

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

CRITICAL AREA PLANTING

(Ac.)

CODE 342

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 practices.

PURPOSE

Stabilize stream and channel banks, and shorelines.

Stabilize areas with existing or expected high rates of soil erosion by wind or water.

Rehabilitate and re-vegetate degraded sites that cannot be stabilized using normal establishment techniques.

Stabilize coastal areas, such as sand dunes and riparian areas.

CONDITIONS WHERE PRACTICE APPLIES

Apply this practice to highly disturbed areas such as active or abandoned mined lands;

urban conservation sites;

road 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 human activities or natural events.

CRITERIA

General Criteria Applicable To All Purposes

Site Preparation. A site investigation shall be conducted to identify any physical, chemical, or biological conditions that could affect the successful establishment of vegetation.

Clear all areas to be planted of unwanted materials. Remove stones, stumps, and trash that will interfere with seedbed preparation, planting, or the planned use and maintenance of the area to the extent that is feasible.

Complete grading, shaping and other earth moving to the extent necessary to permit seeding or planting, either temporary or permanent. The finished grade of slopes with a slope length of more than 4 feet that are to be planted and maintained in grasses and/or legumes shall be not steeper than 1 ½ :

Divert concentrations of water that will cause excessive erosion to a safe outlet. Structures, whether permanent or temporary that are used to divert water or provide additional protection to an area must conform to the appropriate conservation practice standards.

Species Selection. Select species for seeding or planting that are suited to current site conditions and intended uses, and be resistant to diseases or insects common to the site or location. Refer to the South Carolina Critical Area Plant Appendix dated January 2012.

Select species for their capacity to achieve adequate density and vigor within an appropriate time frame to stabilize the site sufficiently to permit suited uses with ordinary management activities. Do not use plants on the Federal, state, or county noxious weeds list. Refer to the Federal list and South Carolina state-listed noxious weeds website at:

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

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<http://plants.usda.gov/java/noxiousdriver>.

Use native species and ecotypes on all sites where the use of introduced species will displace and alter native plant communities, impede forest regeneration and natural succession, change soil chemistry, alter hydrologic conditions, alter fire regimes, cause genetic changes in native plant relatives through hybridization and serve as agents for the transmission of harmful plant pathogens.

Establishment of Vegetation. Seed and/or plant in a manner that best ensures establishment and growth of the selected species. Specify what constitutes successful establishment (e.g. minimum percent ground/canopy cover, percent survival, stand density) before application.

Plant during approved times for the species to be used. Specify species, rates of seeding or planting, 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.

Hydro-seeding is an acceptable means for seeding of most sites. Drill or broadcast and cover by rolling and harrowing seed in areas accessible to implements. Broadcast and cover seed by hand raking in areas not accessible to implements. Drilling or broadcast seeded as nearly on the contour as feasible.

Inoculate legumes with an inoculant appropriate for the species immediately prior to planting unless seeded in its dormant season.

Apply soil amendments (e.g. lime, fertilizer, compost) according to the requirements in the (FOTG) Section IV, Practice Standards and Specifications for Nutrient Management (PC590).

Plantings shall be mulched as necessary to ensure establishment. Other disturbed areas shall be mulched as necessary to prevent erosion. Apply mulch according to the requirements of the (FOTG) Section IV, Practice Standards and Specifications Mulching Standards (PC484).

Sod placement shall be limited to areas that can naturally supply needed moisture or sites that can be irrigated during the establishment period.

Place and anchor sod according to manufacturers specifications to ensure it remains in place until established.

Additional Criteria to Stabilize Stream and Channel Banks and Shorelines

When slopes are modified for seeding, topsoil that will be stockpiled over areas to be planted as needed to meet planting and landscaping needs.

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

Use a combination of vegetative and structural measures on slopes steeper than 3:1 to ensure adequate stability. Do not stabilize slopes steeper than 3:1 with vegetation alone.

Species Selection. Use plant material that: are adapted to the hydrologic zone (see Fig. 1) into which they will be planted and:

- are adapted and proven in the regions in which they will be used.
- upon maturity, are compatible with plant communities in the area.
- protect the channel banks but not restrict channel capacity.

Refer to FOTG Practice Standard Tree and Shrub Planting (PC 612) when re-vegetating with woody species.

Establishment of Vegetation. Determine the species used, planting rates, spacing, and methods and dates of planting using plant materials program trials or other technical guidance, such as local planting guides or technical notes.

Identify, mark, and protect desirable existing vegetation during practice installation.

Use a combination of vegetative and structural measures using living and inert material when flow velocities, soils, and bank stability preclude stabilization by vegetative establishment alone.

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

Site Protection and Access Control. Control grazing animal access to planted areas for a minimum of two growing seasons during the establishment period.

Implement a grazing plan on all areas to be grazed that meets the criteria in the local Field Office Technical Guide.

Exclude grazing permanently on high hazard sites, such as cut banks, areas of seepage or other potentially unstable areas.

