



SPECIAL PROVISIONS
FOR
COMPOST FILTER TUBES

Johnson County

ESL-0801(600)--7S-52

Effective Date:

December 15, 2009

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS,
SERIES 2009, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS.
THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE
PUBLISHED IN THE STANDARD SPECIFICATIONS.

1.1 DESCRIPTION

This section includes the work necessary to furnish, install, maintain, and remove compost filter tubes and curb inlet filters for erosion/sediment control on areas within the project limits in accordance with the contract documents and the following provisions.

1.2 MATERIALS

The Contractor shall furnish material meeting the following requirements.

- A. Compost Filter Tube: Shall be in accordance with the Urban Standard Specifications for Public Improvements Manual (SUDAS), Division 9 – Site Work and Landscaping, Section 9040 and meet the following requirements.
 - 1. Flow rates: AASHTO M 288-96.
 - 2. Strength: The strength of the material shall be sufficient to prevent tearing, ripping, or other significant damage throughout the intended period of use.
 - 3. Biodegradability: The tube shall be made of natural materials that are biodegradable. Products shall begin to break down in approximately six months.
 - 4. Compost:
 - 1) Minimum organic matter shall be 30% (dry weight basis) as determined by loss of ignition.
 - 2) Moisture content shall be less than 60% and the product shall be loose and friable, not dusty.
 - 3) ph: 6.0 to 8.0
 - 4) Physical contaminants shall be less than 1% (dry weight basis).
- B. Curb Inlet Filter: Each Curb Inlet Filter shall consist of the Rigid Core and the Fitted Filter Sleeve and meet the following requirements.
 - 1. Rigid Core:
 - a. The Rigid Core shall be a UV-stabilized, extruded high-density polyethylene tubes fused together to form rectangular cubes. The Rigid Core shall be designed to meet or exceed the Standard Specifications for Polyethylene Plastic Molding and Extrusion Materials specification section (ASTM) D4976-00B.
 - b. The Rigid Core shall provide structural support along the entire length of the Curb Inlet Filter. Wended core blocks shall be capable of delivery of minimum compression strength of 1,600 lbs/sf, per ASTM D1621.

- c. The Rigid Core shall have an open area to facilitate high flow conditions where large volumes of water must pass through at a rapid rate.
 - d. The Rigid Core shall consist of sixteen (16) independent tubes providing multiple slatted openings. Independent tubes shall be fused to form single structure of rectangular shape to provide stability and resistance to roll.
2. Fitted Filter Sleeve
- a. The Fitted Filter Sleeve shall be constructed of 100% continuous polyester needle-punched non-woven engineering fabric and follow the guidelines in the American Society for Testing and Materials (ASTM) D117-99; Standard Guide for Evaluating Non-Woven Fabrics. The Fitted Filter Sleeve shall be fabricated to provide a direct fit adjacent to the associated Rigid Core.
 - b. Geotextile Fabric
 - 1) The filter fabric shall have a weight of no less than 3.0 ounces per square yard.
 - 2) The filter fabric shall have a tensile strength of no less than 80 psi with an elongation at break of no less than 50%.
 - 3) The filter fabric shall have puncture strength of no less than 40 psi.
 - 4) The filter fabric shall have a minimum UV rating of no less than 70% at 500 hours.
 - c. The filter fabric shall be capable of reducing effluent turbidity and concentration by no less than 80% under typical sediment migration conditions.
 - d. Fitted Filter Sleeve shall be constructed with two (2) integral anti-buoyancy chambers capable of holding no less than 1.5 cubic feet of stabilization material.
 - e. The Fitted Filter Sleeve shall be constructed to convey normal flows at a minimum clean water flow rate of 100 gpm per square foot.
 - f. All seaming of components associated with the Filter Fabric Assembly shall use a continuous over edge sew through seam using a 1680 den thread and meet ASTM D6193-971; Standard Practice for Stitches and Seams.

1.3 CONSTRUCTION

A. Compost Filter Tube

1. Conditions Where Applicable:

- 1) Slopes less than 10% grade.
- 2) Around intake structures.

