

SECTION 02270

SLOPE PROTECTION AND EROSION CONTROL

PART 1 - GENERAL

1.01 SCOPE

- A. This section shall consist of temporary control measures as shown in the plans or directed by the ENGINEER during the life of the Contract to control erosion and water pollution, through the use of berms, sediment basins, fiber mats, netting, mulches, grasses, slope drains, temporary silt fences, and other control devices.
- B. The temporary pollution control provisions contained herein shall be coordinated with the permanent erosion control features, to assure economical, effective, and continuous erosion control throughout the construction and post-construction period.
- C. The City of Chattanooga, Department of Public Works, Storm Management Division guidelines, "General Criteria for Controlling Erosion and Sediment from Land Disturbing Activities." 1988 edition shall be included in these specifications by references.

PART 2 - PRODUCTS

2.01 SEDIMENT STRUCTURES

Sediment basins, ponds, and traps, are prepared storage areas constructed to trap and store sediment from erodible areas in order to protect properties and stream channels below the construction areas from siltation.

2.02 TEMPORARY SEEDING AND MULCHING

Temporary seeding and mulching are measures consisting of seeding, mulching, fertilizing, and matting utilized to reduce erosion. All cut and fill slopes including waste sites and borrow pits shall be seeded when and where necessary to eliminate erosion. See Section 02485.

2.03 BALED HAY OR STRAW CHECKS

- A. Baled hay or straw erosion checks are temporary measure to control erosion and prevent siltation. Bales shall be either hay or straw containing five (5) cubic feet or more of material.
- B. Baled hay or straw checks shall be used where the existing ground slopes toward or away from the embankment, along the toe of slopes, in ditches, or other areas where siltation erosion or water run-off is a problem.

2.04 TEMPORARY SILT FENCES

Silt fences are temporary measure utilizing woven wire or other approved material attached to posts with filter cloth composed of burlap, plastic filter fabric, etc., attached to the upstream side of the fence to retain the suspended silt particles in the run-off water.

2.05 EROSION CONTROL FABRIC

Erosion control fabric shall be Hold/Gro Erosion Control Fabric as manufactured by Gulf States Paper Corporation, or approved equal, and shall consist of strips of biodegradable paper, interwoven with yarn that is subject to degradation by ultraviolet light.

PART 3 - EXECUTION

3.01 PROJECT REVIEW

Prior to the preconstruction conference, the Contractor shall meet with the ENGINEER and go over in detail the expected problem areas in regard to the erosion control work. Different solutions should be discussed so that the best method might be determined. It is the basic responsibility of the Contractor to develop an erosion control plan acceptable to the ENGINEER.

3.02 PRECONSTRUCTION CONFERENCE

At the preconstruction conference, the Contractor shall submit for acceptance his schedule for accomplishment of temporary and permanent erosion control work, as are applicable for clearing and grubbing, grading, bridges and other structures at watercourses, construction, and paving. He shall also submit for acceptance his proposed method of erosion control on haul roads and borrow pits and his plan for disposal of waste materials. No work shall be started until the erosion control schedules and methods of operations have been accepted by the ENGINEER.

3.03 CONSTRUCTION REQUIREMENTS

- A. The ENGINEER has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, and borrow and fill operations, and the authority to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other water impoundment. Such work may involve the construction of sediment basins, and use of temporary mulches, mats, seeding or other control devices or methods as necessary to control erosion. Cut and fill slopes shall be seeded and mulched as the excavation proceeds to the extent directed by the ENGINEER.
- B. The Contractor shall be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in his accepted schedule. Temporary pollution control measures shall be used to correct conditions

that develop during construction that were not foreseen during the design stage that are needed prior to installation of permanent pollution control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

- C. Where erosion is likely to be a problem, clearing and grubbing operations should be so scheduled and performed that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise erosion control measures may be required between successive construction stages. Under no conditions shall the surface area of erodible earth material exposed at one time by clearing and grubbing, exceed 15,000 square feet without approval by the ENGINEER.
- D. The ENGINEER will limit the area of excavation, borrow, and embankment operations in progress commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent pollution control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.
- E. Under no conditions shall the amount of surface area or erodible earth material exposed at one time by excavation or fill within the project area exceed 15,000 square feet without prior approval by the ENGINEER.
- F. The ENGINEER may increase or decrease the amount of surface area of erodible earth material to be exposed at one time by clearing and grubbing, excavation, borrow and fill operations as determined by his analysis of project conditions.
- G. In the event of conflict between these requirements and Federal or State or local agencies, the more restrictive laws, rules, or regulations shall apply.

