

Re: McLaughlin paper 2003 - abstract ssram  
to: Jesse Pritts  
10/10/2008 02:14 PM  
Cc: "Richard McLaughlin", "Diane M Cameron"

Jesse -

We have a general guide for porous baffles in the state design manual, but this is better and more specific from NC DOT:  
[http://www.ncdot.org/doh/Operations/dp\\_chief\\_eng/roadside/soil\\_water/pdf/CoirFiberBaffle.pdf](http://www.ncdot.org/doh/Operations/dp_chief_eng/roadside/soil_water/pdf/CoirFiberBaffle.pdf)

This is coir netting (700 g m<sup>2</sup>) folded over a wire on posts to form a double layer. Note that this limits the depth of a basin to 3 feet, since the rolls are 2 m wide. There are other materials which could be used and may be better, like double-netted coir blankets (cheaper) or Pyramat turf reinforced matting (more expensive). With large budget I could test them all...

Rich

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## **COIR FIBER BAFFLE:**

### **Description**

Furnish material, install and maintain coir fiber baffles according to the details in the plans or in locations as directed. Coir Fiber Baffles shall be installed in silt basins and sediment dams at drainage outlets. Work includes providing all materials, placing, securing, excavating and backfilling of *Coir Fiber Baffles*.

### **Materials**

#### (A) Coir Fiber Mat

Matting: Provide matting to meet the following requirements:

|   |                          |
|---|--------------------------|
| 100% coconut fiber (coir) twine woven into high strength matrix |                          |
| Thickness -   | 0.30 in. minimum         |
| Tensile Strength  | 1348 x 626 lb/ft minimum |
| Elongation  | 34% x 38% maximum        |
| Flexibility (mg-cm)   | 65030 x 29590            |
| Flow Velocity   | Observed 11 ft/sec       |
| Weight  | 20 oz/SY                 |
| Size  | 6.6 x 164 ft (120 SY)    |
| "C" Factor  | 0.002                    |
| Open Area (measured)  | 50%                      |

#### (B) Staples

Provide staples made of 0.125 in. diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

#### (C) Posts

Steel posts shall be at least 5 ft. in length, approximately 1 3/8" wide measured parallel to the fence, and have a minimum weight of 1.25 lb/ft of length. The post shall be equipped with an anchor plate having a minimum area of 14.0 square inches, and shall be of the self-fastener angle steel type to have a means of retaining wire and coir fiber mat in the desired position without displacement.

#### (D) Wire

Provide 9-gauge high tension wire strand of variable lengths.

### **Construction Methods**

Place the coir fiber baffles immediately upon excavation of basins. Install three (3) baffles in basins with a spacing of one fourth (1/4) the basin length and according to the detail sheets. Two (2) coir fiber baffles shall be installed in basins less than 20 ft. in length with a spacing of one third (1/3) the basin length.

Steel posts shall be placed at a depth of 2 ft. below the basin surface, with a maximum spacing of 4 ft. Attach a 9-gauge high-tension wire strand to the steel posts at a height of 3 ft. with plastic ties or wire fasteners. Install a steel post into side of the basin at a variable depth and a height of 3 ft. from the bottom of the basin to anchor coir fiber mat. Secure anchor post to the upright steel post in basin with wire fasteners.

The coir fiber mat shall be draped over the wire strand to a minimum of 3 ft. of material on each side of the strand. Secure the coir fiber mat to the wire strand with plastic ties or wire fasteners. Place staples across the matting at ends and junctions approximately 1 ft. apart at the bottom and side slopes of basin. Overlap matting at least 6" where 2 or more widths of matting are installed side by side. Refer to details in the plan sheets. The Engineer may require adjustments in the stapling requirements to fit individual site conditions.

### **Measurement and Payment**

*Coir Fiber Baffles* will be measured and paid for by the actual number of linear feet of coir fiber baffles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the coir fiber baffles.

Payment will be made under:

| <b>Pay Item</b>   | <b>Pay Unit</b> |
|-------------------|-----------------|
| Coir Fiber Baffle | Linear Foot     |