

6.5 Filter Berm



Description

Filter berms are sediment trapping practices that utilize a compost/mulch material. They are typically installed with pneumatic equipment. Filter berms reduce sediment from runoff by slowing and filtering runoff, and dissipating flow.

Conditions Where Practice Applies

Filter berms are appropriate on nearly level ground or slopes up to 5:1, where runoff occurs as sheet flow. Filter berms cannot effectively treat flows in gullies, ditches or channels. For more severe conditions see specifications for temporary diversions, sediment traps, and sediment basins.

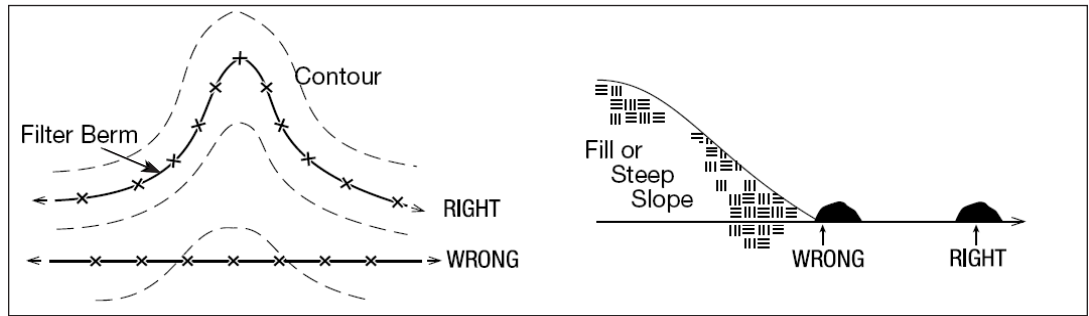
Design Criteria

Compost filter berms used as sediment control practice require an adequately constructed berm constructed on the contour, that is, on a level line across the site's topography. While silt fences rely primarily on settling, compost filter berms filter runoff as it passes through the practice. To accomplish this, runoff must be intercepted on the contour to insure that sheet flow is not concentrated into rills or channels.

Materials – Compost/mulch used for filter berms shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations, including time and temperature data indicating effective weed seed, pathogen and insect larvae kill. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth.

Materials should meet the following requirements: pH between 5.0-8.0; 100% passing a 3" sieve, 90% to 100% passing a 1" sieve, 70% to 100% passing a 3/4", no more than 50% shall pass a 1/4" sieve; moisture content is less than 60%; material shall be relatively free (<1% by dry weight) of inert or foreign man made materials.

Level Contour – Filter berms must be placed on the level contour of the land so that flows are dissipated into uniform sheet flow that has less energy for transporting sediment. Filter berms should never concentrate runoff, which will occur if it is placed up and down slopes rather than on the level contour.



Flat Slopes – If at all possible, filter berms should be placed away from the toe of a slope and on the flattest area available. This allows the sheet flow energy to dissipate and allows for a greater storage area for sediments.

Steeper Slopes – For placement on steeper slopes follow the spacing recommendations on the following table.

Drainage Area – Follow recommendations on following table

Table 6.5.1 Filter Berm Spacing for General Applications *Install Parallel Along Contours As Follows		
Ratio (H:V)	% Slope	Recommended Spacing
< 20:1	5% or less	300 foot with a maximum of 1 acre per 500 lineal feet
20:1 - 10:1	5 to 10%	75 foot intervals
9:1 - 5:1	10 to 20%	50 foot intervals

Flow Around Ends – To prevent water from flowing around the ends of the Filter berm each end must be constructed up-slope so that the ends are at a higher elevation.

Vegetation – Filter berm may be vegetated for a more permanent placement such as wetlands and natural areas.

