APPROVED:
Division Administrator

By: Digitally signed by AARON MICHAEL DAWSON Date: 2025.10.21 08:50:20 -04'00'

FEDERAL HIGHWAY ADMINISTRATION

Supplemental Technical Specification for

Slope Interruption Devices

SCDOT Designation: SC-M-815-20 (01/26)

1.0 Slope Interruption Devices

1.1 Description

Slope interruption devices are an application for sediment tubes consisting of a processed degradable natural filler material enclosed inside of a minimum 8-inch diameter outer netting that are installed on slopes to prevent soil erosion from concentrated flows by reducing the velocity of flow on slopes.

Slope interruption devices may be used for erosion prevention on slopes where stabilization by temporary or permanent seeding, Hydraulic Erosion Control Products (HECP), and/or Temporary Erosion Control Blankets (ECB) are being utilized. Slope interruption devices are to be used in conjunction with HECPs or ECBs. Refer to SCDOT Supplemental Technical Specification SC-M-815-9 for Rolled Erosion Control Products (RECPs) including ECBs and SC-M-815-11 for HECPs.

1.2 Materials

For slope interruption devices for erosion prevention, use tubes composed of processed degradable natural filler material. If the outer netting is constructed of non-biodegradable material, then it must be removed when final stabilization is achieved. If the outer netting is constructed of a biodegradable material, then the tube does not require removal.

Filler material property requirements:

- Certified 100% weed free materials.
- Materials are long term biodegradable and/or photodegradable.
- When curled excelsior wood fiber is used, 80% of the fiber materials are a minimum of four (4) inches in length.

Outer netting property requirements:

- Constructed of non-biodegradable material; the device will require removal when final stabilization is achieved.
- Constructed of a biodegradable material; the device will not require removal.

*The outer netting material can be cut for removal if the materials inside are biodegradable. Biodegradable materials should be spread on the slope.

Do not use straw bales, pine bales, leaf mulch, and/or grass clippings for slope interruption devices.

1.2.1 Slope Interruption Device Tubes

Provide a non-weighted tube that meets the minimum performance requirements shown in the following table.

Table 1: Minimum Performance Requirements for Slope Interruption Devices

Property	Test Method	Value
Pre-Installed Diameter	Field Measured	8-12 inches
Uniform Mass per Unit Length (uniform weight per liner foot)	Field Measured	8 to 10 inches in diameter and at least 1.4 lbs/ft – 10 to 12 inches in diameter and at least 1.5 lbs/ft
Length per Tube	Field Measured	10 foot minimum
Netting Ultraviolet Stability (retained strength after 500 hrs)	ASTM D4355	70%
Filtering Efficiency Performance	ASTM D5141 or ASTM D7351	80% Total Suspended Solids (TSS)

1.2.2 Wood Stakes

Provide wood stakes meeting the following minimum physical requirements:
- Minimum length of 3 feet.
- Composed of a hardwood such as oak. Pine wood posts are not acceptable.
- Minimum measured dimension of 3/4 inch x 3/4 inch.
- Maximum measured dimension of 1 inch x 1 inch.
- Do not use steel posts for this application.
- Stakes are to be removed.

1.2.3 Quality Assurance

Provide slope interruption devices listed on the most recent edition of SCDOT Qualified Product List 105 in the appropriate category.

At the time of delivery, provide the RCE with slope interruption devices packing list containing complete identification, including but not limited to the following:
- Manufacturer name and location,
- Manufacturer telephone number and fax number,
- Manufacturer’s e-mail address and web address, and
- Certification that the slope interruption devices meet the physical and performance criteria of this specification.

1.3 Construction Requirements

1.3.1 Site Preparation

Proper site preparation is essential to ensure that slope interruption devices are in complete contact with the underlying soil or underlying surface. Remove all rocks, clods, vegetation, or other obstructions so that installed slope interruption devices have direct contact with the underlying surface.

Ensure the areas for post installation are compacted so the posts are properly installed.

1.3.2 Installation

Slope interruption devices are required on slopes 4H:1V and steeper when using temporary ECB or HECPs to reduce slope length and prevent erosion based on the slope-dependent spacing see section 1.3.2.4 for further details. Slope interruption devices may be used on less steep slopes or at closer spacing at the discretion of the Resident Construction Engineer (RCE).

1.3.2.1 Tube Joining Options

If more than one slope interruption device is placed in a row, the rolls should be overlapped by a minimum of one foot or abutted and fastened together with biodegradable twine. Stagger overlapping joints in adjacent rows by 5 to 10 feet. Dogleg terminal ends of slope interruption devices up slope to ensure containment and the prevention of channeling of runoff.