3.04 CONSTRUCTION OF STRUCTURES

A. SEDIMENT STRUCTURES

1. Sediment structures shall be utilized to control sediment at the foot of embankments where slope drains outlet; at the bottom as well as in the ditch lines atop waste sites; in the ditch lines or borrow pits. Sediment structures may be used in most drainage situations to prevent excessive siltation of pipe structures. All sediment structures shall be at least twice as long as they are wide.
2. When use of temporary sediment structures are to be discontinued, all sediment accumulation shall be removed, and all excavation backfilled and properly compacted. The existing ground shall be restored to its natural or intended condition.

B. TEMPORARY SEEDING AND MULCHING

Seeding and mulching shall be performed in accordance with the section entitled "Seeding and Mulching."

C. BALED HAY OR STRAW EROSION CHECKS

Hay or straw erosion checks shall be embedded in the ground 4 to 6 inches to prevent water flowing under them. The bales shall also be anchored securely to the ground by wooden stakes driven through the bales into the ground. Bales can remain in place until they rot, or be removed after they have served their purpose, as determined by the ENGINEER. The Contractor shall keep the checks in good condition by replacing broken or damaged bales immediately after damage occurs. Normal debris clean-out will be considered routine maintenance.

D. TEMPORARY SILT FENCES

1. Temporary silt fences shall be placed on the natural ground, at the bottom of fill slopes, in ditches, or other areas where siltation is a problem. Silt fences are constructed of wire mesh with a covering of burlap or some other suitable material on the upper grade side of the fence and anchored into the soil.
2. The Contractor shall be required to maintain the silt fence in a satisfactory condition for the duration of the project or until its removal is requested by the ENGINEER. The silt fence becomes the property of the Contractor whenever the fence is removed.

E. EROSION CONTROL FABRIC

1. Fabric shall be installed immediately after seeding operations have been completed in work areas. Mulch shall not be used under the fabric.
2. Installation instructions shall be supplied by the manufacturer, and fabric shall be applied in accordance with the manufacturer's recommendation as directed by the specifier.
3. Fabric shall be unrolled and draped loosely, without stretching, so that continuous ground contact is maintained. In ditches, fabric shall be unrolled and applied parallel to the flow direction. On slopes, fabric shall be applied parallel to the slope direction unless the ENGINEER approves an alternate application method.
4. In ditches and on slopes, each upslope and each downslope end of each piece of fabric shall be placed in a 4-inch trench, stapled on 9-inch centers, backfilled and tamped. Where one roll ends and a second roll starts, the upslope piece shall be brought over the end of the downslope roll so that there is a 12-inch overlap, placed in a 4-inch trench, stapled on 9-inch centers, backfilled and tamped.

5. On slopes where two or more widths of fabric are applied, the two edges shall be overlapped according to manufacturer's installation instructions and stapled at 18-inch to 24-inch intervals along the exposed edge of the lap joint. The body of the fabric shall be stapled in a grid pattern with staples 3 feet maximum on center each way.
6. Where heavy concentrations of water or extremely erodible soil conditions exist, erosion checks shall be installed at intervals up to 50 feet as directed by the ENGINEER. Erosion checks shall be a 4-inch deep trench perpendicular to the flow line across the width of the fabric. The fabric shall be stapled at 9-inch intervals along the bottom of the trench across the entire width of the fabric, backfilled and stamped.

3.05 MAINTENANCE

- A. The temporary erosion control features installed by the Contractor shall be acceptably maintained by the Contractor until no longer needed or permanent erosion control methods are installed. Any materials removed shall become the property of the Contractor.
- B. In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of work as scheduled, and are ordered by the ENGINEER, such work shall be performed by the Contractor at his own expense.
- C. Where the work to be performed is not attributed to the Contractor's negligence, carelessness, or failure to install permanent controls and falls within the specifications for a work item that has a contract price, the units of work shall be paid for at the proper contract prices.

3.06 EROSION CONTROL OUTSIDE PROJECT AREA

Temporary pollution control shall not include construction work outside the project area where such work is necessary as a result of construction such as: borrow pit operations, haul roads and equipment storage sites. Bid Price in such cases shall not include all necessary clearing and grubbing, construction incidentals, maintenance, and site restoration when no longer needed. This will be the responsibility of the Contractor.

END OF DOCUMENT