References

Standard Specification for Compost for Erosion/Sediment Control (Filter Berms)

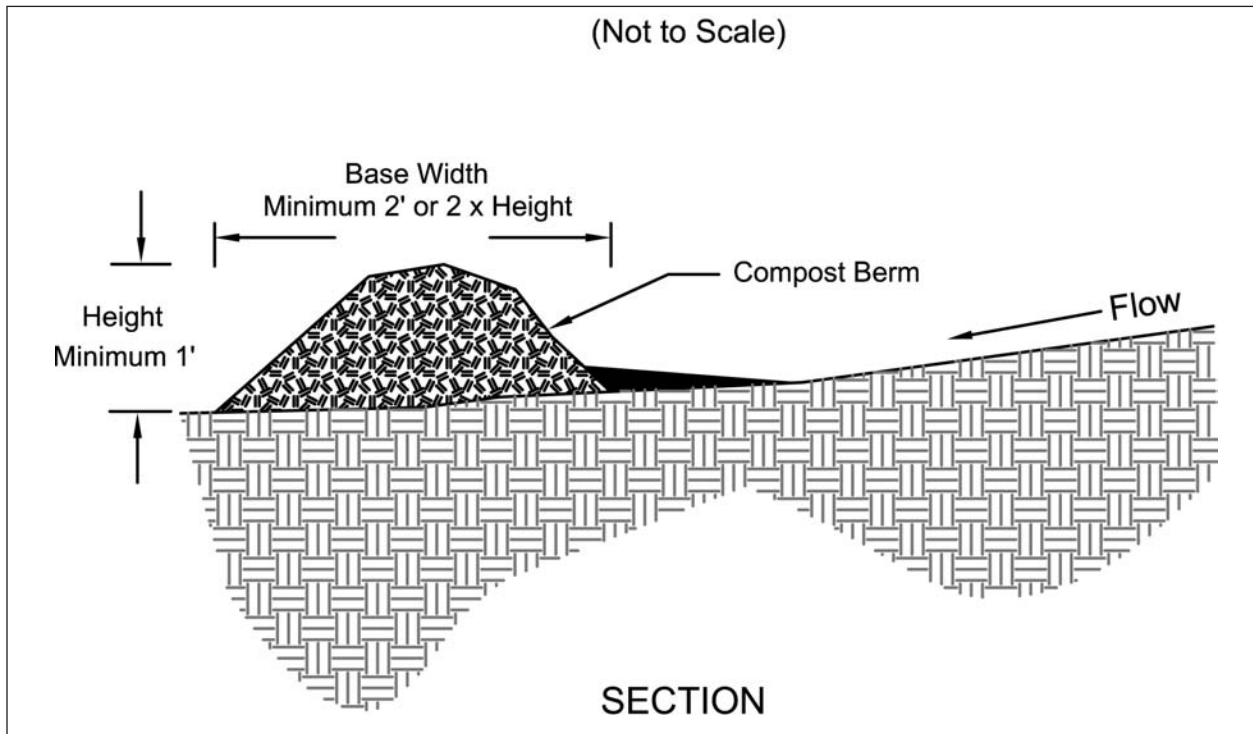
<http://www.iaasla.org/NEWS/FILES/AASHTO-Filterberm6.doc>

www.dot.state.pa.us/Pennidot/Bureaus/ChiefEng.nsf/spec%20filter%20berms?OpenPage-28k

http://tammi.tamu.edu/erosion_control_fact_sheet.pdf Using compost for erosion controls and revegetation, S. Mukhtar Texas Cooperative Extension, The Texas A & M University System. Prepared in cooperation with the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency.

<http://www.ces.uga.edu/pubcd/B1200.htm>

Specifications
for
Filter Berm



1. Materials – Compost used for filter berms shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 1/4" to 3".
2. Installation – Filter berms will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional berms shall be provided at the top and as needed mid-slope.

Filter berms are not to be used in concentrated flow situations or in runoff channels.
3. Maintenance – Inspect filter berms after each significant rain, maintaining the berms in a functional condition at all times.

Remove sediments collected at the base of the filter berms when they reach 1/3 of the exposed height of the practice.

Where the filter berm deteriorates or fails it will be, it will be repaired or replaced with a more effective alternative.
4. Removal – Filter berms no longer needed will be dispersed on site in a manner that will facilitate seeding.