



Wetland Sod Staking Guidelines

Background

We are frequently asked by project engineers, landscape architects and installers about best practices for securing Wetland Sod Mats on a site during installation. There are a number of factors or site conditions that could dislodge mats prior to establishment. Soil type in the installation zone is a primary consideration as highly erosive, sandy soils can be the most challenging for initial mat anchoring. Other site issues to be considered on streams include: sheer stress, installation timing, watershed attributes (e.g. flashiness) and climate; because higher colder sites require longer plant establishment times. Shoreline factors, in addition to those mentioned for streams, also include fetch (as it relates to wave energy) and hydrology (natural vs. controlled). For example tidally influenced systems require special attention to initial mat anchoring.

North Fork Native Plants has developed common guidelines for initial Wetland Sod mat anchoring but every application is unique and may require additional attention to design details. Ultimately, an established wetland plant community will bind soils to create bank cohesion, prevent erosion and stabilize the site. In most cases it will take an entire growing season to achieve that level of root establishment; although gradual levels of stability are achieved as rooting progresses.

In the interim period, the following is intended to provide some insight into developing an effective staking plan for installing Wetland Sod Mats.

Low Potential Energy Sites

Option 1 – *Natural Rock Materials, No Stakes*

Possible Application: Lined or Unlined Pond Edge, Floating or Earthen Islands, Low Lying Wetlands, Low Gradient Spring Creeks or Streams

Material Size: 4-9”diam. depending on weight

Pieces Per Mat: 6 to 10 depending on weight

Comments: In some cases staking is not an option on a site. As an example, ponds constructed with artificial liners may prohibit stakes since they would likely puncture the liner. In other instances clients may be adamant about not seeing stakes and require a more natural approach.

Using rock may be necessary to temporarily anchor the mat during initial establishment. Until the roots integrate into soil, there is a risk that the mat could float if any portion is placed in standing water. It is critical to maintain consistent root-to-soil contact for the first 4-6 weeks post installation so that plants can establish as quickly as possible.

Low Potential Energy Sites (cont.)

Option 2 - Low Density Staking, Small Stature Stakes

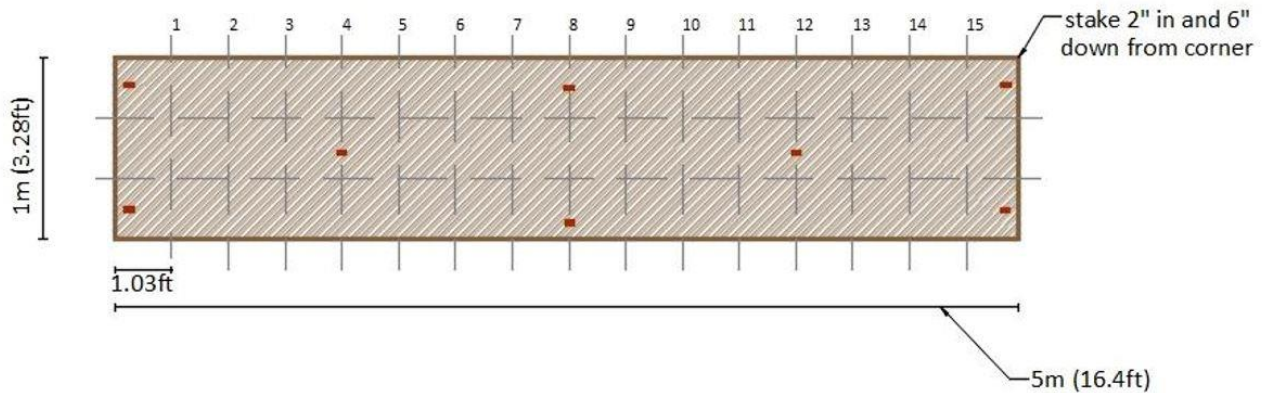
Possible Application: Unlined Pond Edge, Low Lying Wetlands, Low Gradient Spring Creeks or Streams

Stake Size: 1" x 2" x 12" Survey Stakes

Stake Qty Per Mat: 8 to 10

Comments: Overlap ends of two mats (2-4") if installing in a linear fashion

Overlap sides of mats if installing multiple rows



Use 8 stakes (1"x2"x12" wood); 2 on each end near the corners, 2 in the middle near the top and bottom, and 2 more spaced evenly between the middle and the ends. If overlapping sod mats, move stakes closer to the edges (~2" from edge) to catch overlap of adjacent mats.

