

**STABILIZATION REQUIREMENTS:**

(11-4-11)

S-2

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

**SEEDING AND MULCHING:****(East Crimp)**

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

## All Roadway Areas

| <b>March 1 - August 31</b> |                       | <b>September 1 - February 28</b> |                         |
|----------------------------|-----------------------|----------------------------------|-------------------------|
| 50#                        | Tall Fescue           | 50#                              | Tall Fescue             |
| 10#                        | Centipede             | 10#                              | Centipede               |
| 25#                        | Bermudagrass (hulled) | 35#                              | Bermudagrass (unhulled) |
| 500#                       | Fertilizer            | 500#                             | Fertilizer              |
| 4000#                      | Limestone             | 4000#                            | Limestone               |

## Waste and Borrow Locations

| <b>March 1 - August 31</b> |                       | <b>September 1 - February 28</b> |                         |
|----------------------------|-----------------------|----------------------------------|-------------------------|
| 75#                        | Tall Fescue           | 75#                              | Tall Fescue             |
| 25#                        | Bermudagrass (hulled) | 35#                              | Bermudagrass (unhulled) |
| 500#                       | Fertilizer            | 500#                             | Fertilizer              |
| 4000#                      | Limestone             | 4000#                            | Limestone               |

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

## Approved Tall Fescue Cultivars

|                            |                        |              |                    |
|----------------------------|------------------------|--------------|--------------------|
| 2 <sup>nd</sup> Millennium | Duster                 | Magellan     | Rendition          |
| Avenger                    | Endeavor               | Masterpiece  | Scorpion           |
| Barlexas                   | Escalade               | Matador      | Shelby             |
| Barlexas II                | Falcon II, III, IV & V | Matador GT   | Signia             |
| Barrera                    | Fidelity               | Millennium   | Silverstar         |
| Barrington                 | Finesse II             | Montauk      | Southern Choice II |
| Biltmore                   | Firebird               | Mustang 3    | Stetson            |
| Bingo                      | Focus                  | Olympic Gold | Tarheel            |
| Bravo                      | Grande II              | Padre        | Titan Ltd          |
| Cayenne                    | Greenkeeper            | Paraiso      | Titanium           |
| Chapel Hill                | Greystone              | Picasso      | Tomahawk           |
| Chesapeake                 | Inferno                | Piedmont     | Tacer              |
| Constitution               | Justice                | Pure Gold    | Trooper            |
| Chipper                    | Jaguar 3               | Prospect     | Turbo              |
| Coronado                   | Kalahari               | Quest        | Ultimate           |
| Coyote                     | Kentucky 31            | Rebel Exeda  | Watchdog           |
| Davinci                    | Kitty Hawk             | Rebel Sentry | Wolfpack           |
| Dynasty                    | Kitty Hawk 2000        | Regiment II  |                    |
| Dominion                   | Lexington              | Rembrandt    |                    |

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

**CRIMPING STRAW MULCH:**

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

**WATTLES WITH POLYACRYLAMIDE (PAM):**

(10-19-10) (Rev. 1-17-12)

1060,1630,1631

T2

**Description**

Wattles are tubular products consisting of excelsior fibers encased in synthetic netting. Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of wattles, matting installation, PAM application, and removing wattles.

**Materials**

Wattle shall meet the following specifications:

|                                    |                                  |
|------------------------------------|----------------------------------|
| 100% Curled Wood(Excelsior) Fibers |                                  |
| Minimum Diameter                   | 12 in.                           |
| Minimum Density                    | 2.5 lb/ft <sup>3</sup> +/- 10%   |
| Net Material                       | Synthetic                        |
| Net Openings                       | 1 in. x 1 in.                    |
| Net Configuration                  | Totally Encased                  |
| Minimum Weight                     | 20 lb. +/- 10% per 10 ft. length |

Stakes shall be used as anchors.

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *2012 Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

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

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each wattle. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

**Construction Methods**

Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the

detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *2012 Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Apply PAM over the lower center portion of the wattle where the water is going to flow over at a rate of 2 ounces per wattle, and 1 ounce of PAM on matting on each side of the wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *2012 Standard Specifications*.

### **Measurement and Payment**

*Wattles* will be measured and paid for by the actual number of linear feet of wattles 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 *Wattles*.

Matting will be measured and paid for in accordance with Article 1631-4 of the *2012 Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

*Polyacrylamide (PAM)* will be measured and paid for by the actual weight in pounds of PAM applied to the wattles. 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 apply the *Polyacrylamide (PAM)*.

Payment will be made under:

| <b>Pay Item</b>      | <b>Pay Unit</b> |
|----------------------|-----------------|
| Polyacrylamide (PAM) | Pound           |
| Wattle               | Linear Foot     |