit according to the criteria, operation and maintenance sections of this standard. Record practice specifications using an approved Implementation Requirements document.

Address the following elements in the plan, as applicable, to meet the intended purpose(s):

- Client information, field numbers and installation locations
- All applicable purposes for the installation of this practice.
- Soil Testing and Nutrient Amendment Requirements
- Species selection and seeding rates
- Conservation Plan Map or Location Map
- Site Preparation procedures.
- Planting Dates.
- Temporary Cover or Companion Crop (as applicable)
- Planting Method.
- Mulching or other stabilizing materials
- Weed Management.
- Operation and Maintenance

OPERATION AND MAINTENANCE

Prepare an operation and maintenance plan for this practice. Planned activities may include, but are not limited to, the following:

- Inspect and calibrate seeding equipment prior to use. Continually monitor the performance of the seeding equipment during planting to ensure proper rate, distribution and depth of planting material is maintained.
- The growth of desired seedlings shall be monitored and evaluated during the establishment period.
- Protect the cover from irreversible damage by traffic, implements, grazing, fire, and herbicides.

- Mowing or herbicide applications shall be used as necessary to control competitive weeds.
- For both introduced and native plantings, mow before the weeds develop mature seed. Native warm season grasses should be mowed no lower than 7 inches.
- Once the permanent vegetation is established, control noxious weeds, invasive species, or other undesired vegetation by spot mowing, spraying with herbicides, grazing, burning, or other methods appropriate for the site.
- Revegetate bare spots when they occur.
- Practice will be maintained for a lifespan of 10 years after installation.

REFERENCES

Federal Interagency Stream Restoration Working Group. 1998. Stream corridor restoration: principles, processes, and practices. USDA NRCS National Engineering Handbook, Part 653.

USDA, NRCS, National Engineering Handbook, Part 650, Engineering Field Handbook.

USDA, NRCS, Wisconsin Guidance Document 5, Establishing and Maintaining Native Grasses, Forbs, and Legumes.
https://efotg.sc.egov.usda.gov/#/state/WI/documents/section=4&folder=-6

USDA, NRCS, Wisconsin Guidance Document 6, Establishing and Maintaining Introduced Grasses and Legumes.
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USDA NRCS. 2007. National Engineering Handbook, Part 654. Stream restoration guide.

USDA NRCS. 2015. The PLANTS Database (http://plants.usda.gov, 8 December 2015). National Plant Data Team, Greensboro, NC.