

## SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

- A. Provide labor, material, and equipment for temporary and permanent management practices as shown on the plans, as contained in the Erosion, Sedimentation, and Pollution Control Plan (ES&PC), and as directed by the Owner during the life of the Contract to control erosion, storm water runoff, and pollution through the use of berms, dikes, dams, sediment basins, fiber mats, netting, mulches, grasses, slope drains, temporary silt fences, and other best management practices (BMPs).
- B. Coordinate temporary erosion control provisions with permanent erosion control features to assure economical, effective, and continuous erosion, sedimentation, and pollution control throughout the construction and stabilization period.
- C. Management practices required are not limited to the measures shown on the plans. Provide additional practices necessitated by actual conditions and methods.
- D. Silt and pollution leaving the site and any effects of the release are the sole and total responsibility of the Contractor as Primary, Secondary or Tertiary Permittee or Operator.
- E. Provide Subcontractors with a copy of the ES & PC Plan. Post notices requiring Subcontractors to review and comply with the ES & PC Plan.
- F. Owner or Contractor to engage a Testing Agency to perform the required NPDES monitoring for the project. Contractor to coordinate with Owner.

#### 1.2 RELATED DOCUMENTS

- A. Conform to the Georgia Water Quality Act, the Federal Clean Water Act, the rules and regulations promulgated to each of these Acts and the Georgia NPDES General Permit No. GAR 100001 and 100002.
- B. Conform, at a minimum, to the "Manual for Erosion and Sediment Control in Georgia" (MESCG), latest edition, published by the Georgia Soil Conservation Service (GASWCC).
- C. Maintain a copy of the MESCG on site throughout construction.

#### 1.3 DEFINITIONS

- A. Refer to the Georgia NPDES General Permit and the Manual for Sediment Control in Georgia for a complete list of definitions.

- B. The partial list of definitions is provided for the Contractor's convenience only. Obtain copies of the reference documents and learn appropriate terms required to fully implement the ES & PC Plan.
- C. Terms Defined:
1. Best Management Practices (BMPs): schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of Georgia. BMPs include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
  2. Comprehensive Monitoring Plan (CMP): The plan for monitoring of turbidity in receiving waters or outfalls.
  3. Final Stabilization: 100% of the soil surface is covered in permanent vegetation with a density of 70% or greater or landscaped according to the plan and all temporary BMPs removed).
  4. Permanent vegetation: planted trees, shrubs, perennial vines; a crop of perennial vegetation appropriate for the time of year and region; or a crop of annual vegetation and a seeding of target crop perennials appropriate for the region, so that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction.
  5. General Contractor: The Operator of the common development or site.
  6. Nephelometric Turbidity Unit (NTU): a numerical unit of measure based upon photometric analytical techniques for measuring the light scattered by fine particles of a substance in suspension.
  7. NOI: Notice of Intent.
  8. NOT: Notice of Termination.
  9. NPDES: National Pollution Discharge Elimination System.
  10. Operator: the entity that has the primary day-to-day operational control of those activities at the facility necessary to ensure compliance with Erosion, Sedimentation and Pollution Control Plan, Comprehensive Monitoring Program requirements and permit conditions.
  11. Primary Permittee: The Owner and/or the Operator of a tract of land for a common development, or of a stand-alone facility that is not part of a common development; or a utility company when it is the only entity conducting a construction activity on a piece of property.
  12. Qualified Personnel: a person who has successfully completed an erosion and sediment control course, minimum level 1A or an equivalent course approved by EPD and the State Soil and Water Conservation Commission.
  13. Sediment: solid material, both organic and inorganic, that is in suspension, is being transported, or has been moved from its site of origin by, wind, water, ice, or gravity as a product of erosion.
  14. Waters of Georgia or Waters of the State: any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface or subsurface water, natural and artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation, except as may be defined in O.C.G.A. 12-7-17(8) (O.C.G.A. 12-7-3(16)).

#### 1.4 QUALITY ASSURANCE CRITERIA

- A. Project Review: Prior to the preconstruction conference, review in detail the approved for construction ES&PC Plan.
- B. Preconstruction Conference: At the preconstruction conference submit for acceptance a detailed schedule for accomplishment of temporary and permanent erosion control work and installation of BMPs, for clearing and grubbing, grading, structures at watercourses, construction, paving and other job activities. Submit for acceptance a proposed method of erosion control for haul roads and borrow pits and a plan for disposal of waste materials. Do not start work until the erosion control schedules and methods of operations have been accepted by the Owner.
- C. Provide qualified personnel to supervise provision and maintenance of BMPs.
- D. Contractor to schedule the 7 Day ESPC Site Visit with the Design Professional at least 72 hours in advance to perform a site inspection of the installed initial sediment storage requirements and perimeter control BMPs within 7 days after installation. The design professional shall determine if these BMPs have been installed and are being maintained as designed. The design professional shall report the results of the inspection to the primary permittee within seven (7) days and the permittee must correct all deficiencies within two (2) business days of receipt of the inspection report from the design professional unless weather related site conditions are such that additional time is required.

