

- H. Riprap: A layer of stone designed to protect slopes that are subject to erosion.
- I. Rock Outlets: Rock placed at the outlet end of culverts, conduits or channels.
- J. Stream Bank Protection: Stabilization of eroding stream banks through use of riprap, gabions or pre-cast concrete units.

#### **1.07 DEFINITIONS – VEGETATIVE MATERIALS MEASURES**

- A. Brush Matting: Hardwood brush layered along a stream bank with a grid of stakes and wire. This acts as a mulch for seedlings established in the bank.
- B. Dune Stabilization:
- C. Grassed or Vegetating Waterway: A parabolic or trapezoidal channel below adjacent ground level stabilized by vegetation to convey water without causing erosion.
- D. Mulches: Hay, straw, wood cellulose, fiber mats, flexible growth medium and other materials approved by the Engineer.
- E. Protecting Vegetation: Protecting trees, shrubs, ground cover and other vegetation from damage.
- F. Temporary Seeding: Erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion.
- G. Permanent Seeding: Grasses established and combined with shrubs to provide perennial vegetative cover on disturbed, denuded, slopes subject to erosion.
- H. Sod: Used where a quick vegetative cover is required.
- I. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.
- J. Stream Bank Protection: Stabilization of eroding stream banks through use of vegetation.
- K. Temporary Swale: A temporary excavated drainage swale.
- L. Topsoil: Placed before permanent seeding or sod is installed.

#### **1.08 DEFINITIONS – BIOTECHNICAL MATERIALS MEASURES**

- A. Vegetative Rock Gabions: A combination of vegetation and rock gabions for slope stabilization. Live branch cuttings are layered through the gabion protruding beyond the face of the gabion.
- B. Live Fascines: Bundles of branches staked into shallow trenches which are then filled with soil. They are oriented along a contour and placed in multiple rows.

- C. Brush Matting: Hardwood brush layered along a stream bank with a grid of stakes and wire. This acts as a mulch for seedlings established in the bank.
- D. Live Staking: Large stakes sharpened at the bottom end and forced vertically into the ground.
- E. Brush Layering: Stabilize slope areas above the flow line of stream banks. Long branches are placed with cut ends into a terraced slope.
- F. Live Crib Wall: A combination of vegetation and structural elements used along streams where flowing water is a hazard. Layers of logs are alternated with long branches protruding out between them.
- G. Tree Revetment: Used for bank stabilization by placing tree trunks and branches overlapped and anchored to absorb energy, reduce velocity and capture sediment.
- H. Branch Packing: Alternates live branch cuttings and tamped backfill to repair small localized holes in slopes. Used for areas less than 4' deep and 6' wide.
- I. Fiber Roll: A coconut fiber, straw, or excelsior woven roll encased in a netting of jute, nylon, or burlap to dissipate water energy and provide a medium for introduction of herbaceous vegetation. Anchor into a bank and provide suitable backfill behind the roll where vegetation can be planted.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Plant Materials for biotechnical slope protection: Locate stands of specified species and obtain approval to harvest material from these stands or obtain from managed production beds that are maintained for commercial distribution. Install all plant materials within 8 hours of cutting or provide proper storage.
  - 1. Shrub willows: "Streamco" purpleosier willow, and "Bankers" dwarf willow.
  - 2. Redosier Dogwood
- B. Seeding: Permanent see Section 02921.

### **2.02 COMPANIES-TEMPORARY STRUCTURAL**

#### **SILT FENCE**

- A. Mirafi, 365 South Holland Drive, Pendergrass, Ga, 30567, (888) 795-0808, [www.mirafi.com](http://www.mirafi.com).

#### **EROSION CONTROL BLANKET**

- B. North American Green, 14649 Highway 41 North, Evansville, IN 47725, (800) 772-2040, [www.nagreen.com](http://www.nagreen.com).

**TURBIDITY BARRIERS**

- C. Silt-dam Inc., P.O. Box 960, Brockton MA, 02303, (800) 699-2374,  
[www.spilldam.com](http://www.spilldam.com).

**FIBER ROLL, EROSION CONTROL BLANKET**

- D. Nedia Enterprises, Inc., 22187 Vantage Pointe Place, Ashburn, VA 20148, (888)  
725-6999, [www.nedia.com](http://www.nedia.com).

**FIBER ROLL**

- E. Belton Industries, 5600 Oakbrook Parkway, Norcross GA., 30093, (800) 225-  
4099, [www.beltonindustries.com](http://www.beltonindustries.com).

**FIBER ROLL**

- F. KriStar, 1219 Briggs Ave., Santa Rosa, CA 95401, (800) 579-8819,  
[www.kristar.com](http://www.kristar.com).

**FIBER ROLL**

- G. Rolanka International Inc., 155 Andrew Drive, Stockbridge GA 30281, (800)  
760-3215, [www.rolanka.com](http://www.rolanka.com).