2. Construction Requirements:

- 1) Pneumatically fill mesh filter tube of size and length as indicated on the plans.
- 2) Excess tube material shall be tied off and staked at both ends.
- 3) Maximum compost tube spacing:

Slope	Tube Diameter (Ft)	
	8"	12" or Greater
0-2%	75'	125'
2-5%	50'	75'
5-10%	30'	50'

- 4) Do not use in areas of concentrated flow. Compost filter tubes are only intended to control and filter sheet flow.
- 5) Compost filter tubes should be placed using "smiles" and j-hooks.
- 6) In order to prevent water flowing around the ends of compost filter tubes, point the ends upslope to place at a higher elevation.

3. Maintenance

- 1) The Contractor shall inspect all compost filter tubes immediately after each rainfall event. Any deficiencies shall be immediately corrected by the Contractor.
- 2) Sediment shall be removed when the control has lost 33% of its capacity.
- 3) The compost filter tube shall remain in place until the site has been stabilized as determined by the Owner's Representative. Upon removal, the Contractor shall

remove and dispose of any excess silt accumulations, grade and dress the area to the satisfaction of the Owner's Representative and establish vegetation on all bare areas in accordance with the contract requirements.

- 4) The quantities of compost filter tubes shown on the plans may be increased or decreased at the direction of the Owner's Representative based on weather, construction procedures, and actual site conditions that occur during construction of the project. Total quantity adjustments less than 10 percent of the plan quantity shall be made at no additional cost to the Owner.
- 5) Compost filter tubes may be spread out in place as a soil enhancement.

B. Curb Inlet Filter

1. Conditions where applicable: for use with curb intakes.
2. Construction Requirements:
 - 1) Contractor shall install a curb inlet filter as shown on the Drawings and at other locations as directed by the Owner's Representative.
 - 2) Identify opening dimensions to determine how many curb inlet filters are required.
 - 3) Completely fill the rock chambers at each end of the curb inlet filter.
 - 4) Secure the open ends of the rock chambers with tie wires.
 - 5) For larger openings, simply place curb inlet filters end to end.
3. Maintenance
 - 1) Contractor shall remove all accumulated sediment and debris from the curb inlet filter as required.
 - 2) Inspect curb inlet filters for cuts, abrasions, and proper installation. Replace or reposition as necessary.
 - 3) Discontinue use of curb inlet filter if it creates a traffic hazard.

1.4 METHOD OF MEASUREMENT

A. Compost Filter Tube

Compost Filter Tubes will be measured to the nearest 0.1 foot.

B. Clean-out of Compost Filter Tube

Clean-out of Compost Filter Tubes will be measured in linear feet to the nearest foot. The quantity for Clean-out of Compost Filter Tube will be the linear feet of Compost Filter Tube measured for the actual area cleaned.

C. Removal of Compost Filter Tube

Compost Filter Tube which has been properly removed will be measured in linear feet to the nearest foot.

D. Curb Inlet Filter

Curb Inlet Filters will be measured by count for each Curb Inlet Filter.

F. Clean-out of Curb Inlet Filter

Clean-out of Curb Inlet Filter will be measured in linear feet to the nearest foot. The quantity for Clean-out of Curb Inlet Filter will be the linear feet of Curb Inlet Filter measured for the actual area cleaned.

G. Removal of Curb Inlet Filter

Curb Inlet Filters which has been properly removed will be measured by count for each Curb Inlet Filter removed.

1.5 BASIS OF PAVEMENT

A. Compost Filter Tube

For the length of Compost Filter Tubes properly installed, the Contractor will be paid the contract unit price per linear foot.

B. Clean-out of Compost Filter Tube

For Clean-out of Compost Filter Tube the Contractor will be paid the contract unit price per linear foot of Compost Filter Tube properly cleaned out.

C. Removal of Compost Filter Tube

For the length of Compost Filter Tubes properly removed, the Contractor will be paid the contract unit price per linear foot.

D. Curb Inlet Filter

For each Curb Inlet Filter property constructed, the Contractor will be paid the contract unit price.

E. Clean-out of Curb Inlet Filter

For Clean-out of Curb Inlet Filter the Contractor will be paid the contract unit price per linear foot of Curb Inlet Filter properly cleaned out.

F. Removal of Curb Inlet Filter

For each Curb Inlet Filter property removed, the Contractor will be paid the contract unit price.