Section 01574

REINFORCED FILTER FABRIC BARRIERS

PART 1 GENERAL

1.01 SUMMARY

This Section includes the installation of reinforced filter fabric barriers, for erosion and sediment control used during construction and prior to final development of site. Reinforced filter fabric barriers are used to retain sedimentation.

1.02 MEASUREMENT AND PAYMENT

Unit Prices:

A. Measure and pay for reinforced filter fabric barrier by linear feet of completed and accepted filter fabric barrier between limits of beginning and ending steel fence posts.

B. Measure and pay for inspection maintenance and repair of the systems will be paid in accordance with 01410 – "TPDES Requirements".

1.03 REFERENCES

A. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 [600 kN-m/m^3]).

B. ASTM D 4491/D 4491M - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

C. ASTM D 4632/D 4632M Rev A - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

D. ASTM D 6382/D 6382M - Standard Practice for Dynamic Mechanical Analysis and Thermogravimetry of Roofing and Waterproofing Membrane Material.

E. ASTM D 3786/D 3786M – Standard Test Method for Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method.

1.04 SUBMITTALS

A. Conform to requirements of Section 01330 – "Submittal Procedures".

B. Submit manufacturer's catalog sheets and other product data on geotextile or filter fabrics.

1.05 RELATED REQUIREMENTS

A. Section 01330 – "Submittal Requirements"

B. Section 01410 – "TPDES Requirements"

1.06 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

A. Filter Fabric

1. Provide woven or non-woven geotextile filter fabric made of polypropylene, polyethylene, ethylene, or polyamide material.

2. Geotextile fabric: minimum grab strength of 100 psi in any principal direction (ASTM D4632/D 4632M Rev A); Mullen burst strength exceeding 200 psi (ASTM D3786/D 3786M); equivalent opening size between 50 and 140 for soils with more than 15 percent by weight passing No. 200 sieve and between 20 and 50 for soils with less than 15 percent by weight passing No. 200 sieve; and maximum water flow rate of 40 gallons per minute per square feet (ASTM D4491/D 4491M).

3. Filter fabric material shall contain ultraviolet inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F.

B. Fencing

Woven wire shall be galvanized 2-inch by 4-inch welded wire fabric, 12½ gauge.

PART 3 EXECUTION

3.01 – 3.02 NOT USED

3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION

A. Preparation and Installation

1. Provide erosion and sediment control systems at locations shown on Plans.

2. No clearing, grubbing, or rough cutting permitted until erosion and sediment control systems are in place, other than as specifically directed by Project Manager to allow soil testing and surveying.

3. Regularly inspect, maintain and repair or replace damaged components of the erosion control systems. Unless otherwise directed, maintain erosion and sediment control systems until project area stabilization is accepted by the Owner. Remove erosion and sediment control systems promptly when directed by Project Manager. Discard removed materials off site in accordance with Section 01576 – Waste Material Disposal.

4. Remove and dispose of sediment deposits at designated spoil site for Project. If a project spoil site is not designated on Plans, dispose of sediment off site in accordance with Section 01576 – Waste Material Disposal.

5. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damage caused by construction traffic to erosion and sediment control systems shall be repaired immediately.

6. Conduct construction operations under this Contract in conformance with erosion control practices described in Section 01410 – "TPDES Requirements".

B. Reinforced Filter Fabric Barrier Construction Methods

1. Install erosion and sedimentation systems in manner so that surface runoff shall percolate through system in sheet flow fashion and allow retention and accumulation of sediment.

2. Inspect erosion and sedimentation control systems after each rainfall, daily during periods of prolonged rainfall, and at minimum once each week. Repair or replace damaged sections immediately.

3. Attach woven wire support to steel posts (min. of 1.25 lbs. per linear foot and Brinell Hardness greater than 140) spaced maximum 6 feet apart and embedded minimum of 12 inches. Maximum spacing of 8 feet is allowed when posts are made of hot rolled steel, at least 4 feet long with Tee or Y-bar sections with surface painted or galvanized. Install stakes at slight angle toward source of anticipated runoff.

4. Trench in toe of filter fabric barrier with spade or mechanical trencher so that downward face of trench is flat and perpendicular to direction of flow as shown on Plans. Trench shall be minimum of 6-inch by 6-inch. Lay filter fabric along edges of trench. Backfill and compact trench.

5. Securely fasten filter fabric material to woven wire with tie wires.

6. Reinforced filter fabric barrier shall have a minimum installed height of 18 inches.

7. Provide filter fabric in continuous rolls and cut to length of fence to minimize use of joints. When joints are necessary, splice fabric together only at support post with minimum 6-inch overlap and seal securely.

8. When used in swales, ditches or diversions, elevation of barrier at top of filter fabric at flow line location in channel shall be lower than bottom elevation of filter fabric at ends of barrier or top of bank, whichever is less, in order to keep storm water discharge in channel from overtopping bank.

9. Remove sediment deposits when silt reaches a depth of one-third height of barrier.

END OF SECTION