

STANDARD AND SPECIFICATIONS FOR LIVE STAKES



Definition

A stake or pole fashioned from live woody material.

Purpose

To create a living root mat that stabilizes the soil by reinforcing and binding soil particles together and by contributing to the reduction of excess soil moisture.

Conditions Where Practice Applies

Live stakes are an appropriate technique for repair of small earth slips and slumps that are frequently wet and for stabilizing raw streambanks. This technique is for relatively uncomplicated site conditions when construction time is limited and an inexpensive vegetative method for stabilization is derived. It is not intended where structural integrity is required nor to resist large, lateral earth pressures.

Design Criteria

1. Live stakes shall be 1 - 2 inches in diameter and 2-6 feet long, depending on site application.
2. No leaf buds shall have initiated growth beyond 1/4" and the cambium layer shall be moist, green and healthy.
3. All material shall be maintained in a continuously cool, covered, and moist state prior to use and be in good condition when installed.

4. Materials harvested on site shall be installed the same day they are prepared. Nursery grown material shall be maintained in a moist condition until installed.
5. Installation Details
 - a. The lengths of live cuttings/live stakes depends upon the application. If through riprap, the length shall extend through the surface of the stone fill. At least half the length shall be inserted into the soil, below the stone fill.
 - b. Minimum 2 to 4 inches and two live buds of the live stake shall be exposed above the stone filling.
 - c. Live stakes shall be cut to a point on the basal end for insertion in the ground.
 - d. Use a dead blow hammer to drive stakes into the ground. The hammer head should be filled with shot or sand. A dibble, iron bar, or similar tool shall be used to make a pilot hole to prevent damaging the material during installation.
 - e. Live cuttings shall be inserted by hand into pilot holes.
 - f. When possible, tamp soil around live stakes.
 - g. Care shall be taken not to damage the live stakes during installation. Those damaged at the top during installation shall be trimmed back to undamaged condition.

Maintenance

Due to the susceptibility of plant materials to the physical constraints of the site, climate conditions, and animal populations, it is necessary to inspect installations frequently. This is especially important during the first year or two of establishment. Plant materials missing or damaged should be replaced as soon as possible. Sloughs or breaks in drainage pattern should be reestablished for the site as quickly as possible to maintain stability.

