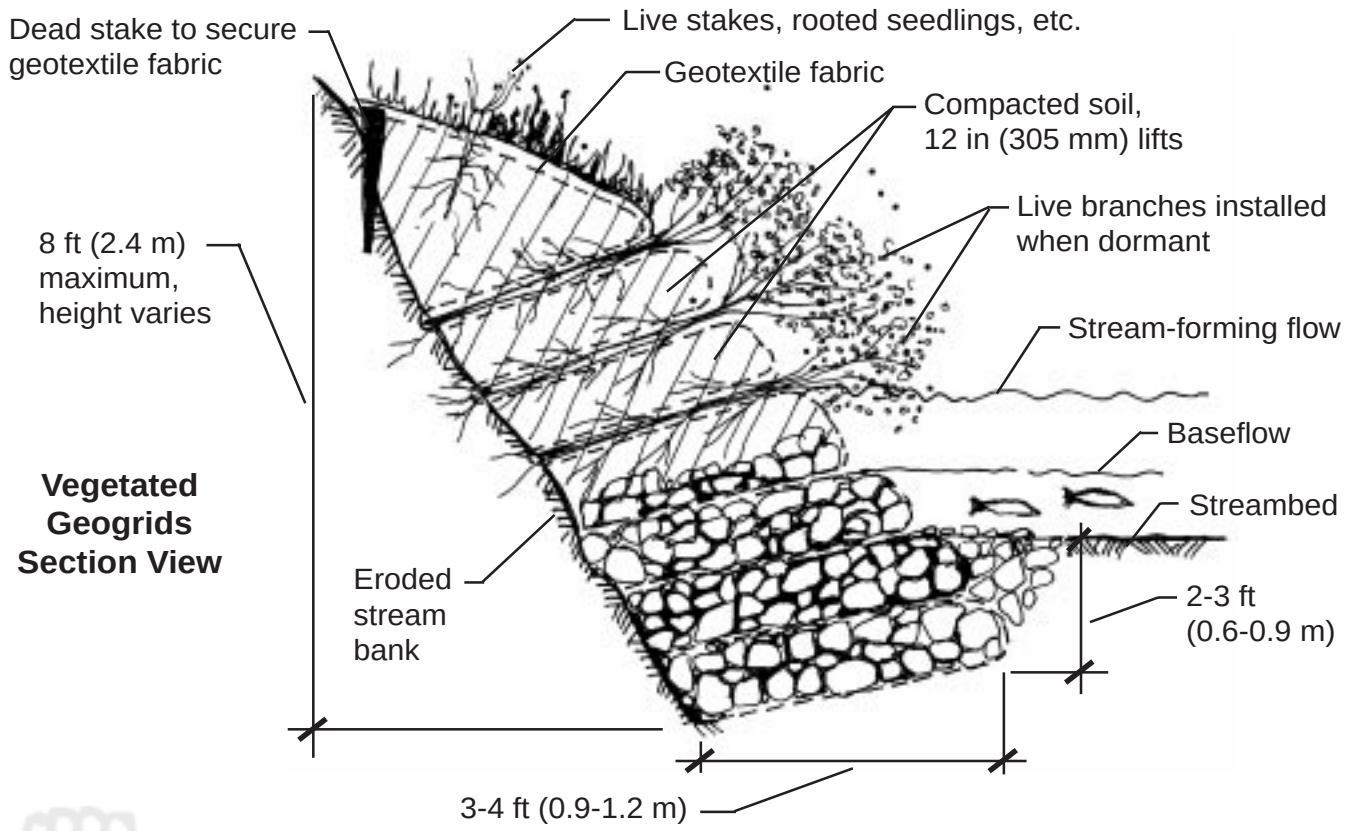
PRIMARY USE: Minimize bank erosion.
ADDITIONAL USES: Improve habitat for aquatic plants and animals, contribute to food web dynamics, and enhance aesthetics through the establishment of vegetation.

VEGETATED GEOGRIDS

What is it? Vegetated geogrids are similar to branchpacking except that natural or synthetic geotextile materials are wrapped around each soil lift and live branch cuttings are placed between them.

Purpose

Vegetated geogrids are useful for rebuilding very steep eroded streambanks or configuring new banks in stream realignment projects with slopes too steep for normal brushlayering. They offer a higher initial tolerance of velocity than traditional brushlayering techniques. Once the live cuttings become established, their root systems penetrate the grids and the entire system becomes a cohesive mass.



Vegetated Geogrids Section View

Limitations

Systems over 7 ft (2 m) in height and 20 ft (6 m) in length should have an engineering analysis for slope stability. This techniques requires both heavy equipment and intensive manual labor to install.

Materials

Dormant branches from 0.5 to 2 in (13 to 51 mm) in diameter, long enough to reach the back of the trench to be filled and to extend slightly beyond the surface of the competed slope. Geotextile, live stakes and dead stakes, and plants to be installed on top of slope are also necessary.

Installation

Excavate the base trench to a level below expected scour in the streambed. Make the trench 3-4 ft (0.9-1.2 m) wide, sloping slightly towards the streambank. Select and install a technique to protect the toe of the slope such as backfilling with rock riprap. Overlay the toe protection with geotextile. Place an initial layer of branches 4-6 in (102-152 mm) thick over the surface of the geotextile perpendicular to the slope face with the growing tips generally protruding from the slope face.

Source: Stream Corridor Restoration Handbook, USDA.

VEGETATED GEOGRIDS

Installation guidelines continued:

Be sure that the entire surface is covered and that the basal ends penetrate the back side. Wrap geotextile back over the branch layer. Place and compact soil material over the branches in a lift thickness from 1-2.5 ft (0.3 to 0.76 m) along the slope. Compact each 3 in (76 mm) layer of fill. Repeat this layering sequence. A relief drain installed at the rear of the trench and above the base flow level will reduce potential soil pore pressures and protect against slumping if seepage is occurring. Use temporary batter boards or burlap to form an even face and to contain the fines within the lifts.

Source: Stream Corridor Restoration Handbook, USDA.