Scour Repair Grout Mats \_-Inch, Item SPV.0035.xx.

**A Description**

This special provision describes furnishing and installing grout filled mats for scour protection.

**B Materials**

The grout shall consist of a mixture of portland cement, 6±1 percent air entrainment by volume, mortar sand aggregate, additives, and water proportioned to provide a pumpable mixture. The 28 day compressive strength shall be as specified on the plans or 3,000 psi minimum whichever is greater. Compressive strength test shall be made using grout cubes or 3”x6” cylinders. Submit the mix design and laboratory test results to the Engineer for approval prior to proceeding with the work.

Grout mats shall be made of high strength water permeable fabric of nylon and/or polyester sewn into a series of compartments that are connected intermittently by ducts. Mats shall have a nominal thickness when filled with grout of the size specified. Each mat shall be provided with a self closing inlet value to accommodate insertion of the grout pumping hose. Grout mat fabric shall meet or exceed the following properties:

|  |  |  |  |
| --- | --- | --- | --- |
| **Property** | **Test Method** | **Units** | **Specified**  **Minimum** |
| Wide-Width Strip Tensile Strength  - Machine Direction (MD)  - Cross Machine Direction (CD) | ASTM D 4595 ASTM D 4595 | lbf/in  lbf/in | 140  110 |
| Trapezoidal Tear Strength  - Machine Direction (MD)  - Cross Machine Direction (CD) | ASTM D 4533 ASTM D 4533 | lbf  lbf | 125  100 |

Grout mat shall have cables laced through the grout ducts of each mat pillow in each direction creating an interlocking grid. Cables shall be installed prior to filling with grout. Where necessary, cables shall be joined by means of copper connectors providing a minimum of 80% of the breaking strength of the cable. Aluminum connectors in direct contact with grout will not be permitted. Cables shall be low elongation continuous filament polyester fiber, with a core contained within an outer jacket. The core should be between 65 and 75 % of the total weight of the cable. The cables shall meet or exceed the following properties for the mat thickness specified:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property** | **Units** | **Mat Thickness** | | |
|  |  | 4” | 6” | 8” |
| Cable Nominal Diameter | Inches | 1/4 | 11/32 | 5/16 |
| Cable Average Breaking Strength | lbf | 3700 | 4500 | 5200 |

Fabric porosity and limited cement lost through fabric is essential to the successful execution of this work. Suitability of fabric and grout design shall be demonstrated by injecting the proposed grout mix into three 24 inch long by approximately 6 inch diameter fabric sleeves under a pressure of not more than 15 psi which shall be maintained for not more than 10 minutes. A 12 inch long test cylinder shall be cut from the middle of each cured test specimen and tested per ASTM C39. The average seven day compressive strength of the grout within the fabric shall be at least equal to that of standard companion test cylinders made per ASTM C31. In lieu of the above testing requirements the Contractor may submit test results from past successful projects and manufacturers test results to the Engineer for approval prior to proceeding with the work.

**C Construction**

Install grout mats as shown on the plan, given in these special provisions and as directed by the Engineer.

Before placement, thoroughly clean the area to be covered with grout mats of loose material. Place interconnected mats and cables underwater. Make appropriate allowance for contraction of fabric mat resulting from grout injection. Start grout placement at toe of the slope or at the lowest elevation. Contractor may use temporary or permanent rods or other devices to hold the mats in place and to maintain the desired final shape. Remove temporary materials after grout has reached self supporting strength.

**D Measurement**

The department will measure Scour Repair Grout Mats the cubic yard acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER DESCRIPTION UNIT

SPV.0035.xx Scour Repair Grout Mats 4-Inch CY

SPV.0035.xx Scour Repair Grout Mats 6-Inch CY

SPV.0035.xx Scour Repair Grout Mats 8-Inch CY

Payment for Scour Repair Grout Mats X-Inch is full compensation for cleaning the area to be covered, furnishing, placing, and filling the grout mats.