Medium Potential Energy Sites

Medium-to-High Density Staking, Medium Stature Stakes

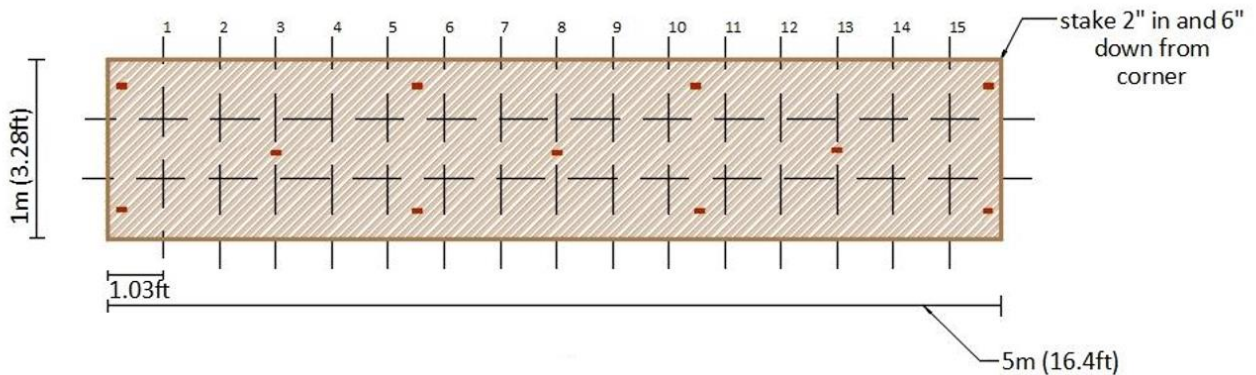
Possible Application: Medium Gradient Spring Creeks or Streams with clay based soils

Stake Size: 1" x 2" x 16" Survey Stakes

Stake Qty Per Mat: 10 to 12

Comments: Overlap ends of two mats (2-4") if installing in a linear fashion

Overlap sides of mats if installing multiple rows



Use 8 stakes (1"x2"x12" wood); 2 on each end near the corners, 2 in the middle near top and bottom, and 2 more space evenly between the middle and the ends. If overlapping sod mats, move stakes closer to the edges (~2" from edge) to catch overlap of adjacent mats.

High Potential Energy Sites

High Density Staking – Large Stature Stakes

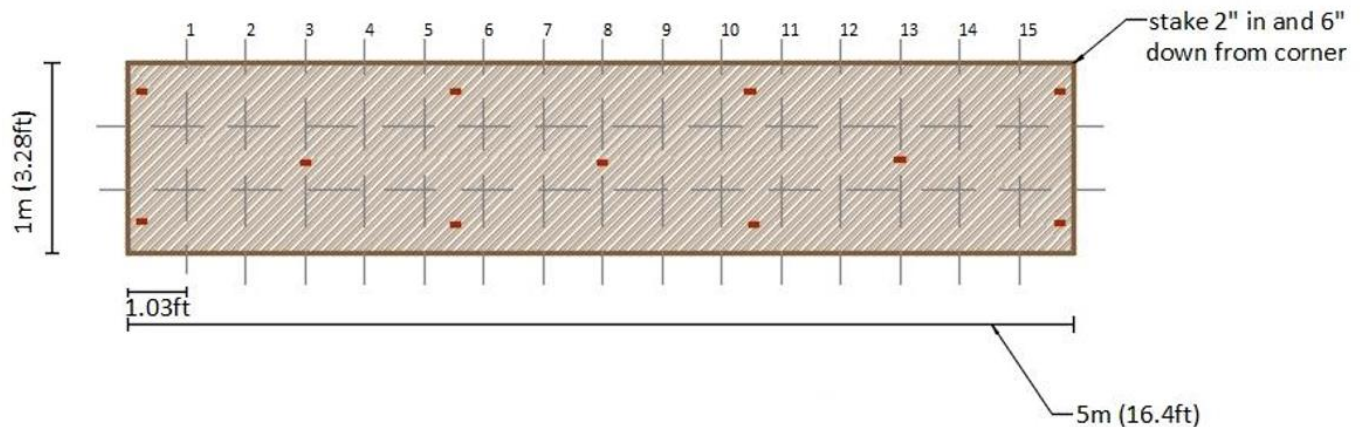
Possible Application: Flashy Streams with highly erosive, sandy soils