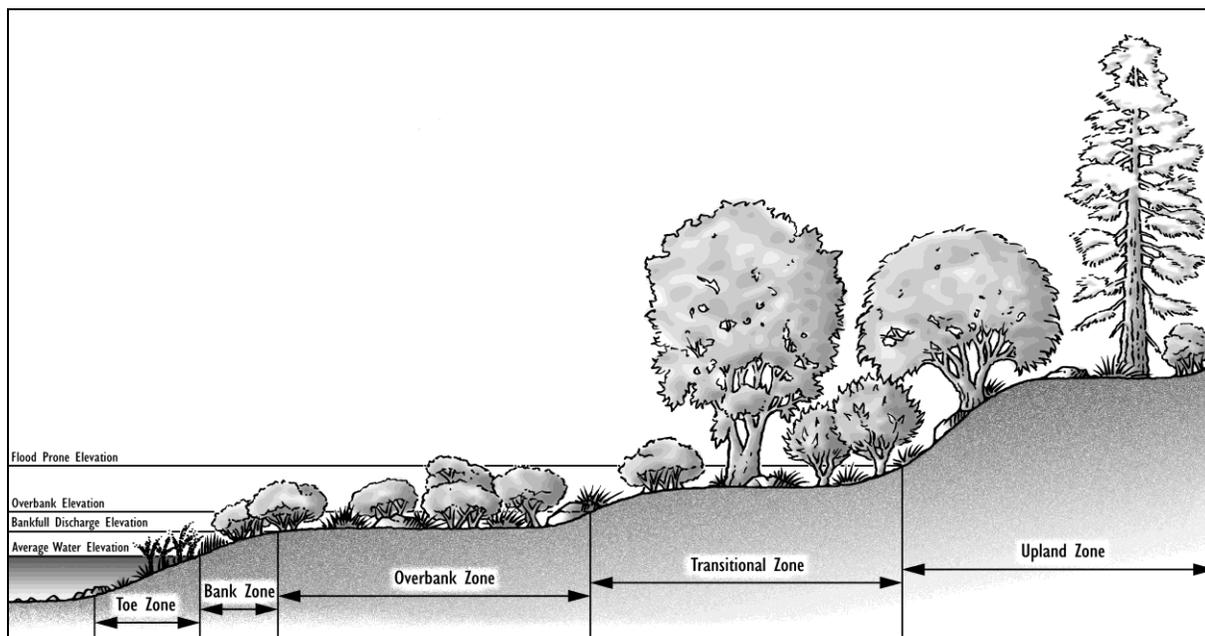


Figure 1. Location of hydrologic zones along a channel or shoreline.

Definitions and descriptions of hydrologic zones used for channels and shorelines:

Bankfull Discharge Elevation - In natural streams, it is the elevation at which water fills the channel without overflowing onto the flood plain.

Bank Zone - The area above the Toe Zone located between the average water level and the bankfull discharge elevation. Vegetation may be herbaceous or woody, and is characterized by flexible stems and rhizomatous root systems.

Overbank Zone - The area located above the bankfull discharge elevation continuing upslope to an elevation equal to two thirds of the flood prone depth. Vegetation is generally small to medium shrub species.

Toe Zone - The portion of the bank that is between the average water level and the bottom of the channel, at the toe of the bank. Vegetation is generally herbaceous emergent aquatic species, tolerant of long periods of inundation.

Transitional Zone - The area located between the overbank zone, and the flood prone width elevation. Vegetation is usually larger shrub and tree species.

Upland Zone - The area above the Transitional Zone; this area is seldom if ever saturated.

Note: some channels or shorelines have fewer than four hydrologic zones because of differences in soils, topography, entrenchment and/or moisture regime.

Additional Criteria to Rehabilitate and Revegetate Degraded Sites that Cannot Be Stabilized through Normal Farming Practices.

Fill and level gullies or deep rills as necessary to allow equipment operation and ensure proper site and seedbed preparation.

Based on a soil test and other appropriate site evaluations, add soil amendments as necessary to ameliorate or eliminate physical or chemical conditions that inhibit plant establishment and growth.

Additional Criteria to Restore Coastal 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.

Develop and utilize local plant lists including appropriate species.

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

CONSIDERATIONS

Incorporate flowering shrubs and wildflowers with tough root systems and good soil holding capacity as a small percentage of a larger grass-dominated planting to benefit pollinators and other wildlife.. Where appropriate consider a diverse mixture of legumes and forbs to support pollinator habitat.

Avoid species that may harbor pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

Planning and installation of other conservation practices such as Access Control (472), Cover Crop (340), Diversion (code 362), Fence (382), (Obstruction Removal (code 500), Subsurface Drain (code 606), or Underground Outlet (code 620), or other practices may be necessary to prepare the area or ensure vegetative establishment.

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

at the times and in a manner that causes the least disruption to wildlife.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for each field or management unit according to the criteria and operation and maintenance sections of this standard. Record practice specifications using approved specification sheets, job sheets or other acceptable documentation.

Document the following elements to meet the intended purpose (s).

- Site preparation
- Topsoil requirements
- Fertilizer & lime application
- Seedbed/planting area preparation
- Methods of seeding/planting
- Time of seeding/planting
- Selection of species
- Seed/plant source
- Seed analysis
- Seeding rate/plant spacing
- Mulching
- Supplemental water needed for establishment
- Protection of plantings
- Photo documentation, before and after construction

OPERATION AND MAINTENANCE

Manage the area as long as necessary to ensure the site remains stable.

Protect plantings from pests (e.g. weeds, insects, diseases, livestock, or wildlife) as necessary to ensure long-term survival.

Inspect annually or after each major rainfall event to ensure that this practice functions as intended throughout its expected life. Re-shape, fill holes, reseed or replant and fertilize as needed. Observation of establishment progress and success should be performed at regular intervals until the practice has met the criteria for successful establishment and implementation.

REFERENCES

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

USDA-NRCS. 2007. National Engineering Handbook, Part 654. Stream restoration guide.

USDA-NRCS. 2010. The PLANTS Database (<http://plants.usda.gov>, checked September 2010). National Plant Data Center.

Invasive Plants Atlas of the United States website:
<http://www.invasiveplantatlas.org/index.html>