STANDARD AND SPECIFICATIONS FOR LIVE CRIBWALL

Definition

A hollow box-like structure made with an interlocking arrangement of untreated logs or timber members spiked together and anchored into the slope. The structure is filled with suitable earthfill materials and layers of live branch cuttings which root inside the structure and extend into the slope.

Purpose

To protect exposed or eroded streambanks from the erosive forces of flowing water and stabilize the toe of slope to reduce steepness.

Conditions Where Practice Applies

Generally applicable where flows are less than 6 feet per second and no degradation of the streambed occurs. Can reduce steepness and provide stability where space is limited and a vertical structure is needed. It is not intended to be used where the integrity of a road or structure is dependant on the cribwall since it is not designed to resist large lateral earth pressures.

Design Criteria

1. The vegetated cribwall structure shall be designed to a height for its intended purpose.

2. Live branch cuttings should be 1/2 to 2 inches in diameter and long enough to reach from the front of the structure to the undisturbed soil.

3. The structure will be built with a batter of 1 to 12. Large spikes or rebar are required to secure the logs or timbers together (10 inches minimum).

4. Only untreated logs or timber shall be used in the cribwall.

5. Installation begins with excavating to a stable foundation 2' - 3' below the ground elevation at the toe of slope with the back of the excavation (to the slope) slightly deeper than the front.

6. The first course of logs is placed along the front and back of the excavated foundation approximately 4-5 feet apart and parallel to the slope contour.

7. The next course is placed at right angles on top of the previous course to overhang the front and back of the previous logs by 3-6 inches.

8. Each course is placed in the same manner and fastened to the preceding course to the desired grade.

9. Stone fill is placed in the bottom of the structure up to the ground level and up to the base flow in a stream channel.

10. Once the cribwall structure reaches the existing ground elevation, live branch cuttings are placed on the stone fill parallel with the slope contour.

11. The cuttings are then covered with select clean fill with a maximum size of 3 inches and not more than 20 percent passing a 200 sieve size.

12. The live branch cuttings shall be placed at each course followed by the select fill to the top of the structure with the growing tips slightly protruding from the cribwall face.

13. The plant materials shall be kept in a healthy growing condition by watering. Also see maintenance below.

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 4.6
Live Cribwall