#### PART 2 - PRODUCTS

##### 2.1 Silt Fence

- A. Filter Fabrics:
  - 1. Synthetic Fabric: Use filter fabric composed of strong rot-proof synthetic fibers formed into a fabric of either woven or non-woven type. Use fabric free of any treatment or coating which might significantly alter its physical properties. Use fabric containing stabilizers or inhibitors to make the filaments resistant to deterioration resulting from exposure to sunlight or heat. Use a pervious sheet of synthetic fibers oriented into a stable network so that the fibers retain their relative position with respect to each other. Finish the edges of the fabric to prevent the outer yarn from pulling away from the fabric. Use fabric free of defects or flaws which significantly affect its physical and/or filtering properties. Use fabric with a minimum width of 36 inches. Sew or bond sheets of fabric together. No deviation from any physical requirements will be permitted due to the presence of the seam.
- B. Posts: Meet MESCG requirements, Type Sensitive application per table 6-27.2.
- C. Woven Wire Fence: Wire fence fabric at least 32 inches high, with at least 6 horizontal wires. Vertical wires spaced 6 inches apart. Top and bottom wires at least 10 gage. Other wires at least 14 gage.
- D. Fasteners: Meet MESCG requirements per table 6-27.3.

2.2 Downdrains and Storm Drain Pipes:

- A. Downdrains: HDPE Pipe or Corrugated Plastic Pipe per Section 334200 "STORM DRAINAGE".
- B. Storm Drains: Per the Section 334200 "STORM DRAINAGE".

2.3 Stone:

- A. Rip Rap: Quarried solid stone showing no quarrying marks, minimum size per the plans.
- B. Stabilization Stone: Cleaned, crushed stone, #57, meeting Georgia Dept. of Transportation specifications.

2.4 Concrete Lined Channel:

- A. Portland Cement, minimum 3000 psi compressive strength at 28 days.
- B. Coarse aggregate crushed stone meeting ASTM C33.

2.5 Mats and Blankets:

- A. Meet MESCG requirements, Slope Stabilization, page 6-69 through 6-71.

2.6 Polymers:

- A. Meet MESCG requirements, Tackifiers, page 6-73 and 6-74.

PART 3 - PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Install BMPs in accordance with the ES & PC Plan, the MESCG, and the NPDES General Permit.
- B. Maintain management practices throughout construction and until the site is finally stabilized.
- C. Implement or assist the Owner with implementation of the Comprehensive Monitoring Program.
- D. Submit reports as required by the NPDES General Permit.
- E. Retain records as required by the NPDES General Permit.
- F. Submit or assist the Owner with submittals of the Notice of Intent and Notice of Termination.

### 3.2 LIMITS OF CONSTRUCTION

- A. The Owner has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations. Provide immediate permanent or temporary erosion control measures to prevent contamination of adjacent watercourses, lakes, ponds, other water impoundments and other State Waters. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, mats, seeding, or other control devices or methods as necessary to control erosion. Seed and mulch cut and fill slopes as the excavation proceeds to the extent shown on the ES & PC Plan and as directed by the Owner.
- B. Incorporate all permanent BMPs into the project at the earliest practicable time as outlined in the activity schedule. Use temporary BMPs to correct conditions that develop during construction; 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. Schedule and perform clearing and grubbing operations so that grading operations and permanent BMPs can be installed before or immediately thereafter; install BMPs between successive construction stages as needed.
- D. The Owner may limit the area of excavation, borrow and embankment operations in progress commensurate with the capability and progress of the Contractor in keeping the finish grading, mulching, seeding, and other such permanent BMPs current in accordance with the schedule.
- E. Under no conditions is the amount of surface area or erodible earth material exposed at one time by excavation or fill within the project area to exceed 50 acres without written approval from GA EPD.
- F. The Owner may increase or decrease the amount of surface area or erodible earth material to be exposed at one time by clearing and grubbing, excavation, borrow and fill operations as determined by analysis of project conditions.
- G. In the event of conflict between these requirements and erosion, sedimentation and pollution control laws, rules, or regulations or other Federal or State or local agencies, the more restrictive laws, rules, or regulations apply.
- H. Do not grade/disturb areas outside of limits of disturbance as approved by the state GASWCC or Local Issuing Authority.

