

vegetated strips shall consist of undisturbed native growth with a well-developed soil that allows for infiltration of runoff.

- The slope within the vegetated strip shall be  $\leq 4H:1V$ .
- The uphill boundary of the vegetated strip shall be delineated with clearing limits.

### **Maintenance Standards**

- Any areas damaged by erosion or construction activity shall be seeded immediately and protected by mulch.
- If  $> 5$  feet of the original vegetated strip width has had vegetation removed or is being eroded, sod must be installed.
- If there are indications that concentrated flows are traveling across the vegetated strip, stormwater runoff controls must be installed to reduce the flows entering the vegetated strip, or additional perimeter protection must be installed.

## **BMP C235E: Wattles**

### **Purpose**

Wattles are temporary erosion and sediment control barriers consisting of straw, compost, or other material that is wrapped in biodegradable tubular plastic or similar encasing material. They reduce the velocity and can spread the flow of rill and sheet runoff and can capture and retain sediment.

### **Conditions of Use**

- Use wattles under the following conditions:
  - In disturbed areas that require immediate erosion protection
  - On exposed soils during the period of short construction delays or over winter months
  - On slopes requiring stabilization until permanent vegetation can be established
- The material used dictates the effectiveness period of the wattle. Generally, wattles are effective for one to two seasons.
- Prevent rilling beneath wattles by entrenching and overlapping wattles to prevent water from passing between them.

### **Design Criteria**

- See [Figure 7.26: Wattles](#) for typical construction details.
- Wattles are typically 8 to 10 inches in diameter and 25 to 30 feet in length.
- Install wattles perpendicular to the flow direction and parallel to the slope contour.
- Place wattles in shallow trenches staked along the contour of disturbed or newly constructed slopes. Dig narrow trenches across the slope (on contour) to a depth of 3 to 5 inches on clay

soils and soils with gradual slopes. On loose soils, steep slopes, and areas with high rainfall, the trenches should be dug to a depth of 5 to 7 inches or one-half to two-thirds the thickness of the wattle.

- Start building trenches and installing wattles from the base of the slope and work up. Spread excavated material evenly along the uphill slope and compact it using hand tamping or other methods.
- Construct trenches at contour intervals of 3 to 30 feet apart depending on the steepness of the slope, soil type, and rainfall. The steeper the slope the closer together the trenches.
- Install the wattles snugly into the trenches and overlap the ends of adjacent wattles 12 inches behind one another.
- Install stakes at each end of the wattle and at 4-foot centers along entire length of wattle.
- If required, install pilot holes for the stakes using a straight bar to drive holes through the wattle and into the soil.
- Wooden stakes should be 0.75 by 0.75 by 24 inches minimum. Willow cuttings or 3/8-inch rebar can also be used for stakes.
- Stakes should be driven through the middle of the wattle, leaving 2 to 3 inches of the stake protruding above the wattle.

### ***Maintenance Standards***

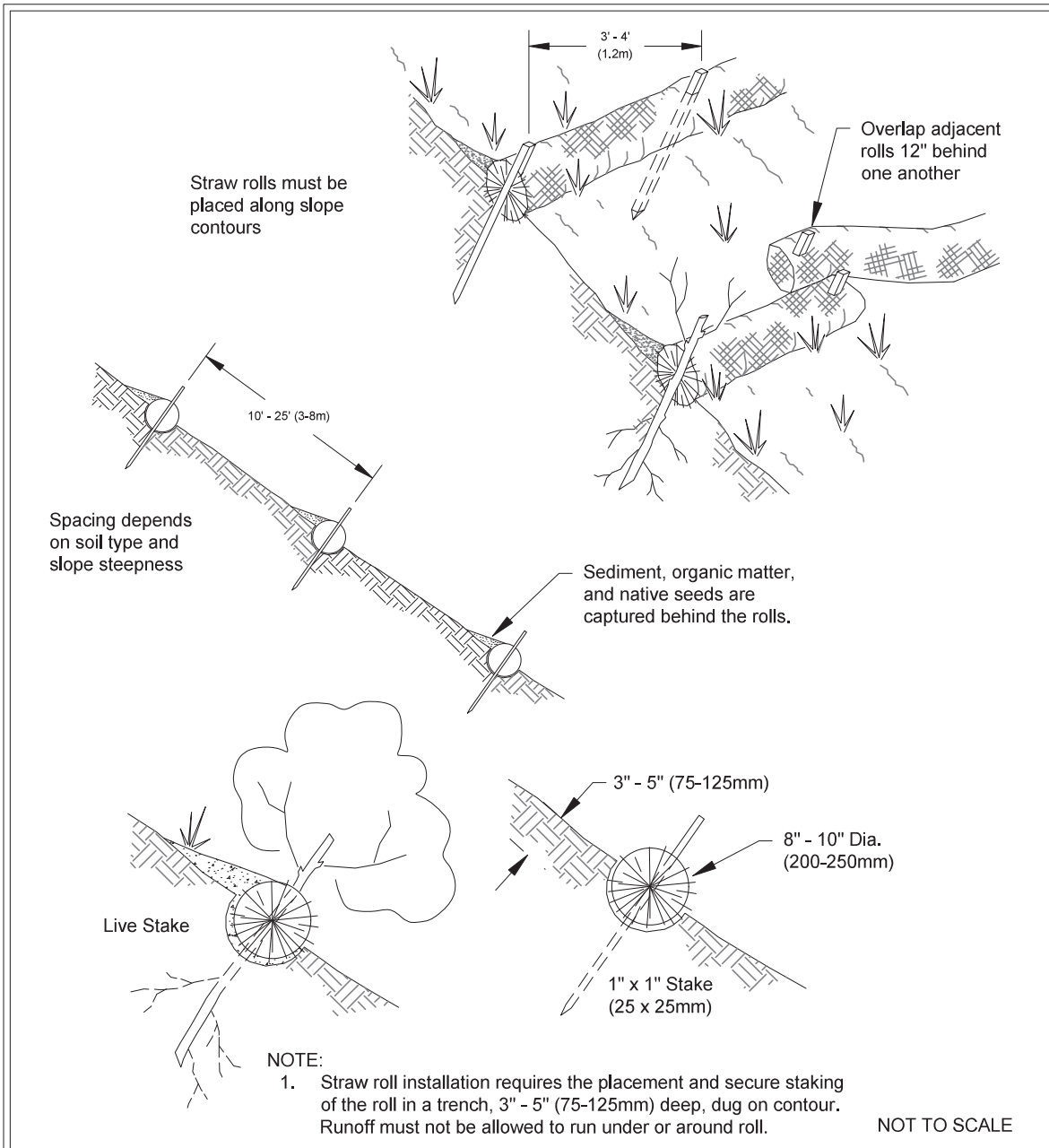
- Wattles may require maintenance to ensure they are in contact with soil and thoroughly entrenched, especially after significant rainfall on steep sandy soils.
- Inspect the slope after significant storms and repair any areas where wattles are not tightly abutted or water has scoured beneath the wattles.

### ***Approved as Functionally Equivalent***

The Washington State Department of Ecology (Ecology) has approved products as able to meet the requirements of this BMP. The products did not pass through the Technology Assessment Protocol–Ecology (TAPE) process. Local jurisdictions may choose not to accept these products or may require additional testing prior to consideration for local use. Products that Ecology has approved as functionally equivalent are available for review on Ecology’s Emerging Stormwater Treatment Technologies (TAPE) web page at the following address:

<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies>

**Figure 7.26: Wattles**



## Wattles

Revised June 2016

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.