

Section 2601. Erosion Control

2601.01 DESCRIPTION.

Perform the following erosion control measures on areas within and adjacent to the right-of-way according to the contract documents and this specification:

- Seeding and fertilizing,
- Overseeding and fertilizing
- Stabilizing crop seeding and fertilizing,
- Sodding,
- Special ditch control with wood excelsior mat or other specified material,
- Special ditch control over sod,
- Slope protection with the specified material,
- Fertilizing,
- Fertilizing for stabilizing crop seeding,
- Mulching for control of surface drainage, and
- Removal of temporary water pollution control measures according to Section 2602

2601.02 MATERIALS.

A. Furnish materials meeting the requirements of Section 4169.

B. Apply materials at no less than the minimum rate specified in the contract documents. Apply seeds for native grasses on a PLS basis, as computed by the Engineer. For native grasses identified in Article 4169.02 with both purity and germination requirements, adjust application rates for grasses that exceed these minimum requirements to an equivalent computed on a PLS basis.

D. Composting.

Compost may be used as a top dress application or as an incorporated soil amendment.

1. Top dress applications may be used for urban seeding or on soils that are highly erosive or sloped soils to prevent surface or rill erosion and to provide organic material and nutrients needed for vegetative establishment. Ensure areas top dressed with compost have little or no drainage onto them.

2. In highly erosive soils or sloped embankments with drainage onto the area, incorporate compost by mixing it into the top soil a minimum of 2 inches (50 mm) to prevent the compost from washing off the slope.

Section 4169. Erosion Control Materials

4169.01 DESCRIPTION.

All materials required to be furnished and described in this section.

4169.08. COMPOST.

- A.** Use an organic substance produced by the biological and biochemical decomposition of source-separated compostable materials separated at the point of waste generation. Organic substances may include, but are not limited to:

Leaf and yard trimmings,

Food scraps,

Food processing residues,

Manure and/or other agricultural residuals,

Forest residues and bark, and

Soiled and/or unrecyclable paper and biosolids.

- B.** Compost is to contain no visible admixture of refuse or other physical contaminants nor any material toxic to plant growth. Compost is to meet the additional requirements below. All physical requirements are to comply with the United States Composting Council, "Testing Methods for the Examination of Composting and Compost" (TMECC).

- 1.** Minimum organic material: 30% (dry weight (mass) basis) as determined by loss on ignition.
- 2.** Moisture content: 30% to 60%. Organic material shall be loose and friable and not dusty.
- 3.** Soluble salts: less than 5.0 ds/m.
- 4.** Stability: Carbon dioxide evolution rate less than 8 according to TMECC 5.08-B. Growth screening: Emergence a minimum of 80% for all compost to be vegetated.
- 5.** pH: 6.0 - 8.0.
- 6.** Fecal Coliform: comply with TMECC 07.01-B.
- 7.** Heavy Metals: comply with TMECC 04.06 and TMECC 04.13-B.
- 8.** Comply with the following for particle size:

Pneumatic or Mechanical Seeding (Rural): 100% passing the 1 inch (25 mm) screen, 80% to 90% passing the 3/4 inch (19 mm) screen, and 70% to 80% passing the 1/2 inch (12.5 mm) screen.

Filter Sock, Filter Berm, and Filter Blanket: 100% passing the 2 inch (50 mm) screen, 70% to 90% passing the 1 inch (25 mm) screen, and 50% to 70% passing the 1/2 inch (12.5 mm) screen.

SUDAS Standard Specifications Division 2 - Earthwork Section 2010 - Earthwork, Subgrade, and Subbase 7

10/20/2009 **PART 2 - PRODUCTS**

2.01 TOPSOIL

Use suitable topsoil of uniform quality, free from hard clods, roots, sod, stiff clay, hard pan, stones larger than 1 inch (1/2 inch for turfgrass seeding), lime cement, ash, slag, concrete, tar residue, tarred paper, boards, chips, sticks, or any undesirable material.

Use on-site topsoil, unless compost-amended or off-site topsoil is specified.

A. On-site Topsoil: On-site topsoil material is material excavated from the top 12 inches of the site. Use of on-site topsoil material is subject to the Engineer's approval.

B. Compost-amended On-site Topsoil: Amend low-quality on-site topsoil, not meeting the requirements specified for off-site topsoil, with a minimum of 1 inch of compost for every 3 inches of topsoil. Use compost meeting the requirements of mulch for pneumatic seeding in Section 9010, 2.07 (see below, 'Mulch').