### 3.3 CONSTRUCTION OF STRUCTURES

- A. Temporary Berms:
  - 1. Construct a temporary berm of compacted soil, with a minimum width of 24 inches at the top and a minimum height of 12 inches with or without a shallow ditch, constructed at the top of fill slopes or transverse to centerline on fills. Grade temporary berms so as to drain to a compacted outlet at a slope drain. The area adjacent to the temporary berm in the vicinity of the slope drain must be properly graded to enable the inlet to function efficiently and with minimum ponding.

2. Extend transverse berms required on the downstream side of a slope drain across the grade to the highest point at approximately a 10-degree angle perpendicular to centerline. When practical and until final elevations are approached, construct embankments with a gradual slope to one side of the embankment to permit the placement of temporary berms and slope drains on only one side of the embankment.

B. Temporary Slope Drains

1. Use temporary slope drains consisting of stone gutters, fiber mats, plastic sheets, concrete or asphalt gutters, half-round pipe, metal pipe, plastic pipe, flexible rubber, or other materials which can be used as temporary measures to carry water accumulating in the cuts and on the fills down the slopes prior to provision of permanent facilities or growth of adequate ground cover on the slopes.
2. Do not use fiber matting and plastic sheeting on slopes steeper than 4:1 except for distances of 20 feet or less.
3. Adequately anchor temporary slope drains to the slope to prevent disruption by the force of the water flowing in the drains. Compact and concavely form the base for temporary slope drains to channel the water and hold the slope drain in place. Properly construct the inlet end to channel water into the temporary slope drain. Construct energy dissipators, sediment basins, or other devices at the outlet end of the slope drains to reduce erosion downstream. Remove temporary slope drains when no longer necessary and restore the site to match the surroundings.

C. Sediment Control Structures

1. Utilize sediment control structures to control sediment at the foot of embankments where slope drains outlet; at the bottom as well as in the ditchlines atop waste sites; in the ditchlines or borrow pits. Use sediment control structures in most drainage situations to prevent excessive siltation of pipe structures. Use sediment structures at least twice as long as they are wide.
2. When the use of temporary sediment control structures is discontinued, remove sediment accumulation and excavation backfill and properly compact. Restore the existing ground to its natural or intended condition.

D. Check Dams:

1. Utilize check dams to retard stream flow and catch small sediment loads.
2. Key check dams into the sides and bottom of the channel a minimum depth of 2 feet.

E. Temporary Seeding and Mulching

1. Perform seeding and mulching in accordance with the approved drawings.

F. Brush Barriers

1. Use brush barriers consisting of brush, tree trimmings, shrubs, plants, and other approved refuse from the clearing and grubbing operation. Construct the brush barriers approximately parallel to original ground contour. Compress the brush to an approximate height of 3 to 5 feet and approximate width of 5 to 10 feet. Do not support the embankment by the construction of brush barriers.

G. Temporary Silt Fences

1. Place temporary silt fences on the natural ground, at the bottom of fill slopes, or other areas as shown or needed.
2. Maintain the silt fence in a satisfactory condition for the duration of the project. Distribute the silt accumulation at the fence to conform to the grading plan. Remove silt fence from the site after final stabilization.
3. Remove silt fence and mulch filter berms from the site after final stabilization.

H. Floating Surface Skimmers

1. Remove floating surface skimmer only after approval from the Local Erosion Inspector or Entity after final stabilization.
2. Pond drain valve to be closed after removal of floating surface skimmer.

I. Temporary Construction Exit

1. Temporary Construction Exit to be removed prior to final demobilization.

3.4 MAINTENANCE

- A. Maintain temporary BMPs until no longer needed or permanent BMPs are provided and the site is stabilized. Remove temporary materials.
- B. In the event that temporary BMPs are required due to negligence, carelessness, or failure to provide permanent BMPs as a part of work as scheduled, provide at no cost to the Owner.
- C. When silt deposited in sediment basins occupies more than 30% of the basin capacity, remove the silt. Remove the silt from the site unless otherwise permitted by the Owner. Restore the basin to the conditions and grades as shown on the Drawings as required during construction and at the completion of all construction activities.
- D. Provide dust control as required meeting requirements of the Manual for Sediment Control in Georgia to control the surface and air movements of dust on the construction site.

3.5 EROSION CONTROL OUTSIDE PROJECT AREA

- A. Use temporary management practices for construction work outside the project area.

END OF SECTION 312500