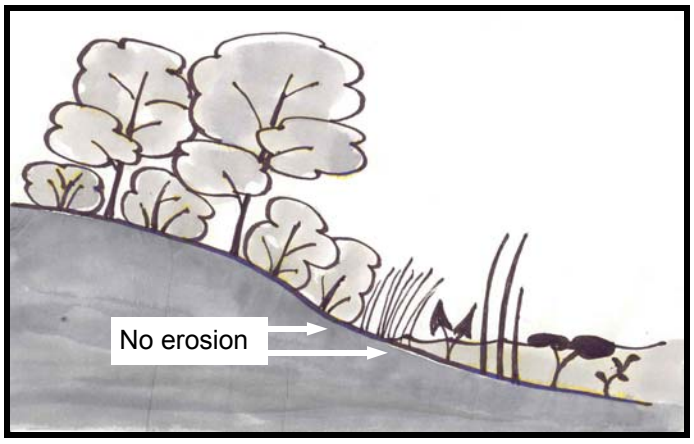
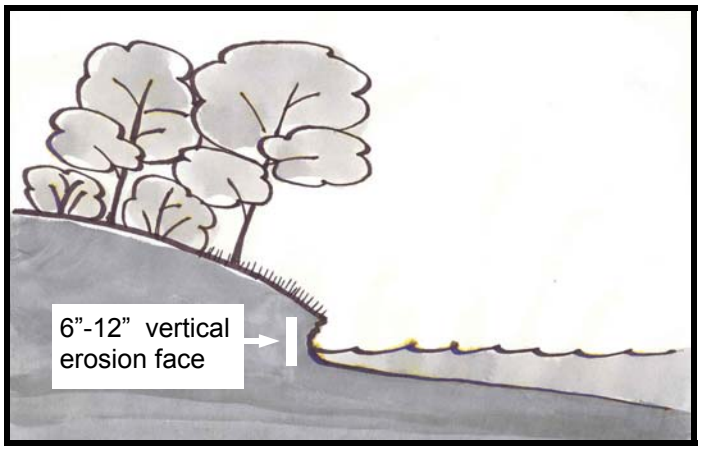
Shoreland Erosion Control for Property Owners

What does your shore look like?



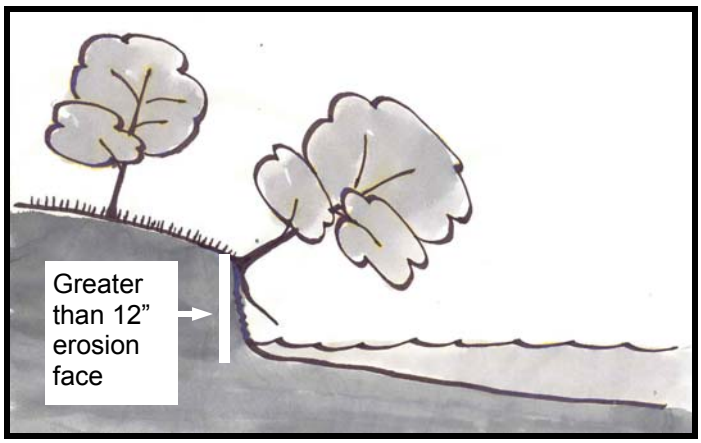
Shores with **little to no erosion** should be left alone. Encourage native vegetation in the aquatic, wet transition and upland areas. Native vegetation will continue to protect the shore against erosion.

Shores with **slight to moderate erosion** can benefit from one or more of the methods described in this fact sheet.



Consult the following pages and select an appropriate option(s) to protect your shoreline from further erosion.

Shores with **moderate to severe erosion** need more aggressive erosion control than the methods described in this fact sheet. Contact your local Soil and Water Conservation District:



Option 1

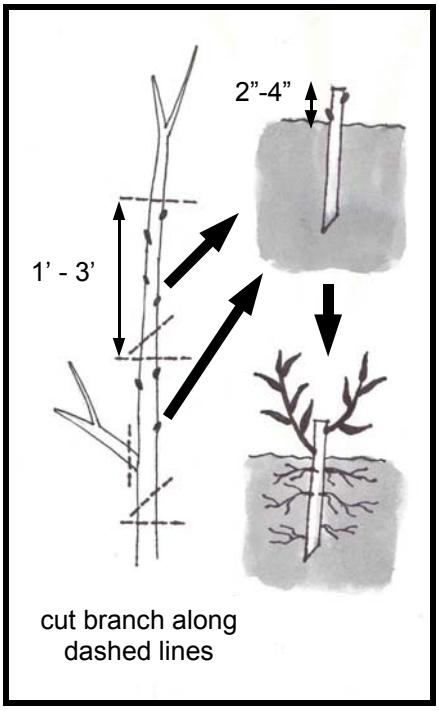
LIVE STAKES

What are live stakes?

