SECTION 02270

EROSION CONTROL

PART 1 GENERAL

1.01 DESCRIPTION

A. This Section specifies requirements for temporary erosion control provisions.

B. The work includes:

1. Providing all temporary erosion control measures indicated in the SWPPP and required by the Engineer during the life of the Contract to control soil erosion and water pollution.

2. The installation and maintenance of silt fence, berms, ditches, sedimentation basins, construction exits, fiber mats, catchbasin filters, straw, netting, gravel, trenches, mulches, grasses, slope drains and other approved erosion control devices or methods.

1.02 RELATED SECTIONS

A. Sections which directly relate to the work of this Section include:

1. Section 02222 - Excavation

3. Section 02223 - Backfilling

4. Section 02260 – Storm Water Pollution Prevention Plan

1.03 COORDINATION WITH PERMANENT EROSION CONTROL PROVISIONS

A. The temporary control provisions shall be coordinated with the permanent erosion control features to the extent practical to ensure economical, effective and continuous erosion control throughout the construction and post-construction period.

1.04 PRIOR TO CONSTRUCTION

A. Prior to the start of the construction, the Contractor shall plan for the construction of required stormwater erosion and sediment control work, for clearing, grading, construction, and paving. No work shall be started until control plans and methods of operations have been accepted by the Engineer.

1.05 CONSTRUCTION OPERATIONS

A. When it becomes necessary, the Engineer will inform the Contractor of construction procedures and operations that appear to be jeopardizing erosion control provisions. If these construction procedures and operations are not corrected promptly, the Engineer may suspend the performance of any or all construction until corrections have been made, and such suspension shall not be the basis of any claim by the Contractor for additional compensation from the Government nor for an extension of time to complete the Work.

1.06 CONSTRUCTION REQUIREMENTS–TEMPORARY SEDIMENT CONTROL

A. The Contractor is required by state and Federal law to control the release of silt and turbidity into the waters of the state. The engineer will endeavor to monitor the Contractor's sediment control measures.

B. Engineer may order immediate, additional, temporary control measures to prevent contamination of adjacent streams or other watercourses, or other areas of water impoundment and damage by erosion.

C. The Contractor shall construct all permanent erosion and sediment control features at the earliest practical time as outlined in the accepted schedule. Temporary erosion and sediment control measures shall be used to correct conditions that develop during construction which were unforeseen, but are needed prior to installation of permanent control features, or that are needed temporarily to control erosion or sedimentation which develops during construction operations.

D. Where erosion is likely to be a problem, clearing and grubbing operations shall be scheduled and performed so that grading operations and permanent erosion and sediment control features can follow immediately thereafter, if conditions permit; otherwise, temporary control measures will be required between successive construction stages.

E. Failure by the Contractor to control erosion, pollution, and siltation shall be cause for the Owner to employ outside assistance to provide the necessary corrective measures. The cost of such assistance, including engineering costs, will be charged to the Contractor and appropriate deductions made to the Contractor's monthly progress payment request.

F. The Contractor shall remove sediment from erosion control facilities as required by the Engineer. The Contractor shall modify and improve erosion control facilities and replace deteriorated hay bales and other devices as required by the Engineer.

G. Several temporary and permanent erosion and sedimentation control measures are shown in the SWPPP. The Contractor shall strictly adhere to the provisions of his plan. Additionally, temporary measures shall be constructed to accommodate field conditions that develop during construction.

H. Though not anticipated, temporary sedimentation basins shall be employed when necessary during construction. Sedimentation shall be periodically removed from the basins and from behind erosion and sedimentation control devices. The Contractor shall direct all possible site runoff to the sedimentation basins.

I. If temporary sedimentation basins are required, they shall be maintained from the start of construction until construction of the permanent detention basins is completed and perimeter areas are stabilized. A temporary outlet shall be constructed above the expected sediment levels. Construction of the basins shall be sequenced so that the temporary outlet is installed and basin embankment is constructed with the material available from the initial site excavations.

1.07 MAINTENANCE OF EROSION CONTROL MEASURES

A. The Contractor shall check the condition of erosion control devices daily and maintain them in good operating condition. Hay bales shall be replaced when deteriorated, and when required by the Engineer.

B. The Engineer shall inspect the condition of diversion dikes and ditches, filter berms, interceptor dikes, sediment basins and other erosion and sedimentation control devices after each rainstorm and during major storm events. Repairs shall be made as necessary and as required by the Engineer.

C. Accumulated sediment trapped by erosion and sedimentation control devices shall be removed as required by the Engineer.

