

SECTION 31 25 00 – EROSION AND SEDIMENTATION CONTROLS

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Rock Construction Entrance(s)
 - 2. Site Access BMP's
 - 3. Surface Water Diversion
 - 4. Sediment Barriers
 - 5. Solids Separation BMP's
 - 6. Runoff Collection
 - 7. Site Stabilization
 - 8. Diversion Channels.
 - 9. Rock Energy Dissipator.
 - 10. Rock Basin.
 - 11. Rock Barriers.
 - 12. Sediment Ponds.
 - 13. Sediment Traps.

- B. Related Sections:
 - 1. Document - NPDES Permit
 - 2. Section 31 05 13 - Soils for Earthwork.
 - 3. Section 31 05 16 - Aggregates for Earthwork.
 - 4. Section 31 10 00 - Site Clearing.
 - 5. Section 31 23 16 - Excavation.
 - 6. Section 31 23 23 - Fill.
 - 7. Section 31 37 00 - Riprap.
 - 8. Section 32 13 13 - Concrete Paving.
 - 9. Section 32 91 19 - Landscape Grading.
 - 10. Section 32 92 19 - Seeding and Soil Supplements.
 - 11. Section 33 41 00 – Storm Utility Drainage Piping

- C. Description: This section of the specification shall serve as a supplement to the Erosion and Sediment Pollution Control Plan.
 - 1. This plan together with the accompanying exhibits was developed by Herbert, Rowland & Grubic, Inc.
 - 2. This plan was intended to be developed in accordance with the requirements of the Erosion and Sediment Control Program Manual published by the Pennsylvania Department of Environmental Protection, Bureau of Soil and Water Conservation.
 - 3. This plan consists of the Erosion and Sediment Pollution Control Plan Report as contained in this section, and the Erosion and Sediment Pollution Control Plan

drawings and details as incorporated into the Contract Drawings.

- D. Purpose: The purpose of this Erosion and Sediment Pollution Control Plan is to provide the Contractor with general guidelines as well as specific techniques for minimizing erosion and sedimentation and stormwater pollution during and after construction of the Project.
- E. Additional controls may be required at problem areas that develop during construction above and beyond those that are described in this narrative.

1.02 REFERENCES

- A. Pennsylvania Department of Environmental Protection, Bureau of Soil and Water Conservation
 - 1. Erosion and Sediment Control Program Manual

1.03 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Product Data: Submit data geotextile, compost filter socks, filter bag inlet protection.
- C. Samples:
- D. If the Contractor anticipates any work which is not as shown on the Contract Drawings and specifications (such as associated with spoil or borrow areas) the Contractor shall prepare and submit for approval an appropriate Erosion and Sediment Pollution Control Plan for that work. Such plan shall receive the approval of the County Conservation District prior to the start of earth moving activities in those areas.

1.04 QUALITY ASSURANCE

- A. Regulatory agency requirements.
 - 1. All work shall be completed in compliance with the requirements of this plan and the rules and regulations of the Pennsylvania Department of Environmental Protection and the County Conservation District. Any fines and associated costs resulting from the Contractor's failure to provide adequate protection against soil erosion and sedimentation shall be borne by the Contractor.
 - 2. The Contractor shall serve as co-permittee on the NPDES permit and shall sign and notarize the Transferee/Co-permittee Application Form included in the Project Manual. Contractor shall also be required to complete and submit the required Notice of Termination Form for the NPDES permit upon completion of

the Project.

3. Upon the anticipated initiation of construction, the Contractor's program for carrying out this plan will be reviewed in the field with representatives of the County Conservation District, the Contractor, the Owner, and the Engineer.

1.05 OUTLINE FOR BMP SEQUENCING

- A. Follow Construction Sequence in approved Erosion and Sediment Pollution Control Plan and Contract Drawings

PART 2 – PRODUCTS

2.01 MATERIALS: (See Enclosed Erosion and Sediment Pollution Control Plan and Contract Drawings).

2.02 Rock Construction Entrance(s)

- A. AASHTO No. 1 Aggregate
- B. Geotextile Class 4, Type A

2.03 Sediment Barriers

- A. Silt Sock
 1. Provide filter sock meeting the compost filter sock requirements as shown in the Table below.

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable
Sock Diameters	12", 18"	12", 18", 24", 32"	12", 18", 24", 32"
Mesh Opening	3/8"	3/8"	3/8"
Tensile Strength		26 psi	26 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.	
Minimum Functional Longevity	6 months	9 months	6 months

2. Compost: Provide well-decomposed, stable, weed-free, organic compost derived from agriculture, food, stump grindings, and yard or wood/bark organic matter sources – aerobically composted with no objectionable odors. The compost product should not resemble the raw material from which it was derived. Wood and bark chips, ground construction debris, or reprocessed wood products are not acceptable as the organic component of the mix. Provide compost meeting the compost standards for compost filter socks:

Organic Matter Content	80% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5 - 8.5

Moisture Content	30% - 60%
Particle Size	30% - 50% pass through 3/8" screen
Soluble Salt Concentration	Max 5 dS/m (mmhos/cm)

- B. Silt Fencing: Silt fence barriers shall be constructed by setting 2 inch x 2 inches x 4 feet stakes and excavating a 6 inch x 6 inch trench along the line of stakes. Staple fencing to stakes and extend into trench. Backfill and compact excavated soil, anchoring silt fence.