SUDAS Standard Specifications Division 9 - Site Work and Landscaping Section 9040 - Erosion and Sediment Control 1 10/20/2009

EROSION AND SEDIMENT CONTROL

1.03 SUBMITTALS

Follow the General Provisions (Requirements) and Covenants, as well as the following:

A. Submit certification of products to the Engineer prior to seed placement:

1. Seed: Submit a mechanically printed seed tag from an Iowa Crop Improvement Association-approved seed conditioner or grower. Submit a laboratory analysis for all seeds, specifying the purity and germination. Provide 48 hours notice prior to mixing the seed and give the Engineer an opportunity to witness the seed mixing.
2. Fertilizer: Submit certification of the fertilizer analysis with scale weight and statement of guaranteed analysis. Submit from a certified fertilizer dealer, a mechanically printed commercial fertilizer label or bill of lading. All fertilizer will meet the inspection and acceptance requirements of Iowa DOT Materials I.M. 469.03.
3. Wood Cellulose Fiber Mulch: Submit certification of the degradable wood cellulose fiber mulch ingredients with applicable use and rate, and the water retention capacity by manufacturer or supplier.
4. Wood Excelsior Mulch: Bale wood excelsior and determine the mass (weight). Use the mass of the material, furnished by the manufacturer, to determine the rate of application.
5. Straw Mulch: Certify weight. Furnish a list of the number of bales and a corresponding ticket from an approved scale for the mulch material to be used on the project.
6. Compost: Submit certification of composted organics analysis with U.S. Compost Council's Seal of Testing Assurance (STA), recommended rates of application, and manufacturer's estimated cubic yards per ton.

2.07 MULCH

C. For Pneumatic Seeding: Use compost meeting the following requirements:

1. Derived from a well-decomposed source of organic matter.
2. Produced using an aerobic composting process, meeting Code of Federal Regulations (CFR) 503 for time, temperature, and heavy metal concentrations.
3. No visible admixture of refuse or other physical contaminants, nor any material toxic to plant growth.
4. Certified by the U.S. Composting Council's Seal of Testing Assurance (STA) program.
5. Conforms to chemical, physical, and biological parameters of AASHTO MP 10-03, with the following additional requirements:
 - a. Follow U.S. Composting Council's TMECC guidelines for all testing.
 - b. Organic Matter Content: 30% minimum.
 - c. pH: between 6.0 and 8.0.
 - d. Maturity (growth screening): Minimum 90% emergence for all compost to be vegetated.
 - e. Particle Size:

Sieve Size	Percent Passing*
2"	100
1"	90-100
3/4"	65-100

2.03 COMPOST BLANKETS See Section 9010 for compost material requirements for compost blankets.

2.04 COMPOST BLANKET AND FILTER BERM TACKIFIER

- A. Use a biodegradable, organic binding agent or polyacrylamide that can be mixed with, or injected into, compost or filter material as it is placed, which is not detrimental to the establishment of vegetation.
- B. Use in filter berms or compost blankets when specified in the contract documents.
- C. Apply at the rate recommended by the manufacturer.

3.04 COMPOST BLANKETS

- A. Loosen the ground surface to a minimum depth of 1 inch.
- B. Construct according to Figure 9040.1.
- C. Evenly spread compost to the specified depth, as specified in the contract documents, or as directed by the Engineer.
- D. Divert concentrated flows away from the slope.
- E. Do not operate heavy equipment over the compost blanket after placement, or throughout the required period of protection.
- F. Inspect the ground under the blanket at regular intervals for signs of erosion.

3.05 FILTER BERMS

- A. Construct berm with filter material to the dimensions shown in Figure 9040.2, unless otherwise specified.
- B. Install filter berm along the contour as specified in the contract documents, or as directed by the Engineer.
- C. Turn the ends of the filter berm uphill to prevent runoff from flowing around the end of the berm.
- D. When a vegetated berm is specified, apply seed to the surface of the berm.
- E. Replace the berm when sediment accumulation reaches one-half of the height of the berm.

3.06 FILTER SOCKS

A. Installation:

- 1. Pneumatically fill mesh filter sock of size and length indicated in the contract documents, or as directed by the Engineer. Alternative methods of filling the sock may be allowed upon approval of the Engineer.
- 2. Fill socks with filter material.
- 3. Place the filter sock along the contour as specified in the contract documents, or as directed by the Engineer.
- 4. Place additional filter material or soil from the site, on the upstream side of the sock, in the seam between the tube and the ground.
- 5. Construct a "J-hook" at each end of a continuous run of filter sock, by turning the end of the sock uphill, as necessary to prevent runoff from flowing around the ends when water behind the sock ponds up to a level even with the top of the sock.
- 6. Drive stakes into the ground at a maximum spacing of 10 feet, and as required to secure the sock and prevent movement.