D. During construction, temporary outlets of the drainage systems shall direct the flow to temporary or permanent sedimentation basins.

E. Temporary soil erosion and sedimentation control devices shall be removed and adjacent areas outside the limits of grading restored upon completion of the work or when required by the Engineer.

PART 2 PRODUCTS

2.01 MATERIALS

A. Erosion Control Blanket/Fabric Netting

Curlex blankets, as manufactured by American Excelsior Company

Polyjute Style 465 GT, as manufactured by Synthetic Industries or approved equivalent.

Tensar Erosion Mat, [TM2000, TB1000 or TM3000], as manufactured by the Tensar Corporation

B. Hay bale sediment traps consisting of hay bales banded with wire or nylon tape (minimum two banks for bale) approximately two-feet, six-inches in length. Stakes for hay bales shall be standard ½ inch reinforcing steel rods, steel pickers, 2 inch x 2 inch wood stakes or approved equivalent.

C. Silt fence fabric shall be 100x, as manufactured by Mirafi.

D. Turbidity Curtains shall be constructed of ultraviolet resistant geotextiles. Floatation supports shall be UV resistant and PVC coated. The ballast shall be chain which is heavy

enough to keep the curtains within 2 feet from the bottom with the expected currents at the site. They shall be joined where sections meet and the joint shall be capable of preventing 90% of the turbid water from passing through. All seams shall be double sewn with reinforced grommets spaced at 1'-0" on center maximum. Impermeable or semi-permeable curtains or screens shall be acceptable to the state and federal entities.

E. Filter fabric at construction entrance shall be 600x, as manufactured by Mirafi.

PART 3 EXECUTION

3.01 EROSION CONTROL–MONITORING

The Contractor will install stakes spaced approximately 25 yards apart along all boundaries between cleared areas and existing wooded wetlands. The stakes will be marked with marks every 2 inches so that increases in ground level can be noted. Increases of 2 inches require installation of control measures per the SWPPP.

3.02 EROSION CONTROL–HAY BALES

A. Hay bales may be installed at the following locations, as required by the Engineer or as shown on the Drawings:

1. Toe of Slope of embankment construction to filter all runoff flowing to off-site discharges.

2. Toe of temporary earthwork stockpile slopes.

3. Across construction ditch prior to entry into drainage system or waterway.

4. Each side of completed drainage inlets.

5. Other locations shown on the Contract Drawings or designated by the Engineer.

B. Tightly abut hay bales to form a continuous barrier. Secure bales in place with two stakes per bale. The bales shall be trenched 4 inches into the ground. Soils shall be constructed on the upside slope side of the bales. Deteriorated, destroyed or rotted bales shall be replaced immediately. Sediment shall be removed and disposed of periodically from behind the hay bales. The accumulated sediment shall not be allowed to rise above the mid height of the bale. All sediment, hay bales and appurtenances shall be removed and disposed of at the completion of the Contract unless directed otherwise by the Engineer.

3.03 TEMPORARY EROSION CONTROL MATS

A. Erosion control mats shall be installed in accordance with the manufacturers recommendations.

B. All areas shall be smooth graded and compacted. Remove all rocks, dirt clods, vegetation and other obstructions that may cause damage to the mats.

C. Unroll mats parallel to the direction of water flow and lay flat against the ground. Overlap roll ends 1-2 feet with upslope mat on the top to prevent uplift of mat end of water flow. Overlay adjacent edges of mat by six inches. Extend mat 2-3 feet above the crest of steep slopes and anchor by excavating a 6 inch deep trench, and secure end of mat in trench, backfill and compact. Secure mat to the ground using staples or pins furnished by manufacturer of mat.

3.04 SILT FENCE

A. Silt fence shall be installed as shown on the Drawings or as directed by Engineer.

B. Supporting posts shall be spaced 4 feet on center, and driven at least two feet into the ground. Posts shall be 2 inch square or heavier wood posts, or standard steel posts.

C. Fabric shall be anchored in a 4-inch deep trench dug on the upslope side of the posts. The trench shall be at least 6 inch wide. The fabric shall be laid in the trench, backfilled and compacted.

D. Fabric rolls shall be spliced at posts. The fabric shall be overlapped 6 inches, folded over and securely fastened to posts.

E. Silt fences shall be inspected immediately after each storm event and at least daily during prolonged rainfall.

3.05 CONSTRUCTION ENTRANCE

The construction entrance is to be paved with crushed stone to minimize tracking of soil onto the nearby highway. An additional area may be added by the contractor for tire washing as per the SWPPP.

END OF SECTION