Live stakes are dormant shrub/tree branches that are placed partially into the ground with the intention of sprouting roots and branches to form a living shrub/tree.

When should live stakes be used?

They are typically used along a shoreline where a network of stout roots is needed to provide structure to the soil in order to resist ice and wave action and prevent slumping of large blocks of soil. They can be used in addition to willow wattles and fiber logs.



cut branch along dashed lines

How to install live stakes:

1. Locate a source of appropriate live stake material (see description on this page). These species may be easiest to locate when leafed out during the growing season prior to installation. Mark with flags, as necessary, to relocate.
2. Plan to install the live stakes as soon as the frost is out of the ground in the spring. A maul, 3' length of rebar, lopper, pruning sheers, and bucket will be needed.
3. Cut 1'-3' lengths of branches that are 1/2"-1" in diameter. Mark the top end by cutting it straight across and the bottom end by cutting it at an angle. Smaller side branches can be pruned back to the main branch (see diagram).
4. Put the cut branches, bottom end down, in a bucket of water. Keep them in cool, dark, wind-free conditions during transport (and also during storage if unable to plant the same day). The survival rate of live stakes is greatest if they are cut and installed the same day.
5. To plant, drive a pilot hole using the rebar and maul and insert the live stake. Trim the stake tops to within 2"-4" of the ground, making sure only 2 buds remain on the exposed part of the stake. These will later sprout and form branches.
6. Water to ensure good contact between the soil and the live stake.

SPECIES USED FOR LIVE STAK IN THE GREAT LA

Sandbar Willow*
(*Salix exigua*)

A shrub with very narrow, long leaves having fewer teeth than other willows. Identify in summer for use the following spring.

Red-osier Dog
(*Cornus stolonif*)

A shrub with brigh branches dotted w lenticels. Can be i spring.

* Note: other willow species may be used

WILLOW WATTLES (or Live Fascines)

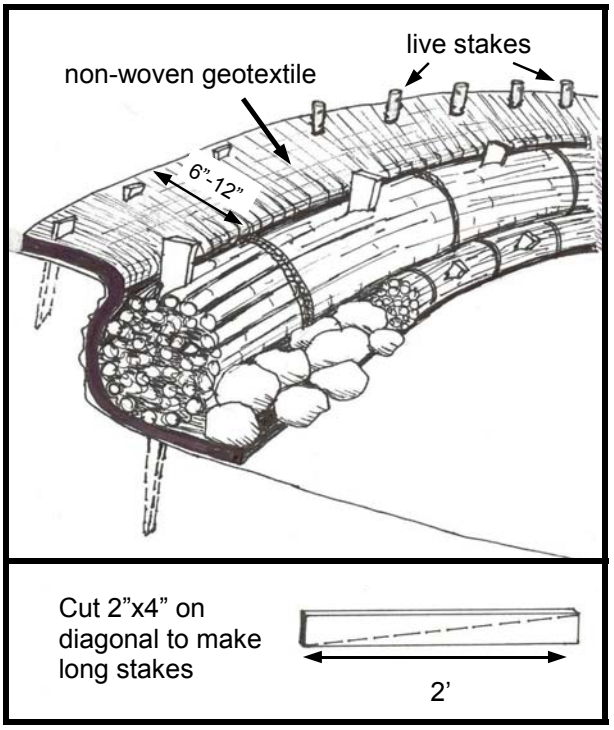
Option 2

What are willow wattles?

Willow wattles are long bundles of dormant shrub/tree branches that are secured along an erosion surface with the dual intentions of physically dissipating wave energy and further stabilizing a shoreline by sprouting roots and branches to form a living wall of vegetation.

When should willow wattles be used?

They should be used to prevent further erosion of the vertical erosion face along an undercut shoreline when woody vegetation at the water's edge is desired.