Fabric Property	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lb)	120	ASTM D1682
Elongation at Failure (%)	20% Max.	ASTM D1682
Mullen Burst Strength (psi)	200	ASTM D 3786
Trapezoidal Tear Strength (lb)	50	
Puncture Strength (lb)	40	ASTM D 751 (modified)
Slurry Flow Rate (gal/min/sf)	0.3	
Equivalent Opening Size	30	US Std. Sieve CW-02215
Ultraviolet Radiation Stability (%)	80	ASTM G-26

- C. Inlet Filter Bag: fabric shall have a minimum properties shown below.

Property	Results	Units	Method
Grab Tensile Strength	450x300	lbs	ASTM D4632
Grab Tensile Elongation	40x25	%	ASTM D4632
Puncture Strength	130	Lbs	ASTM D4633
Mullen Burst Strength	600	Psi	ASTM D3786
Trapezoid Tear Strength	165 x 150	lbs	ASTM D4533
% Open Area	28	%	COE-22125-86
Apparent opening size	30	US Std Sieve	ASTM D4751
Water Flow Rate	250	Gal/min/ft ²	ASTM D4491

- D. High Volume Filter Bags: Made from woven geotextiles that meet the following standards:

Property	Test Method	Minimum Standard
Avg. Wide Width Strength	ASTM D-4884	60 lb/in
Grab Tensile	ASTM D-4632	205 lb
Puncture	ASTM D-4833	110 lb
Mullen Burst	ASTM D-3786	350 psi
UV Resistance	ASTM D-4355	70%
AOS % Retained	ASTM D-4751	80 Sieve

- E. PLANTING MATERIALS

- Seeding and Soil Supplements: Temporary and Permanent, as specified in Section 32 92 19.
- Mulch: as specified in Section 32 92 19.

- F. Erosion Control Mulch Blanket.

- Organic Mulch Material. A machine produced mat of organic, biodegradable mulch material such as straw, curled wood cellulose, coconut fiber, or

combinations of material evenly distributed and attached on one side of a photodegradable polypropylene mesh with high-strength threads conforming to the following physical properties:

- a. Weight 8 ounces per square yard, minimum
 - b. Mat thickness Approximately 0.125 inch to 0.6 inch
2. Reprocessed Wood Fiber. A flexible, non-woven, biodegradable water absorbing mat of mechanically defibrated wood fibers and synthetic fibers with a photodegradable polypropylene netting laminated to one side of the mat and conforming to the following physical properties:
- a. Weight 6.4 to 7.9 ounces per square yard
 - b. Mat thickness 0.105 inch, minimum
- G. Rock: Sound, hard and angular shape; well graded; without shale seams, structural defects and foreign substances; with width and thickness greater than one third its length; minimum specific gravity of 2.5, as determined in accordance with ASTM C127, bulk saturated, and surface dry basis; size and gradation in accordance with NCSA Class, Size as noted on drawings within following limits:

Square Opening inches	Percent Passing NCSA Size No.					
	R8	R7	R6	R5	R4	R3
42	100					
30		100				
24	15-50		100			
18		15-50		100		
15	0-15					
12		0-15	15-50		100	
9				15-50		
6			0-15		15-50	100
4				0-15		
3					0-15	15-50
2						0-15

- H. Pipe Materials
- 1. Pipe: As shown on Drawings and specified in Section 33 41 00.
- I. Accessories
- 1. Skimmer: Faircloth Skimmer by J. W. Faircloth & Son, Inc.
 - 2. Steel Plate Anti-Vortex Device: minimum 3/16" plate steel as shown in the Drawings.
 - 3. Anti-Seep Collar: 16 gauge sheet metal as shown in the Drawings.
 - 4. Trash Rack: 1X1X1/8 angle frame with #4 bars welded to angles and at each intersection of bars creating maximum opening size no greater than one half the riser barrel.

PART 3 – EXECUTION

- 3.01 PREPARATION: (See Enclosed Erosion and Sediment Pollution Control Plan and Contract Drawings).
- 3.02 INSTALLATION: (See Enclosed Erosion and Sediment Pollution Control Plan and Contract Drawings).
- 3.03 MAINTENANCE:(See Enclosed Erosion and Sediment Pollution Control Plan and Contract Drawings).
- 3.04 DIVERSION CHANNELS
- A. Windrow excavated material on low side of channel.
 - B. Compact to 95 percent maximum density.
 - C. On entire channel area, apply soil supplements and sow seed as specified in Section 32 92 19.
 - D. Mulch seeded areas with hay as specified in Section 32 92 19.
- 3.05 SITE STABILIZATION
- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
 - B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
 - C. Stockpile and waste pile heights shall not exceed 35 feet. Slope stockpile sides at 2: 1 or flatter.
 - D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
 - 1. During non-germinating periods, apply mulch at recommended rates.
 - 2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year in accordance with Section 32 92 19 at 100 percent of permanent application rate with no topsoil.
 - 3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 32 92 19 permanent seeding specifications.
 - E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

END OF SECTION