

Description A fiber roll (wattle/compost-filled socks) consists of straw, flax, or other similar materials bound into a biodegradable tubular plastic or similar encasing material. When fiber rolls are placed at the toe and on the face of slopes, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce erosion.

- Applications**
- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
 - At the end of a downward slope where it transitions to a steeper slope
 - Along the perimeter of a project
 - As check dams in unlined ditches
 - Down-slope of exposed soil areas
 - Around temporary stockpiles
 - As temporary curbs for conveying water to catch basins and pipe slope drains
 - For catch basin protection

- Limitations**
- | | |
|------------------------------|---------------------------------------|
| Drainage area – N/A | Maximum slope – See Design Parameters |
| Minimum bedrock depth – N/A | Minimum water table - N/A |
| NRCS soil type - ABCD | Freeze/thaw – good |
| Drainage/flood control – yes | |
- Fiber rolls are not effective unless trenched.
 - Fiber rolls at the toe of slopes greater than 5:1 (H:V) should be a minimum of 20 in. diameter or installations achieving the same protection (i.e., stacked smaller diameter fiber rolls, etc.).
 - Difficult to move once saturated.
 - If not properly staked and trenched in, fiber rolls can be transported by high flows.
 - Fiber rolls have a very limited sediment capture zone.
 - Fiber rolls should not be used on slopes subject to creep, slumping, or landslide.

- Targeted Pollutants** Sediment
- Design Parameters** Locate fiber rolls on level contours spaced as follows:
- Slope inclination of 4:1 or flatter: Fiber rolls should be placed at a maximum interval of 20 ft.
 - Slope inclination between 4:1 and 2:1: Fiber rolls should be placed at a maximum interval of 15 ft (A closer spacing is more effective.).
 - Slope inclination 2:1 or greater: Fiber rolls should be placed at a maximum interval of 10 ft (A closer spacing is more effective.).

Construction Guidelines

- Fiber rolls should be either prefabricated rolls or rolled tubes of erosion control blanket. Field rolled fiber roll is assembled by rolling the length of erosion control blanket into a tube of minimum 8 in. diameter and binding the roll at each end and every 4 ft along the length of the roll with jute-type twine.
- Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
- Stake fiber rolls into a 2 to 4 in.-deep trench with a width equal to the diameter of the fiber roll. Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center. Use wood stakes with a nominal classification of 0.75 x 0.75 in. and minimum length of 24 in.
- If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.

Maintenance

- Inspect prior to forecast rain, daily during extended rain events, after rain events, weekly during the rainy season, and at 2-week intervals during the non-rainy season.
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface.
- Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- If fiber rolls are used for erosion control, such as in a mini-check dam, sediment removal should not be required as long as the system continues to control the grade. Sediment control BMPs will likely be required in conjunction with this type of application.