**DUST ABATEMENT**

- H. Apex Resources Inc., 12910 Shelbyville Road, Louisville, KY 40243 (888) 677-  
2739, [www.apexr.com](http://www.apexr.com).

**DUST ABATEMENT**

- I. MonoSol, LLC, 707 E. 80<sup>th</sup> PL., Merrillville, IN 46410 (800) 237-9552,  
[www.terraloc.com](http://www.terraloc.com).

**TURBIDITY CURTAIN**

- J. Brockton Equipment Inc., P.O. Box 960, Brockton, MA 02303 (800) 699-2374,  
[www.spilldam.com](http://www.spilldam.com).

**TURBIDITY CURTAIN**

- K. Aer-Flo Inc., 4455 18<sup>th</sup> St. East, Bradenton, FL 34203 (800) 823-7356,  
[www.aerflo.com](http://www.aerflo.com).

**STREAM STABILIZATION**

- L. Contech Construction Products Inc., 9025 Centre Point Drive, Suite 400, West  
Chester, Ohio 45069, (800) 338-1122, [www.contech-cpi.com](http://www.contech-cpi.com).

THE FOLLOWING COMPANIES ARE MANUFACTURERS OF PERMANENT  
STRUCTURAL PRODUCTS. SEE HIGHLIGHTED NOTES TO DETERMINE THE SPECIFIC  
PRODUCTS MANUFACTURED BY EACH COMPANY.

**2.03 COMPANIES-PERMANENT STRUCTURAL**

**GABIONS, RETAINING WALLS, STONE MATTRESSES**

- A. Contech Construction Products Inc., 9025 Centre Point Drive, Suite 400, West  
Chester, Ohio 45069, (800) 338-1122, [www.contech-cpi.com](http://www.contech-cpi.com).

THE FOLLOWING COMPANIES ARE MANUFACTURERS OF VEGETATIVE PRODUCTS. SEE HIGHLIGHTED NOTES TO DETERMINE THE SPECIFIC PRODUCTS MANUFACTURED BY EACH COMPANY.

**2.04 COMPANIES-VEGETATIVE**

- A. Nedia Enterprises, Inc., 22187 Vantage Pointe Place, Ashburn, VA 20148, (888) 725-6999, [www.nedia.com](http://www.nedia.com).

**VEGETATIVE RETAINING WALLS, NATIVE PLANTS**

- B. Agrecol Corporation, 2918 Agriculture Drive, Madison, Wi, 53718, (608) 226-2544, [www.agrecol.com](http://www.agrecol.com).

THE FOLLOWING COMPANIES ARE MANUFACTURERS OF BIOTECHNICAL PRODUCTS. SEE HIGHLIGHTED NOTES TO DETERMINE THE SPECIFIC PRODUCTS MANUFACTURED BY EACH COMPANY.

**2.05 COMPANIES-BIOTECHNICAL**

**BIODEGRADABLE BLANKETS**

- A. Rolanka International Inc., 155 Andrew Drive, Stockbridge GA 30281, (800) 760-3215, [www.rolanka.com](http://www.rolanka.com).

**FIBER ROLL**

- B. Nedia Enterprises, Inc., [www.nedia.com](http://www.nedia.com).
- C. Kristar (800) 579-8819.

**PART 3 EXECUTION**

**3.01 WORK AREAS**

- A. The Engineer has the authority to limit the surface area of erodible earth exposed by earthwork operations and to direct the Contractor to provide immediate temporary or permanent erosion measures to minimize damage to property and contamination of watercourses and water impoundments. Under no circumstances will the area of erodible earth material exposed at one time exceed 50,000 sq. ft. The Engineer may increase or decrease this area of erodible earth material exposed at one time as determined by his analysis of project, weather and other conditions. The Engineer may limit the area of clearing and grubbing and earthwork operations in progress commensurate with the Contractor's demonstrated capability in protecting erodible earth surfaces with temporary, permanent, vegetative or biotechnical erosion control measures.
- B. Schedule the work so as to minimize the time that earth areas will be exposed to erosive conditions. Provide temporary structural measures immediately to prevent any soil erosion.
- C. Provide temporary seeding on disturbed earth or soil stockpiles exposed for more than 7 days or for any temporary shutdown of construction. In spring, summer or early fall apply rye grass at a rate of 1 lb/ 1000 sq.ft. In late fall or early spring,

apply certified Aroostook Rye at a rate of 2.5 lbs./ 1000 sq. ft. Apply hay or straw at a rate of 2 bales/ 1000 sq. ft. or wood fiber hydromulch at the manufacturer's recommended rate. Hay or straw shall be anchored.

- D. Coordinate the use of permanent controls or finish materials shown with the temporary erosion measures.
- E. All erosion and sediment control devices must be maintained in working order until the site is stabilized. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, or re-mulching, must be performed immediately.
- F. After final stabilization has been achieved temporary sediment and erosion controls must be removed. Areas disturbed during removal must be stabilized immediately.

**END OF SECTION**