**Figure 4.4
Live Stake**

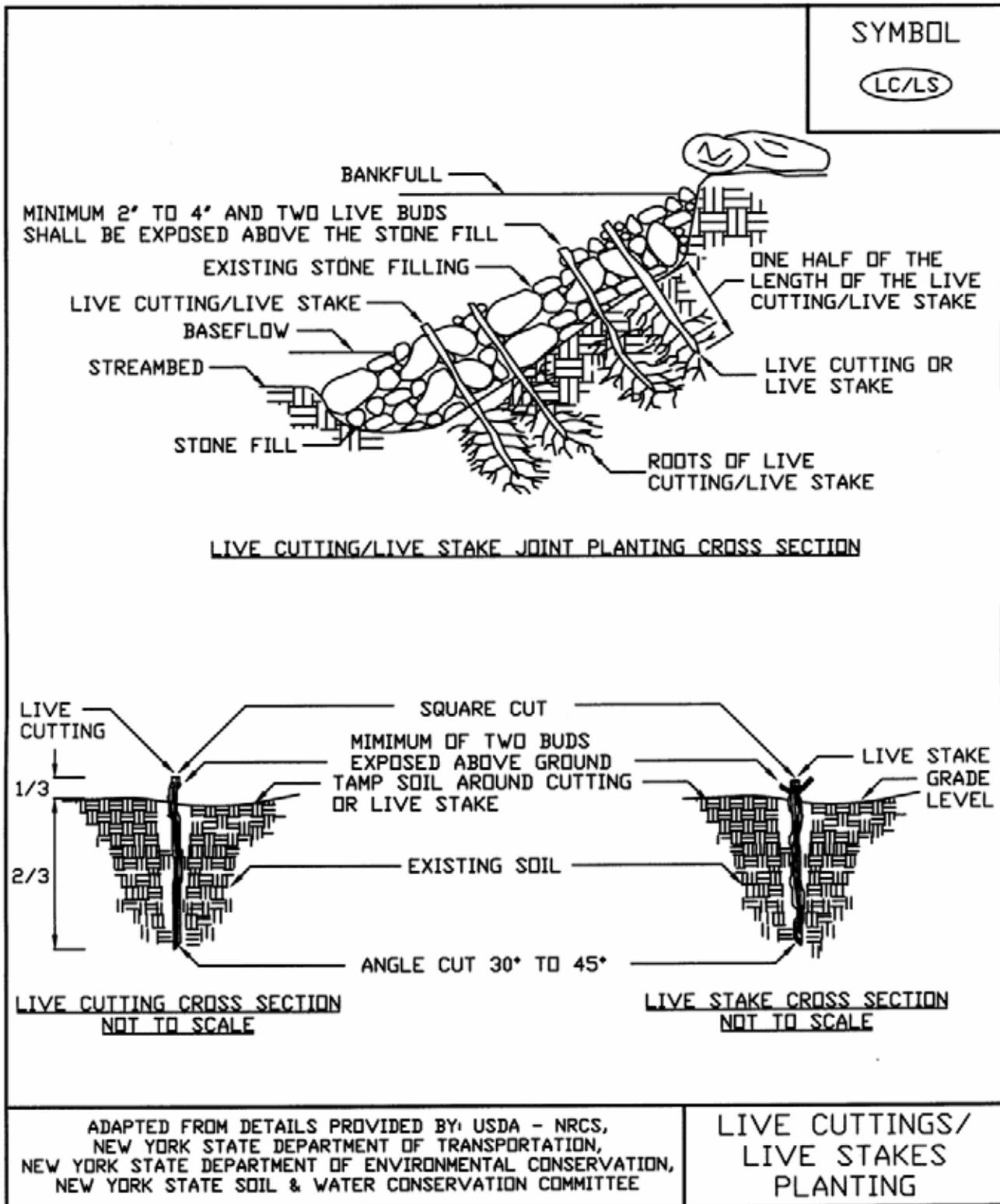


Figure 4.4A Live Stake Construction Specifications

	<p>SYMBOL</p> 
<p><u>CONSTRUCTION SPECIFICATIONS</u></p>	
<ol style="list-style-type: none"> 1. CARE SHALL BE TAKEN NOT TO DAMAGE THE LIVE CUTTINGS/LIVE STAKES DURING INSTALLATION. THOSE DAMAGED SHALL BE LEFT IN PLACE AND SUPPLEMENTED WITH AN INTACT LIVE CUTTING/LIVE STAKE. 2. THE LENGTHS OF LIVE CUTTINGS/LIVE STAKES DEPENDS UON THE APPLICATION. THE LENGTH SHALL EXTEND THROUGH THE SURFACE OF THE STONE FILL. AT LEAST HALF THE LENGTH SHALL BE INSERTED INTO THE SOIL, BELOW THE STONE FILL. 3. A PILOT HOLE IS REQUIRED TO ENSURE THAT THE LIVE CUTTING/LIVE STAKE IS NOT DAMAGED WHEN DRIVEN THROUGH THE STONE FILLING. ACCESS SHALL BE MADE THROUGH THE USE OF A DIBBLE BAR, OR SIMILAR TOOL TO WORK AN OPENING THROUGH THE ROCK LAYER. 4. MINIMUM 2" TO 4" AND TWO LIVE BUDS OF THE LIVE CUTTING/LIVE STAKE SHALL BE EXPOSED ABOVE THE STONE FILLING. 5. LIVE CUTTINGS SHALL RANGE FROM 1/2" TO 1" IN DIAMETER AND BE FROM 1' TO 4' IN LENGTH. 6. LIVE STAKES SHALL RANGE FROM 1" TO 4" IN DIAMETER AND BE FROM 5' TO 6' IN LENGTH. 7. SEE CONTRACT DOCUMENTS FOR SPECIES, SIZE, SPACING, LOCATION, AND FINAL DETERMINATION ON USE OF CUTTINGS OR STAKES. 8. LIVE CUTTINGS/LIVE STAKES SHALL BE CUT TO A POINT ON THE BASAL END FOR INSERTION IN THE GROUND. 9. USE A DEAD BLOW HAMMER TO DRIVE STAKES INTO THE GROUND. THE HAMMER HEAD SHOULD BE FILLED WITH SHOT OR SAND. A DIBBLE, IRON BAR, OR SIMILAR TOOL SHALL BE USED TO MAKE A PILOT HOLE TO PREVENT DAMAGING THE MATERIAL DURING INSTALLATION. 10. LIVE CUTTINGS SHALL BE INSERTED BY HAND INTO PILOT HOLES. 11. WHEN POSSIBLE, TAMP SOIL AROUND LIVE CUTTINGS/LIVE STAKES. 12. ANY LIVE CUTTING/LIVE STAKE THAT IS DAMAGED SHALL BE LEFT IN PLACE AND SUPPLEMENTED WITH AN INTACT LIVE CUTTING/LIVE STAKE. 	
<p>ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE</p>	<p>LIVE CUTTINGS/ LIVE STAKES PLANTING SPECS</p>