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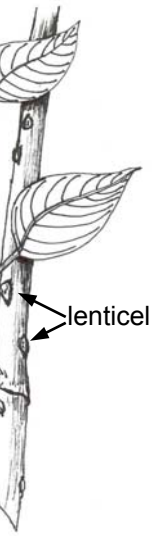
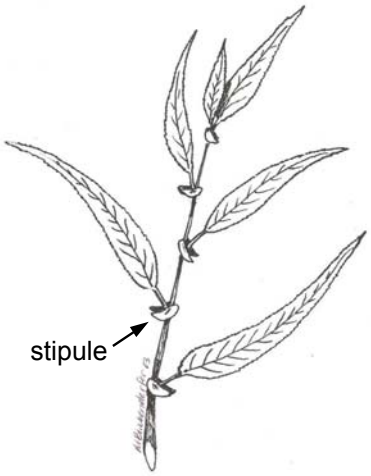


Black Willow*
(*Salix nigra*)

A tree with narrow, toothed, lance-shaped leaves that are green on both upper and lower surfaces. Heart-shaped stipules. Identify in summer for use the following spring.



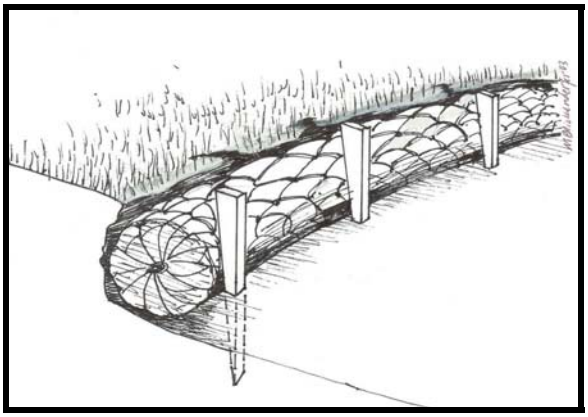
d, but anticipate a lower survival rate.

How to install willow wattles:

1. Assemble the necessary materials and tools. Obtain a piece of non-woven geotextile 4' wide that will cover the entire length of the erosion face (contact SWCD for sources). Small wooden stakes used to anchor the top of the fabric can be made from scrap lumber or live stakes. Large wooden stakes used to anchor the wattle should be made from 2"x4" lumber (see diagram). Plan for one small stake every 2' and one large stake every 4' of the entire length. A maul, synthetic cord, and scissors will also be needed for installation.
2. Follow steps 1-4 of live stake installation, ***except*** cut branches 6'-10' in length and ***do not*** trim.
3. Lay the branches in a linear pile, staggering the cut ends along the entire length. Keep adding branches until the length of the branch pile equals that of the erosion face and the diameter of the compressed pile equals the height of the erosion face.
4. Tie the branch pile at 2'-4' intervals with synthetic cord, compressing branches tightly before securing each cord.
5. Cover the erosion face with geotextile, anchoring it along the top of the erosion face with small wooden stakes every 2 feet.
6. Place the willow wattle firmly against the erosion face, bending it to fit the bank contour. Secure the wattle with large wooden stakes driven through it every 4 feet.
7. Secure the submerged edge of geotextile with rocks or a smaller diameter willow wattle (see diagram).
8. Additional live stakes can be installed through the exposed geotextile.

Option 3

FIBER LOGS



What are fiber logs?

Fiber logs are made of compressed coconut fiber surrounded by a mesh tube. The logs are usually 20' long and 12" in diameter.

When should fiber logs be used?

Fiber logs can be used in place of willow wattles as temporary protection (3-5 years) to prevent further erosion of a vertical erosion face. They can be used in conjunction with live stakes when a more permanent protection is desired.

How to install fiber logs:

1. Assemble the necessary tools and materials. Obtain enough fiber logs to equal the length of the erosion face (contact SWCD for sources). Prepare large stakes (see diagram for willow wattle). You will need 5 stakes for every 20' length of log used. A maul will also be needed for installation.
2. Place the log firmly against the erosion face, bending it to fit the bank contour.
3. Drive a stake into the ground every 4 feet, wedging the log tightly between the stake and the erosion face. If using more than one log, place them end-to-end along erosion face.
4. If woody vegetation is needed for stabilization, live stakes can be driven through the log or into the bank on the landward side of the log in the early spring.

University of Minnesota Extension Service

NRCS Natural Resources Conservation Service

Itasca County Soil and Water Conservation District

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