1.3.2.2 Stake Installation Options:

Installation options are shown on SCDOT Standard Drawing 815-001-02. All options include installation of stakes at each end of the slope interruption device and on 4-foot centers along the device. Drive stakes into the ground perpendicular to the slope to a depth of 2 feet or to the maximum extent practicable.

The options include the following:
1. Stake through the center of the non-weighted tubes.
2. Stake either side of the tube, securing the tube by wedging the tube tightly to the ground surface.
3. Stake either side of the tube and tie stakes together using ¼" biodegradable rope at the top to secure tube to the ground surface.
4. Other methods as approved by the RCE.

1.3.2.3 Installation with Additional Erosion Control Best Management Practices (BMPs)

Install slope interruption devices when used with Hydraulic Erosion Control Products (HECP) prior to applying the HECP. Excavate a trench along (parallel) the contour of the slope to a depth that is 1/3 the tube height. Place the excavated soil on the up-slope side of the trench. Place the slope interruption device into the trench so it contours to the soil surface, ensuring no gaps exists underneath the tube. Compact the excavated soil against the tube on the up-slope side.

Install tubes for slope interruption devices for Temporary Erosion Control Blankets (ECBs) application after the ECB installation on top of the ECB. Tube trenching is not required for ECB applications. Ensure that the tubes do not vary by more than 5 percent from level and ensure the installation of the slope interruption device does not damage the installed ECB.

1.3.2.4 Spacing

Install slope interruption devices at the spacing in Table 2 unless otherwise noted on the project plans or special provisions:

Table 2: Spacing for Slope Interruption Devices

Slope Grade	Spacing with HECPs	Spacing with Temporary ECBs
< 3H:1V to 4H:1V	40 feet	40 feet
< 2H:1V to 3H:1V	30 feet	30 feet
< 1H:1V to 2H:1V	20 feet	20 feet at 2H:1V, Temporary ECBs Not Applicable Steeper than 2H:1V
1H:1V and Steeper	10 feet	Temporary ECBs Not Applicable

Slope interruption devices may be utilized on slopes flatter than 4H:1V or at closer spacing at the discretion of the RCE.

1.3.3 Delivery, Storage, and Handling

Follow the manufacturer's written procedures for slope interruption devices labeling, shipment, handling, and storage. Ensure that the manufacturer or supplier name, the product size, shape, and weight are clearly show on product labels.

Store slope interruption devices off the ground and cover adequately for protection from the following:
• Construction damage.
• Precipitation.
• Extended exposure to ultraviolet radiation including sunlight.
• On-site chemicals.
• Flames' including welding sparks.
• Excess temperatures.
• Other environmental conditions that can damage the physical properties of the slope interrupters.

1.3.4 Inspection and Maintenance

Inspect slope interruption devices after installation for gaps that may cause concentrated flow. Inspect slope interruption devices every 7 days. Correct any damage or needed repairs.

Remove sediment when it reaches approximately 1/3 the height of each slope interruption device. Remove, move, and/or replace slope interruption devices as required to adapt to changing construction site conditions at direction of the RCE.

Slope interruption devices may stay in place and be allowed to degrade naturally if the outer netting is constructed of a biodegradable material. On slopes that will be maintained by mowing or other equipment, it may be desirable to remove slope interruption devices for ease of long-term maintenance. Remove slope interruption devices from the site as directed by the RCE. The contractor is responsible for the removal of any stakes/posts.

Slope interruption devices with biodegradable filler materials can be spread on the surrounding natural surface once the outer netting material is removed. The contractor is to ensure the non-biodegradable outer netting (plastic) is removed from the site and disposed of properly. On slopes that will be maintained by mowing or other equipment, it may be desirable to remove slope interruption devices for ease of long-term maintenance. Remove slope interruption devices from the site as directed by the RCE. The contractor is responsible for the removal of any stakes/posts.

If slope interruption devices are removed, backfill, repair, and stabilize all trenches, depressions and other ground disturbances caused by the removal.

1.3.5 Acceptance

Obtain RCE acceptance and approval of slope interruption device installations.

1.4 Measurement

The quantity of slope interruption devices is the length of slope interruption devices installed, including overlaps, and is measured by the linear foot (LF) of slope interruption devices in-place, complete and accepted. Slope interruption devices damaged by the contractor are not included in the measurement.

1.5 Payment

Payment for slope interruption devices is full compensation for installing slope interruption devices as specified or directed and includes furnishing, installing, maintaining, inspecting, removing and disposing of slope interruption devices; providing wooden posts, fabric, ties, anchor trenches, proper storage facilities, and documentation of Quality Control and Quality Assurance programs; and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, Specifications, and other terms of the Contract.

Bid item numbers and descriptions are shown in Table 3.

Table 3: Bid Item Number

Bid Item Number	Description	Units
8157005	Slope Interruption Device	LF