Stake Size: 2" x 4" x 24" Cut diagonally

Stake Qty Per Mat: 8 to 12

Comments: Overlap ends of two mats (2-4") if installing in a linear fashion

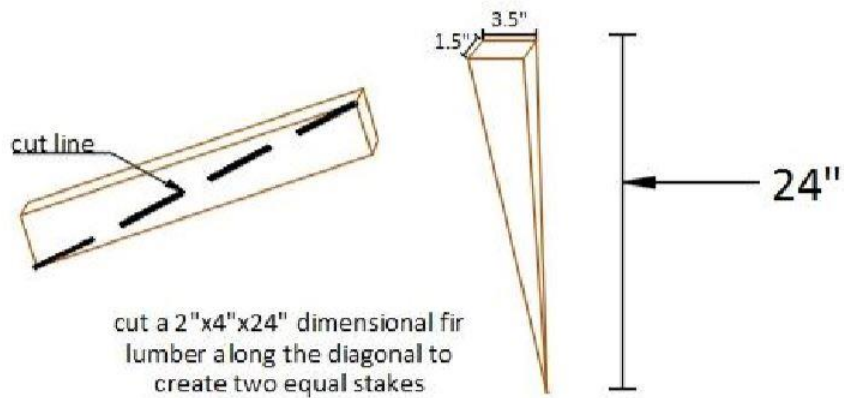
Overlap sides of mats if installing multiple rows



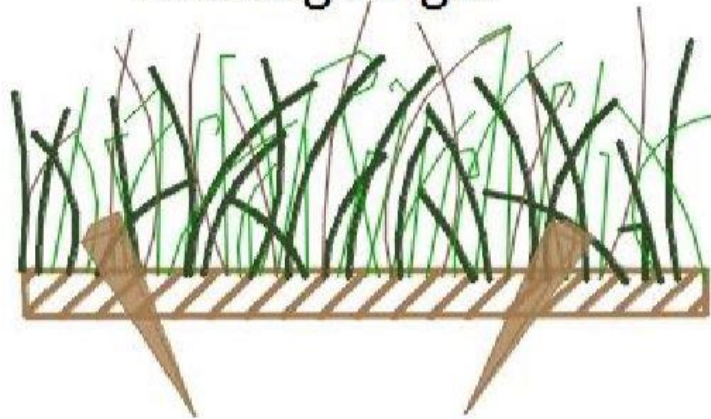
Use 11 large stature stakes (cut from 2"x4" dimensional fir lumber – see inset); 2 on each end near the corners, 2 sets of 2 near top and bottom evenly space between the ends, and 3 more space evenly between the ends. If overlapping sod mats, move stakes closer to the edges (~2" from edge) to catch overlap of adjacent mats.

Staking Angles and Large Stature Stakes

Large Stature Stakes



Staking Angle



Stakes should be inserted at an angle to pin coir fabric tightly to the ground until plants can root. Angles can be adjusted depending on substrate.

*drawing not to scale